Technical Reference Guide
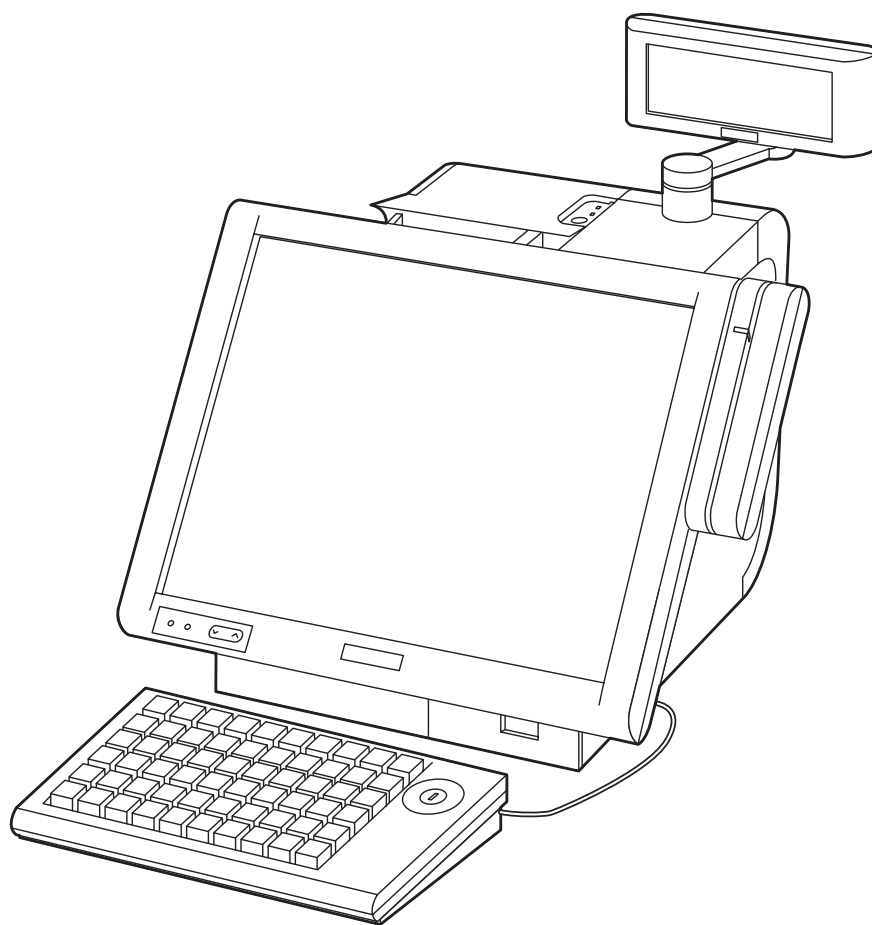
IR-700

EPSON

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Revision Information

Revision	Page	Changed item and Contents
Rev. A		Newly established
Rev.B	1-5	Add the Interface.
	1-6	Change the Software configuration.
	1-7, 2-2, 6, 22, Chapter 7	Add the RAID event watch tool.
	1-8, 2-2,	Add the Epson Remote Maintenance Software.
	1-15,18 to 20	Add tne Dimension of the Customer Display, the Vertical stand, the 28KB and the MSR unit.
	1-24	Add the specification of the DM-D120.
	2-11 to 16, 24 to 29	Add the Dual Display settings.
	2-34, 45, 46	Add the setting of power management.
	2-49 to 51	Change the Setup procedure for Windows XP Professional Locally Procured Edition.
	3-2, 50	Add the Dummy Cover
	3-2, 51, 52	Add the Printer Tray
	3-2, 62 to 66	Add the Powered USB board
Rev.C	2-1, 3-40	Add the note of handling the HDD.
	2-48	Add the note about installation of Windows XP Professional Locally Procured Edition.
	3-49	Add the printer DIP switch setting when using the ERM.
Rev.D	1-3, 7, 21, 2-1, 32 -45, 74, 77 4-1, 2, 5-13, 15, 7-20, A-6, B-2	Add the Windows Embedded for Point of Service.

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product..

⚠ *WARNING:*

Provides information that must be followed carefully to avoid bodily injury.

⚠ *CAUTION:*

Provides information that must be observed to prevent damage to the equipment or loss of data.

❏ Possibility of causing bodily injuries.

❏ Possibility of causing physical damage.

❏ Possibility of causing information loss.

✎ *Note:*
Provides important information and useful tips on the operation of the equipment and the necessary limitation matters to maintain the performance of the product,

Precautions

⚠ *WARNING:*

❏ Turn off the power switch immediately and unplug the power cord if the IR-700 produces smoke, a strange odor, or unusual noise.
Continued use may lead to fire or electric shock. Contact your dealer or an EPSON service center for advice.

❏ Never disassemble or modify this product.
Tampering with this product may result in injury, fire or electric shock.

❏ For your own safety, never attempt to make repairs yourself.

❏ Do not disassemble or modify.

❏ Injury, fire, or electric shock may result.

❏ Do not insert or unplug the power plug with wet hands.

❏ Electric shock may result.

❏ Do not put foreign objects into or drop the product.

❏ Fire or electric shock may result.

❏ Turn off the IR-700 power switch immediately and unplug the power cord if a liquid such as water gets inside, and contact your dealer or EPSON service center for advice.

⚠ *WARNING*

❏ Fire or electric shock may result.

❏ Plug it in to a household outlet by itself.

❏ Do not put many plugs into one outlet. Fire may result.

❏ Ensure easy access to the outlet so that the power plug can be unplugged immediately in an emergency.

❏ Handle the power cord with care.
 Fire or electric shock may result if the product is used in an improper manner.

  • Do not tamper with the power cord.

  • Do not put heavy objects on the power cord.

  • Do not bend, wrench, or pull it forcibly

  • Do not wire close to thermal appliances.

  • Do not plug in a power cable with foreign particles such as dust adhered to it.

  • Make sure to insert the power plug as far as it will go.

  • Replace the power cord if it is damaged.

❏ Regularly unplug the power plug from the outlet and clean up the ends and between the blades.

  • If the power plug is plugged into the outlet over a long period, it gets dusty, and may lead to fire due to a short.

❏ Do not disassemble, charge, deform, heat, or throw the built-in lithium battery into a fire.

  • Injuries due to bursting or chemical reaction may result.

❏ Do not obstruct the ventilation of the product.

 If the ventilation is obstructed, heat is accumulated and fire may result.

  • Do not install it in a bookstand or the like which are narrow and poorly ventilated.

  • Do not place it on a carpet or blanket.

  • Do not cover it with a blanket, table cloth, or the like.

❏ Do not plug the telephone cable into the drawer kick out connector of the printer. Damage to the telephone line or printer may result.

⚠*CAUTION*

❏ When turning the power of ɪʀ-700 off once and turning it on again, wait at least 10 seconds after turning it off before turning it on again.

- Turning the power on immediately may result in abnormal booting.

❏ Handle the package with care during transport, unpacking, and when burning it.

- Injury from cutting hands, etc. with the edge of the paper may result.

❏ Do not wire the various cables in any manner other than that specified in this manual.

- Incorrect wiring may lead to malfunction or fire.

❏ Do not install the product in an unsteady place (unsteady table, tilted place, etc.).

- Injury from dropping or toppling of the product may result.

❏ Do not install the product in a humid or dusty place.

- A malfunction such as paper jam in the printer, fire, or electric shock may result.

❏ Do not use the product in places where flammable substances (gasoline, benzine, or thinner) exist in the air.

- Explosion or fire may result.

❏ Do not stand on this product or put heavy things on it.

- Injury from toppling or breaking of the product may result.

❏ Avoid dropping, bumping, heavy vibration, or physical shock.

- Injury and damage to the product may result from breaking the glass of the LCD.

❏ Do not use alcohol, benzine, thinner, trichloroethylene, or ketone solvent when removing stains.

- Deterioration or breakage of plastic and rubber parts may result.

❏ For safety, be sure to unplug the power plug if the product is not used over a long period.

❏ Do not connect to an AC power supply which is close to a device generating a power surge or electrical noise. In particular, keep the product away from any device using a large motor.

- Malfunction of IR-700 and POS system may result.

❏ Be sure to plug the power cable into the AC inlet of the product before plugging the power plug into the outlet.

❏ Make sure to insert the power cable into the AC inlet of the product as far as it will go.

⚠ *CAUTION*

❏ Be sure to unplug the power cable from the outlet before unplugging it from the AC inlet of the product.

❏ Unplug the power cable while holding the connector part. Do not unplug the power cable by pulling the cable.

❏ Understand the product specifications (See [Power Specifications]).

❏ Do not short-circuit the connector pin when the power cable for the printer is connected to the power connector for TM.

- A short-circuit when the connecter is not connected to the printer may result because the pins are exposed.

❏ Do not use the product other than with specified voltage.

- Fire may result.

❏ Do not lift the product by holding the rear cover, the LCD, the POS keyboard, or MSR.

- Injury from breaking or dropping the product may result.

❏ Avoid having the total power capacity of each device receiving power from the product exceed the power capacity of the product.

- Malfunction may result. See appendix regarding the power capacity.

❏ Be sure to use the product with the rear cover attached.

- Using the product without the rear cover may cause fire or malfunction by allowing foreign particles into the product.

❏ The printer is hot during or after use, and it could cause burns if you touch it. Let the head cool before touching it.

❏ Be careful with the auto cutter found in the printer.

❏ Do not forcibly rotate or change the angle of the customer display.

- Damage to the customer display or column may result.

❏ Do not use magnetic cards with the following abnormalities. Malfunction or serious degradation in function may result.

- Magnetic surface is dirty. Wet with water, etc. Foreign particles are adhered. Has chips or breakage.

✎ *Note*

❑ Be sure to use DIMM, HDD, and CPU that we supplied or specified.

❑ Be sure to use an expanded board, the operation of which has been checked by us, to install to the PCI slot. Contact your dealer for the operation check list. If a product other than those on the list is used, it is your responsibility to sufficiently evaluate it.

❑ When a commercial application is installed, contact the dealer where you purchased the product.

Regarding this Manual

Purpose of this Manual

This manual intends to provide necessary information for POS system development, design and installation using IR-700 to engineers.

Contents of this Manual

The following list is a summary. All tables of contents are at the end of this section. Refer there for more information and page numbers.

Composition of this manual is as follows.

Chapter 1 [IR-700 System Overview]	Describes features of IR-700, hardware configuration, software configuration, part names, etc.
Chapter 2 [OS Setup]	Describes the preinstalled OS (Windows 2000/ XP) and driver configuration and settings.
Chapter 3 [Hardware Setup]	Describes how to set up IR-700 and options.
Chapter 4 [Utilities]	Describes various utilities and setup procedures.
Chapter 5 [BIOS Functions]	Describes BIOS setup and its settings.
Chapter 6 [DIAG Device Diagnostic Program]	Describes functions and directions of DIAG Device Diagnostic Program.
Chapter 7 [RAID]	Describes functions and directions of the RAID system of IR-700.
Appendix A [Detailed Hardware Specifications]	Describes the hardware specifications of IR-700.
Appendix B [Operating the Product Continuously (24-hours/day)]	Describes the operating the product continuously (24-hours/day) of IR-700.

Related Manuals

Related Manuals

Name	Comments
IR-700 User's Manual	Describes the operation procedure.
IR-700 Service Manual	Describes the maintenance and repair procedure for IR-700 service engineers.

Contents

Appendix-A   Hardware Specifications

Appendix-B   Operating the Product Continuously (24-hours/day)

Chapter 1

IR-700 System Overview

IR-700

IR-700 is an all in one PC-based POS, equipped with a touch panel LCD and a printer. With a reduction of 40% in its footprint (compared to the IR-320), and an excellent design that will blend into the ambience of your store, it supports counter-based work.
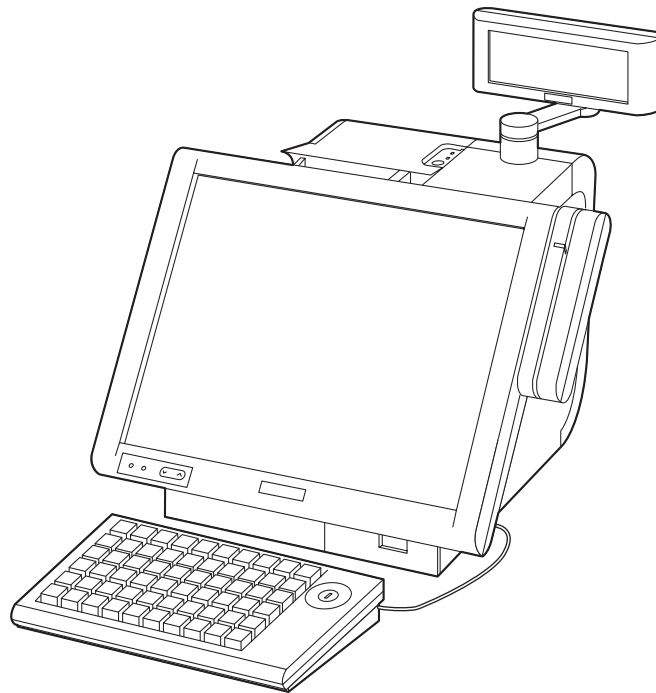
Model configurations

The IR-700 is available in various models, offering different combinations of LCD unit, printer paper width, OS, and color. For detailed information, please refer to our catalog, or contact one of our sales offices.

IR-700 Features

❏ Compact design

- The footprint is 250 mm in width and 340 mm in depth for the vertical type (rear cover included). The horizontal type is 250mm in width and 261mm in depth. It can be placed even where there is limited counter space.

- The simple round design allows the cables to be stored compactly. It can successfully be installed even in counter setups where the back of the POS is exposed, such as face-to-face counters, as it will blend into the ambience of the store.

❏ Easy to use, reliable hardware

- The thermal printer uses Epson's highly-regarded technology, bringing with it an advanced level of reliability. With a printer cover that is easy to open using either hand, the roll of paper can be quickly replaced.

- The product line includes LCD displays of 12.1" SVGA and 15.0" XGA, using a high luminance level TFT screen. A touch panel that minimizes fingerprints is incorporated. Its angle can be adjusted so that it is easy to read, even in a bright room.

- Three kinds of customer displays are available for various purposes. By changing the positioning and angle, adjustments can be made so that the customers and the operators can easily view the display.

- A Magnetic Stripe Reader (MSR) and extended keyboard can be attached to the side of the LCD display.

❏ Stable operation and downtime reduction

- RAID1 (mirroring) is supported in models with 2 hard drives installed. Even if one HDD fails, the other HDD will continue to operate.

- Maintenance has been improved, including easier replacement of the hard drive and the main board. This contributes to reduced downtime.

- The unit can be started up using the CD/DVD-ROM drive or a floppy disc drive connected to the USB port.

- The manager key is used for the optional 60-key POS keyboard (DM-KX060), and up to 7 access levels can be set up, depending on the type of key. Access levels to the system can be set up by the owner or manager, etc.

❏ High-performance

- The CPU offers power and speed, which is needed for complex programming and data processing, using a Pentium M/Celeron M and a maximum of 1 GB of memory, as well as a high-capacity HDD (80GB or more).

- The use of an HDD connected by 3.5" serial ATA helps to improve reliability.

- Windows 2000 Professional SP4, Windows XP Professional SP2 or Windows Embedded for Point of Service (WEPOS) is used as the OS. Based on OLE-POS, it can be flexibly applied to a variety of system configurations.

- Equipped with 4 serial ports, a parallel port, 2 PCI slots, and 4 USB ports, extensibility is assured. Serial ports output +5V or +12V.

❏ Compatibility with Epson's IR-320 series is assured. When used as a replacement, support on the application side can be minimized.

- Windows 2000 Professional SP4 or Windows XP Professional SP2 is used as the OS. The IR-320's Windows 2000 Professional model makes replacement easy.

- OPOS ADK is used. If programs are developed through OPOS ADK, you do not have to make major changes in the whole application, but only the SO part, even if a peripheral device has been changed.

- The printer is compatible with the IR-320. Paper width is 80mm. Can be used without major changes on the application side (when using OPOS and APD)

- DM-D110/210/500, which are also used in the IR-320, can be used for the customer display. In addition, the DM-D120 is compatible with the DM-D110. Can be used without major changes on the application side (when using OPOS and APD)

- For the definition data of the 28-key POS keyboard and MSR, the IR-310/320 definition data can be used.

Hardware

Hardware configurations

IR-700's hardware can be attached to the options as follows - the configuration makes it easy to replace HDDs and Main boards.

Rear side

HDD

Main board set

Front side

MSR unit
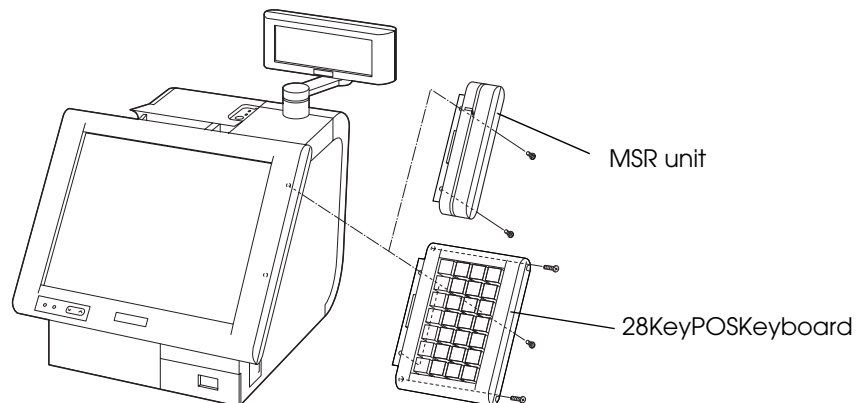
28KeyPOSKeyboard

Difference between PC/AT PC and the IR-700

Compared to PC/AT PCs, the following points are different.

❏ Built-in thermal printer, customer display, and cash drawer can be attached.

❏ LCD unit equipped with a touch panel is integrated.

❏ 28 key POS keyboard unit and MSR unit can be mounted on the LCD unit.

❏ Equipped with 4 serial ports, a parallel port, 2 PCI slots, 4 USB ports, extensibility is assured. Serial ports output +5V or +12V.

Interface

Interfaces of the IR-700 are as follows:

Internal I/F	System	External I/F	
		COM1	
		COM2	
Printer TM-T88IIIX	COM3		
		COM4 (DM-D)	Customer Display
		COM5	
		COM6	
		LPT	
LCD TouchPanel 28Key POS Keyboard MSR	USB	USB (Side Bootable)	FDD/CD-ROM
		USB (Rear)	60Key POS Keyboard
		Ethernet	
		Display	Display (Multi Monitor)
		MIC	
		LINE Out	
		Keyboard (PS/2)	
		Mouse (PS2)	
Output	Input	Input	Output
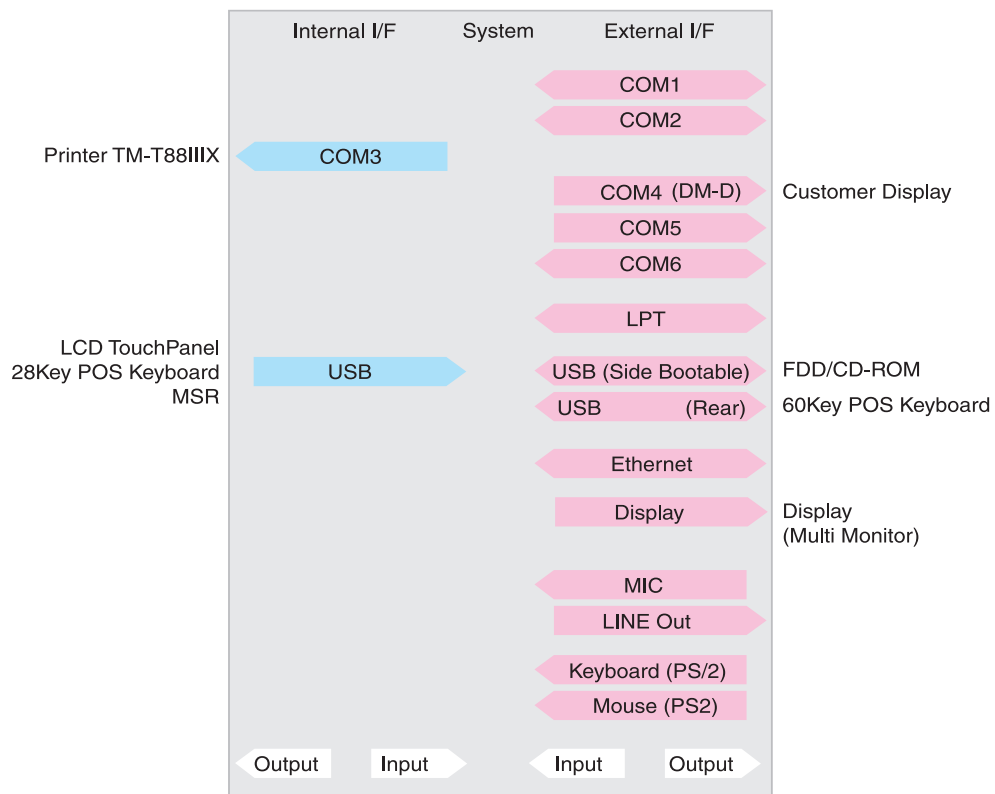
Software configuration

The configuration of the IR-700's software is as follows:
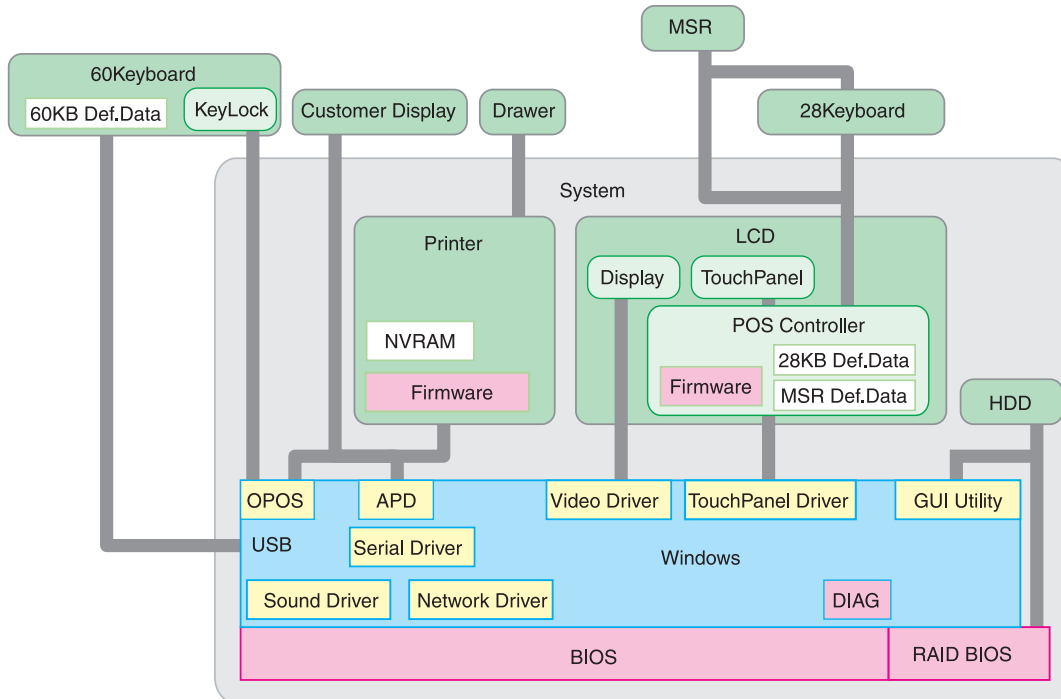
BIOS

The BIOS uses the AMI BIOS as a Core BIOS and supports the Plug & Play BIOS, APM BIOS, ACPI BIOS 2.0 etc. Setting up the BIOS's settings and changes to the CMOS can be performed using a utility. The default settings can be saved on a floppy disc and loaded on another IR-700.

The diagnostic functions (Power On Self Test) inspect the system environment and the hardware when the power is on.

Device diagnostic utility (DIAG)

The device diagnostic utility can inspect the communication line between devices connecting to IR-700 and check the setting of main board.

The devices that can be tested are as follows:

- CPU, main board, memory

- HDD

- LCD display

- Printer, customer display

The devices that cannot be tested are as follows:

- LCD touch panel

- 28-key POS keyboard and MSR unit

- PCI card

- USB Access Device (60-key POS keyboard included)

Operating system

IR-700 works on the following operating systems.

- Windows 2000 Professional SP4 or later

- Windows XP Professional SP2 or later

- Windows Embedded for Point of Service (WEPOS)

Epson offers HDDs with an OS installed. In addition, a dedicated IR-700 and the utility driver installation CD-ROM are available as well. Therefore, an OS that the customers bring in can be used.

✎ *Note:*
❏ Be sure to back up your data. When you request the repair of an HDD, please be sure to bring the OS disk.

RAID BIOS/Config utility

Models with 2 HDDs can build RAID1 (mirroring). The RAID BIOS checks the RAID status during startup, and controls the RAID during operation. Even if one HDD fails during startup or operation, another HDD can continue to operate the system.

In addition, basic matters such as starting and stopping RAID are executed.

GUI utility (RAID Utility for Windows)

The GUI utility monitors the RAID status during Windows operation. When RAID events occur, it can notify users by email or buzzer. RAID status can also be confirmed.

RAID Event Watch tool

The RAID Event Watch tool monitors events of the GUI utility. When RAID events occur, it can display popup messages in front of an application and create event logs for Windows.

POS controller

Control touch panel/28-key POS keyboard/MSR. Stored in LCD POS board within the LCD unit. Those are input at USB port 5.

A tool to set the 28-key POS Keyboard definition data and MSR is provided.

OLE-POS

The PC/AT architecture allows the use of tools such as Visual BASIC and Visual C++ when developing the IR-700 applications. As the OLE-POS drivers are provided for POS peripheral devices, optimal applications for wide use are easily developed. For the latest OLE-POS, please contact our sales offices. OPOS drivers vary from the printer driver for general Windows. It is assumed that the programming is executed in a development environment, such as Visual BASIC. This driver is not supposed to print through applications on the market.

Printer driver-APD

Adding control of printer, customer display, cash drawer to the printer driver for general Windows enables the driver to control especially for POS purposes.

Epson Remote Maintenance Software

With the Remote Maintenance Software, you can manage clients by issuing various jobs from a server to clients (IR-700) and obtain the execution results via the internet or LAN system. It enables you to rewrite or obtain definition data of clients in many shops or on many floors all at once. You can also rewrite the printer firmware. Therefore, a maintenance person does not need to go to every client to rewrite data, which makes maintenance more effective.

Options

IR-700 offers the following options.

Peripheral devices for the IR-700 include the following.

Hardware		Model number
POS Keyboard Unit	28-KeyPOS Keyboard	DM-KX028
	60-KeyPOS Keyboard	DM-KX060
MSR Unit		DM-MX123
Customer display		DM-D120 (Pole unit DP-506 included)
		DM-D110
		DM-D210
		DM-D500
Customer display pole unit		DP-506
Powered USB Board		OI-X06
Printer	Printer unit	TM-T88IIIX
	Printer tray	OI-X01
	Dummy cover	OI-X02

Operation Testing Products for IR

The Operation Confirmed items are marketed by Epson and are built-in, included, or connected to an Epson POS product, and operation by has been confirmed by Epson. Epson can also offer reference information for the selection of peripheral devices to the customer who constructs a system using Epson POS products. Please inquire what kind of device can be used from Epson or the selling agent.

This operation confirmation evaluates the equipment in test environments and conditions, but it does not guarantee the operation. Therefore, procurement and evaluation by the customer are required.

Part Names

The part names are as follows:

Printer control panel

Printer cover

Printer unit

LCD lock lever

LCD unit

Power LED

HDD LED

60-Key POS Keyboard (option)

LCD intensity control button

Key lock key

Customer display Power switch

Customer display (Option)

Pole

rear cover

MSR unit (option)

28-Key POS Keyboard (option)

Side cover

Front cover

Power switch

USB

Front cover open

ON

OFF

Power switch Disabling switch

Power switch

PRINTER RESET

RESET

TM Printer switch

Reset switch

Side cover open

USB

Speaker volume

Rear

Rear Cover   Printer unit

TM printer power connector

HDD

AC inlet

L   R

COM6

COM5

Parallel

Mouse

Keyboard

Drawer

PCI slot

COM1   COM2   Display DM-D   USB

Line out

Microphone

Ethernet

Powerd USB

24V Jack   24V port

12V port   5V port

Vertical type (OI-X03) part names

Customer display power switch

Pole

Front cover

Side cover

LCD unit

LCD lock lever

Back cover

Stand cover

Customer display (option)

Printer unit

Printer cover

Paper feed switch

No paper LED

LCD intensity control button

Power LED   HDD LED
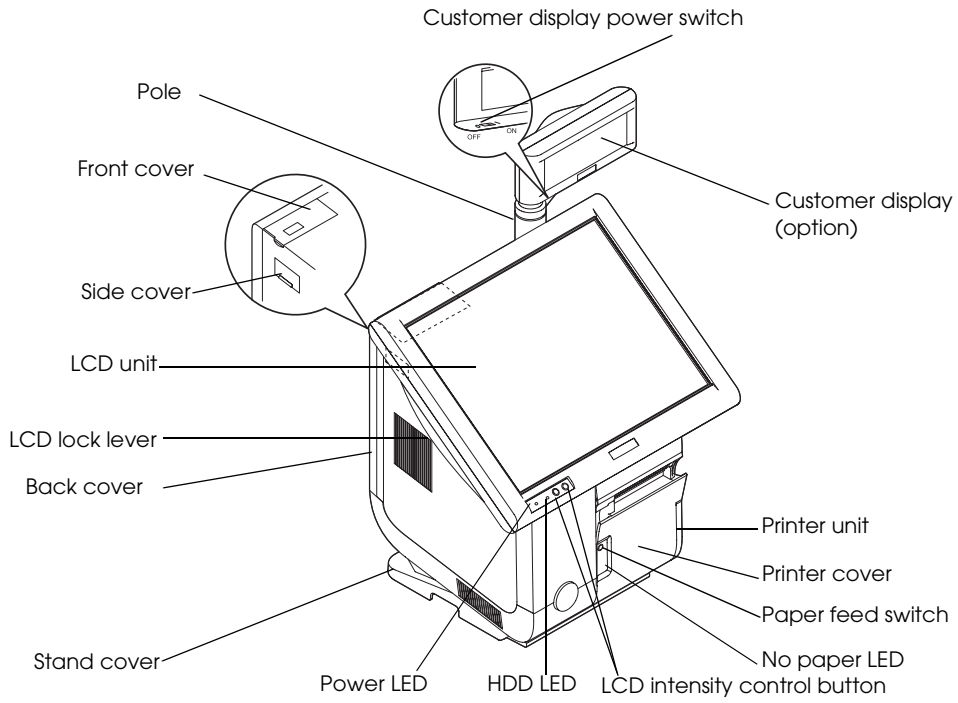
Front cover and side cover open

System rest switch   Power switch disabling switch   TM Printer reset switch

Power switch

Speaker volume

USB
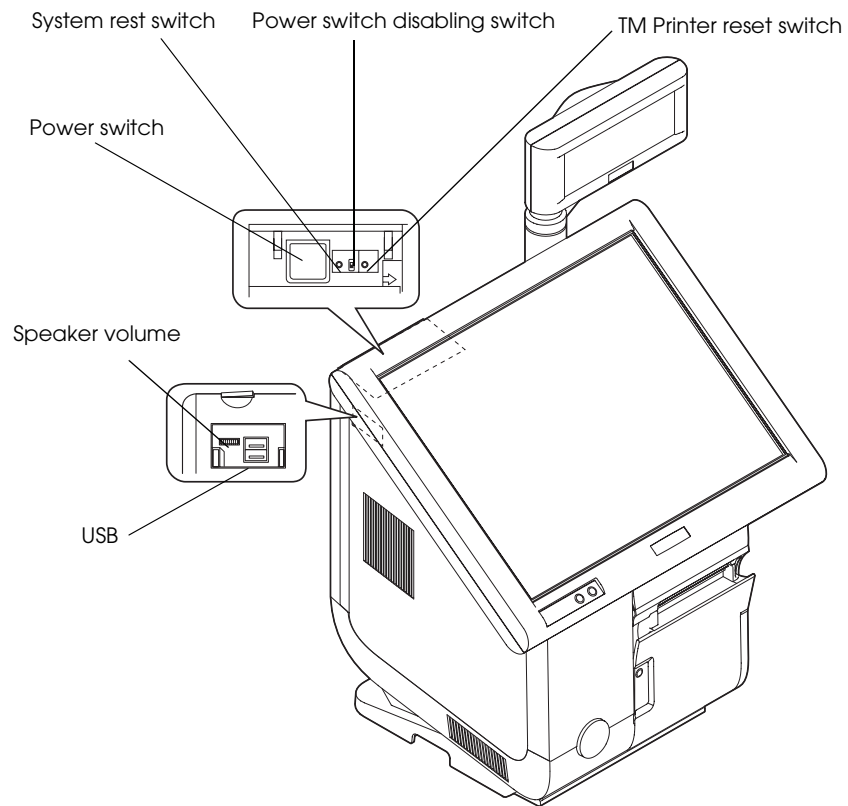
Jumper Locations and Settings

Main board jumpers

The following is the main board's layout showing jumper locations.
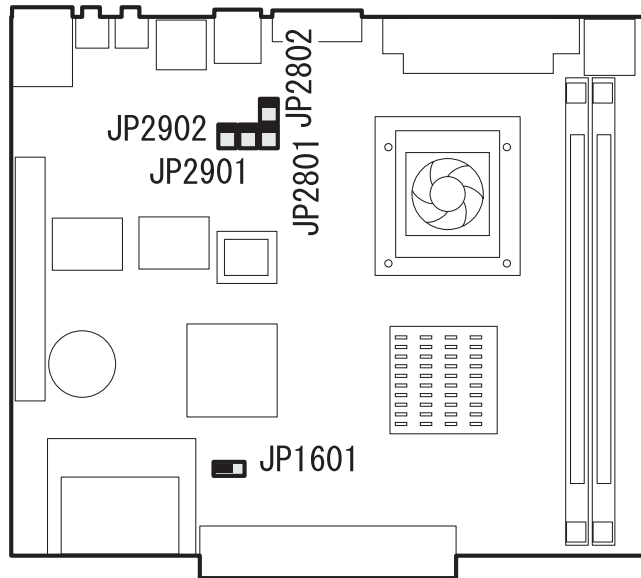
Jumper block		Default	+5V output	+12V output	CMOS clear
JP 2801	COM1	1 - 2	3 - 4	5 - 6	---
JP 2802	COM2	1 - 2	3 - 4	5 - 6	---
JP 2901	COM6	1 - 2	3 - 4	5 - 6	---
JP 2902	COM5	1 - 2	3 - 4	5 - 6	---
JP 1601	CMOS clear	1 - 2	---	---	2 - 3

IR-700 operation

See the IR-700 users manual.

Movable Range of the Customer Display

The customer display can be moved in the following range.

275°

300°
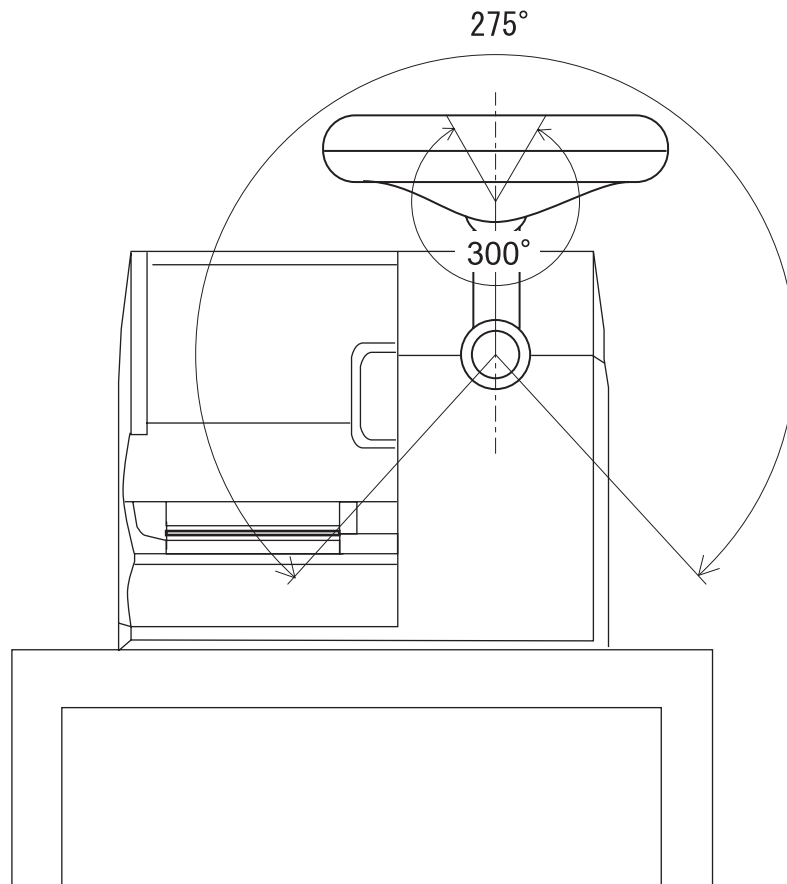
Dimensions

Connected 15" LCD unit
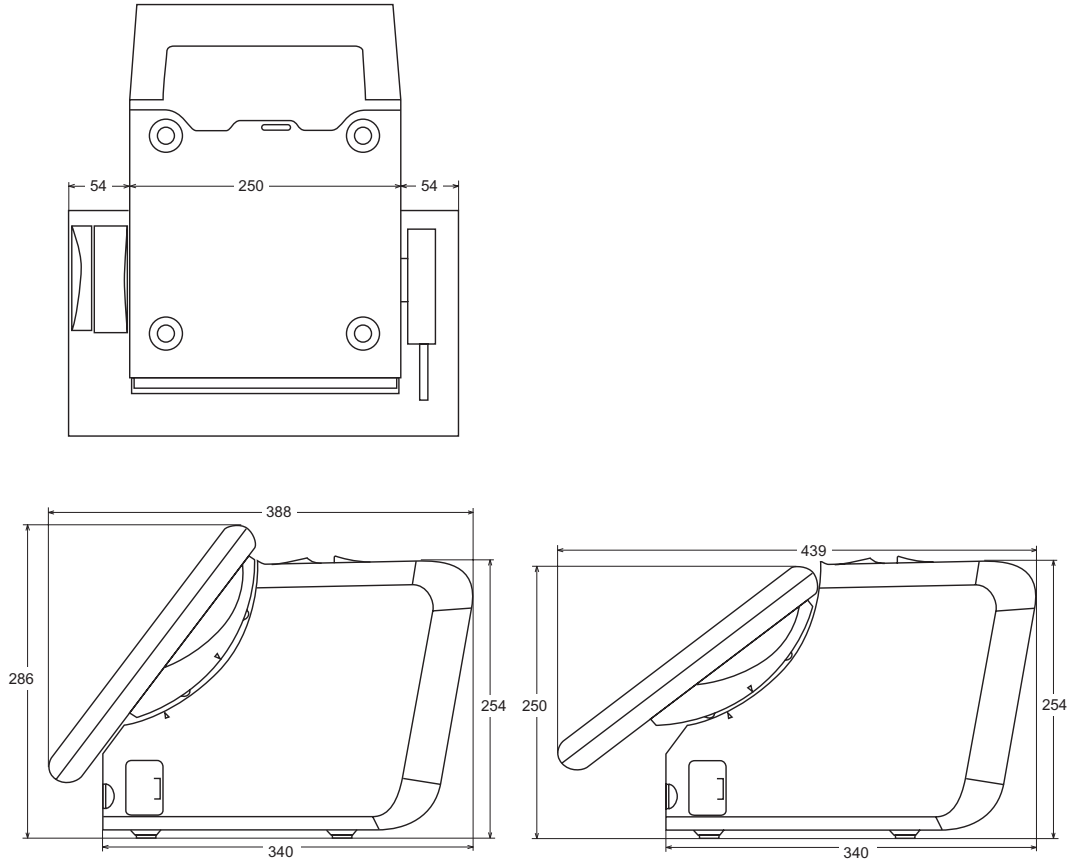
The size shown above is for reference and is not guaranteed.

Connected 12.1" LCD unit
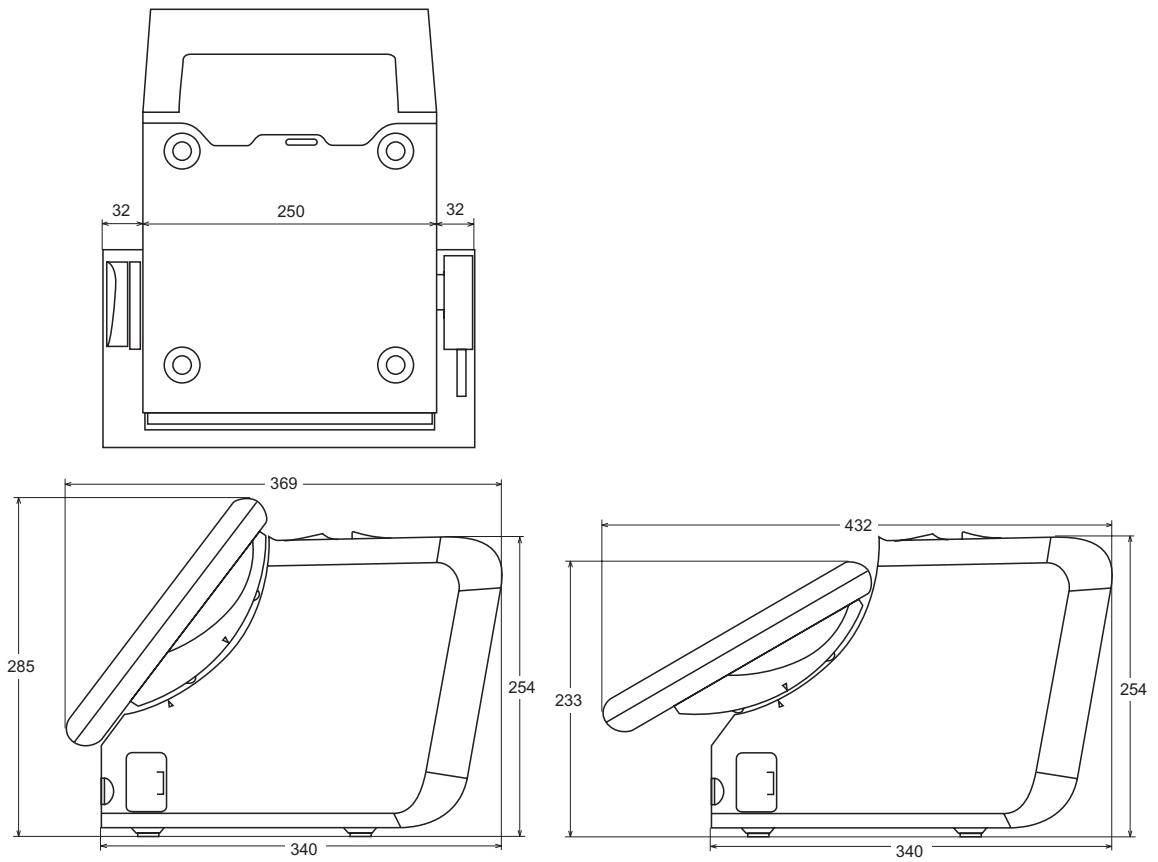
The size shown above is for reference and is not guaranteed.

Connected 15" LCD unit (Vertical Stand type)
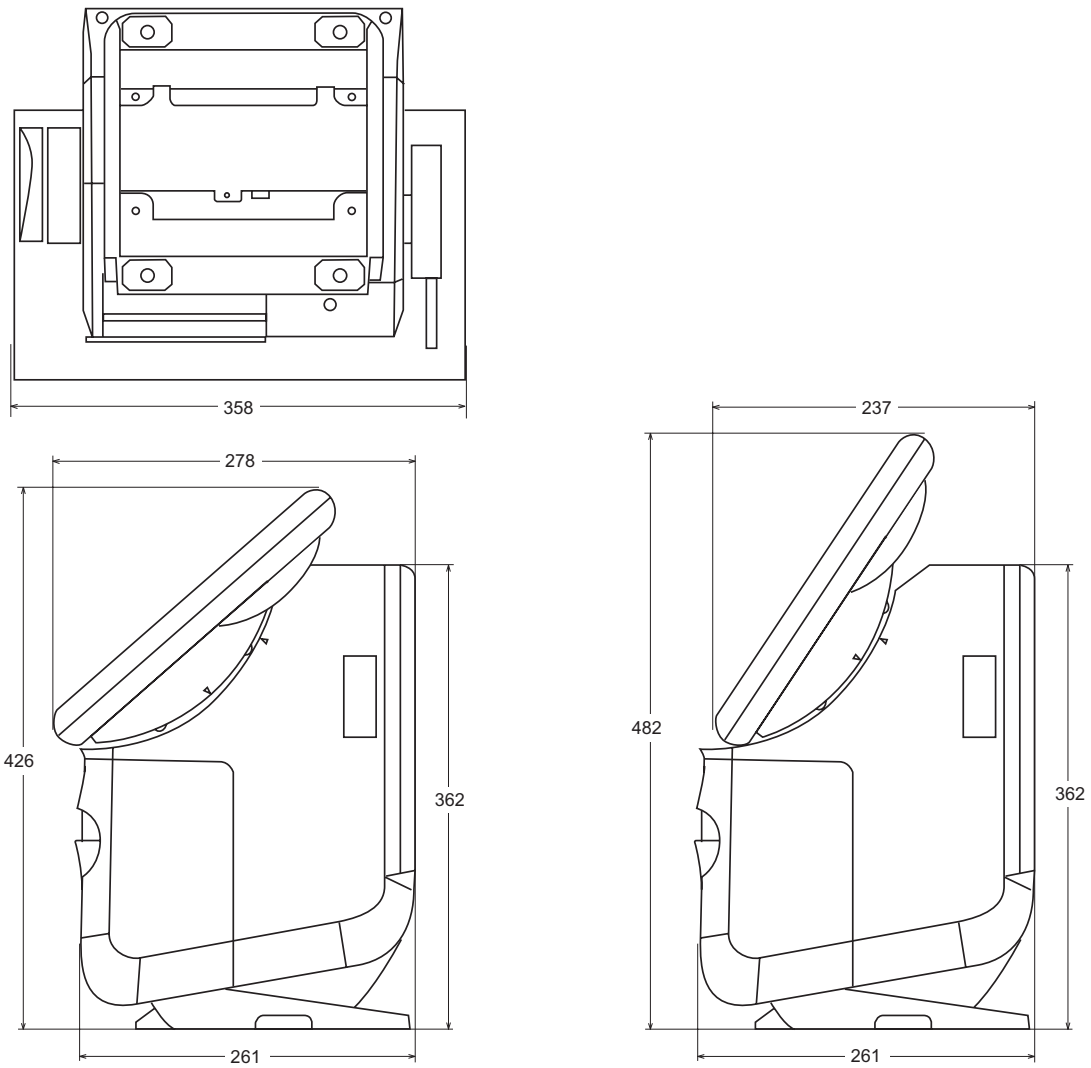
The size shown above is for reference and is not guaranteed.

Connected 12.1" LCD unit (Vertical Stand type)
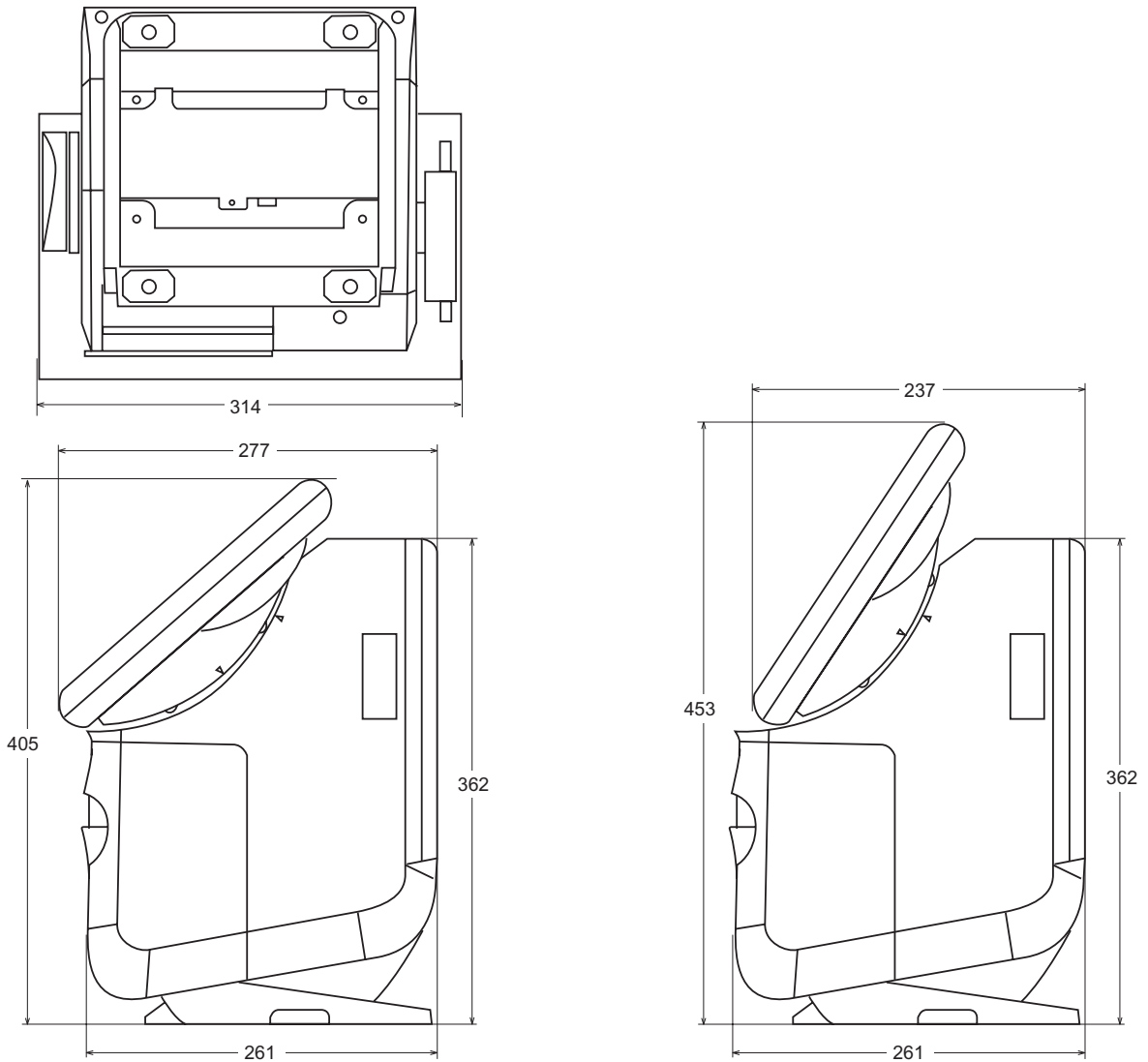
The size shown above is for reference and is not guaranteed.

Connected 28-key POS keyboard and MSR Unit
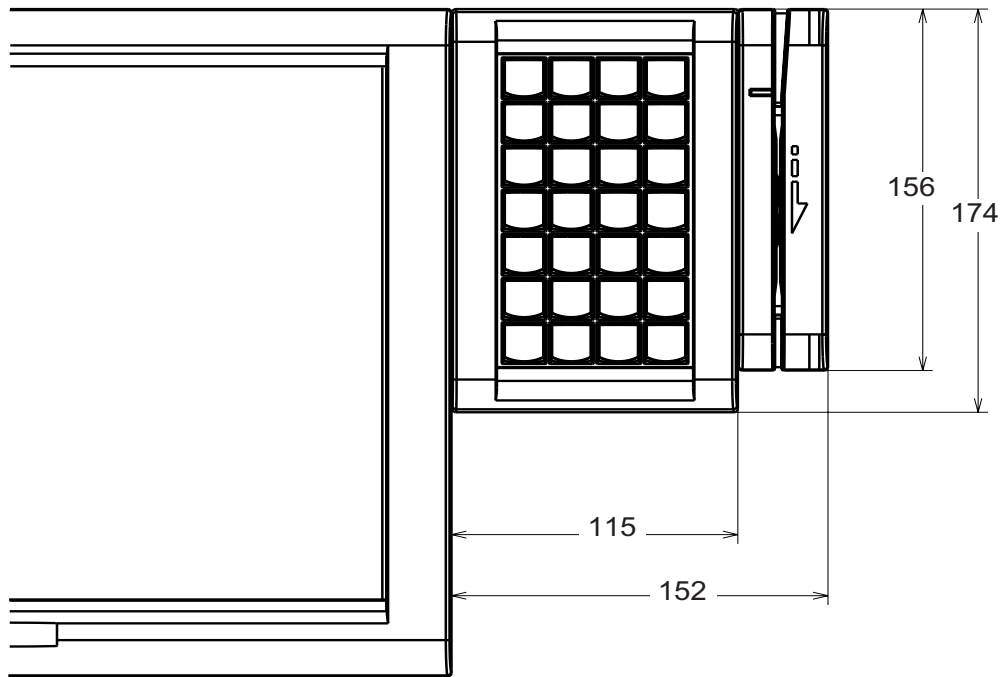
The size shown above is for reference and is not guaranteed.

Specifications

IR-700

Item		Specification
CPU	**CPU**	Intel® Pentium®M or Intel Celeron®M
	Socket	mPGA479M socket
	Secondary cache memory	Built in the CPU. Intel Pentium M 2 MB Intel Celeron M 512 KB
Memory	**Main memory**	184 pin DDR SDRAM DIMM slot × 2, Max. 1 GB (Supports up to DDR DIMM PC2700.)
	BIOS ROM	8 MBit
Chip set		Intel 855GME/ICH4 chip set
Video controller		Built-in chip set (Supports dual display.)
Sub storage	**Chip set**	1024 × 768; 256K colors (16770 K)
	Video controller	800 × 600; 256K colors (16770 K)
Sub storage	**HDD**	Serial ATA interface with 1 or 2 built in-type 3.5″ HDD. (RAID-ready)
	CF interface	On-board 1 slot
Interface	**Ethernet** (*1)	10 BASE-T / 100 BASE-TX is included as standard. Wake On LAN available
	Keyboard/mouse	× 1 PS/2-compliant (6-pin mini-DIN) × 1 PS/2 mouse-compliant (6-pin mini DIN)
	Serial (*2)	× 4 (D-sub male 9-pin) Setting jumper allows output + 5 V or +12 V to pin 1. Supports Wake up function (Modem Ring On) of pin 9 (RI)
	Parallel	× 1 (D-sub female 25-pin) Supports EPP/ECP
	CRT (*3)	× 1 (D-sub female 15-pin)
	USB (*4)	External Hi-speed USB (USB 2.0) × 4 (high/full/low speed support) Internal × 3 (For POS controller, printer extension, and Powered USB board)
	Customer display	× 1 (RJ-45)
	Drawer (DK) (*5)	× 1 (Installed in the TM printer.)
	Power supply for the external printer	× 1 (When the TM printer is not installed.)
	Audio functions	Sound can be output to the built-in speaker. External line-out and MIC are provided.
Expansion slot	**PCI slot**	× 2 (3.3 V power supply is provided.) (Revision 2.2)
Speaker		Built-in monaural speaker (with hardware volume control)
Printer unit	**180 dpi/80 mm width model**	Thermal receipt printer 150 mm/s
BIOS		Supports ACPI 2.0b/APM 1.2/Plug & Play/DMI
Supported OS		Windows®2000 Professional SP4 or later Windows® XP Professional SP2 or later Windows®Embedded for Point of Service
POS control firmware		Dedicated keyboard, MSR unit, firmware for touch panel unit control

Item	Specification
Lithium battery	The IM-700 is internally equipped with a lithium non-rechargeable battery that supplies the backup voltage to the RTC and the RTC's built-in CMOS RAM when AC power is not supplied. Battery type: CR2032 Battery life: Approximately 5 years
Power supply	AC 100 V ~ 240 V/50 Hz ~ 60 Hz Max. 4.0 A
Temperature	Operation: 5 °C ~ 35 °C Storage: -10 °C ~ 50 °C
Humidity	Operation: 30%RH ~ 80%RH (No condensation) Storage: 30%RH ~ 90%RH (No condensation)
Case color	Epson cool white/Epson dark gray
Overall dimensions	250 mm (W) × 340 mm (D) × 254 mm (H) (Base unit only, rear cover included, LCD and customer display excluded)
Mass	Approx. 6.4 kg (TM-printer, LCD, and HDD excluded)

*1. Ethernet controller/sound controller are included in the standard package, and are separable in the BIOS setting.
*2. Apart from the 4 external ports, the dedicated TM printer and the customer display use 1 port each. (COM3 for the dedicated TM printer, and COM4 for customer display by default setting) To use the external COM5 and COM6, an unneeded device must be disabled by BIOS setting, and interrupt request line (IRQ) must be assigned to COM5 and COM6.
*3. Contents can be displayed separately on the CRT and LCD using the dual display function.
*4. Apart from the 4 external ports, 3 ports are provided for the POS controller, for printer extension (reserve), and for powered USB board extension.
*5. When the dedicated TM printer is attached, a drawer can be connected to this interface.

LCD

Item		DM-LX150XG	DM-LX121SV
LCD	Size	Type 15"	Type 12"
	Type	Color TFT	
	Resolution	1024 × 768 dots	800 × 600 dots
	Display color	256K (Approx. 260K)	
Backlight	Number of backlights	2 lights	
	Brightness	280 cd/m^2 typ.	272 cd/m^2 typ.
Touch panel	Method	Resistive film (Data can be entered using the touch panel.)	
	Surface solidity	3H or more (JIS K-5600, ISO/DIS 15184)	
	Positioning accuracy	± 5 mm maximum	
	Fingerprint resistance	Supported	
Waterproof		Touch panel surface equivalent to IEC 60529 (JIS C 0920 IPX1)	
External interface		1, For DM-MX123 or DM-KX028	
LCD		POWER LED, HDD LED	
Power supply		DC +3.3, +12 V (Supplied by the IR-700.)	
Overall dimensions		355 mm (W) × 280 mm (D) × 75 mm (H)	314 mm (W) × 254 mm (D) × 89 mm (H)
Mass		Approx. 3.5 kg	Approx. 2.8 kg

Printer TM-T88IIIX

Item	180 dpi/80 mm width
Print head	Thermal line
Dot density	180 dpi × 180 dpi (Dots per 25.4 mm {1"})
Print control	Unidirectional with friction feed
Print width	72 mm, 512 dots
Characters per line (Default)	Font A: 42, Font B: 56
Character spacing (Default)	Font A: 0.28 mm (2 dots) Font B: 0.28 mm (2 dots)
Character size (W × H)	Standard/double-height/double-width/double-height, double-width Font A: 1.41 × 3.39 mm/1.41 × 6.77 mm/2.82 × 3.39 mm/2.82 × 6.77 mm Font B: 0.99 × 2.40 mm/0.99 × 4.80 mm/1.98 × 2.40 mm/1.98 × 4.80 mm
Character sets	Alphanumeric: 95, International: 37, Extended graphic: 128 × 11 page (Including 1 space page)
Print speed	High-speed mode: Approx. 150 mm/s max. 47.2 lps max. (When paper feed is at 3.18 mm), 35.5 lps max. (4.23 mm, density level 1); print speed is adjusted automatically, depending on the voltage and print head temperature. Low power consumption mode: approx. 16.5 lps (When paper feed is at 4.23 mm), 70 mm/s Ladder bar code: approx. 42 mm/s
Paper feed speed	Approx. 150 mm/s, continuous paper feeding
Line spacing (default)	4.23 mm
Roll paper (single-ply)	Size: width 79.5 mm ± 0.5 mm Max. outside diameter: 80 mm Roll paper spool diameter: inside 12 mm, outside 18 mm
Recommended thermal roll paper	Specified: NTP080-80 (Nakagawa Manufacturing Co., Ltd.) Original: TF50KS-E (Nippon Paper Industries Co., Ltd.) Packaged roll paper: Original: PD150R (Oji Paper Mfg. Co.,Ltd.)
Interface	Dedicated for the IR-700 (serial)
Receive buffer	4 KB/45 byte
D.K.D function	2 drives
Power supply	DC +24 V ± 7%, supplied by the IR-700
Life	Mechanism: 15,000,000 lines Thermal head: 100 million pulse, 100 km Autocutter: 1,500,000 cuts
Overall dimension	143.6 mm (W) × 132.8 mm (D) × 197 mm (H)
Mass	Approx. 1.5 kg

lps: lines per second, dpi: dots per 25.4 mm {1"} (dots per inch)

28 POS Keyboard DM-KX028

Item		Specification
Key switch	**Alignment**	7 × 4
	Number of keys	28
Connection	**Connector for connecting to the main unit**	Can be connected to the side of the LCD unit with the dedicated 40 pin connector.
	Connector for connecting an external device	DM-MX123 can be connected with the dedicated 40-pin connector.
Power supply		DM-LX series supplies DC +3.3 V
Overall dimensions		137 mm (W) × 174 mm (D) × 58 mm (H)
Mass		Approx. 500 g

60 POS Keyboard DM-KX060

Item		Specification
Key switch	Alignment	6 × 10
	Number of keys	60
Keylock		8 positions
Interface	Connector for connecting to the main unit	USB 1.1 compliant Type A connector
	USB downstream	× 2 USB 1.1 compliant
Overall dimensions		250 mm (W) × 140 mm (D) × 52 mm (H)
Cable length		550 mm
Mass		Approx. 800 g

MSR Unit DM-MX123

Item	Specification
Supported card	ISO 7811/JIS X6301 Type 1, track 1, 2, 3
Connection	Can be connected to the side of the LCD unit or to the DM-KX028 with the dedicated 40-pin connector.
Power supply	DC 3.3 V
Overall dimensions	54 mm (W) × 156 mm (D) × 53 mm (H)
Mass	Approx. 200 g

Customer Display Unit DM-D120

Item		Specification
Display	Character	40 characters (20 columns × 2 lines)
	Color	Green (505 mm)
	Luminance	690 cd/m^2
Character	Character type	Alphanumeric characters: 95 International characters: 37 Extended graphics: 128 × 12 pages
	Character structure	5 × 7 dot matrix Cursor
	Character size	3.5 mm × 5.0 mm
Power supply		DC 12V (provided from the IR-700)
Overall dimensions		178 mm (W) × 60 mm (D)
	Height	When the crank poll is used: 130 mm When the straight poll is used: 167 mm
Poll		Crank poll (DP-506), Straight poll
Tilt angle		48° at maximum (4 levels, 5 positions)
Horizontal rotation	Display section	300° at maximum
	Crank poll section (DP-506)	270° at maximum
Mass	When the crank poll is used	Approx. 357 g
	When the straight poll is used: 167 mm	Approx. 324 g

Chapter 2

OS and Drivers

Outline of This Chapter

This chapter tells which Operating Systems and Drivers can be used and how to install and uninstall them.

⚠ CAUTION:

Don't write anything, such as an application to an HDD that is removed from the IR-700.

The vibration and impact can cause trouble and the failure of the HDD.

Operating Systems

The following Operating Systems can be used for the IR-700.

❏ Windows 2000 Professional SP4   (There is a version preinstalled by EPSON)

❏ Windows XP Professional Edition SP2   (There is a version preinstalled by EPSON)

❏ Windows Embedded for Point of Service (WEPOS)
   (There is a version preinstalled by EPSON)

Drivers and Utilities

Drivers for using the IR-700 are on the Driver CD-ROM included with the IR-700. If the operating system is pre-installed on the HDD, the printer driver, the customer display driver, and the ERM are not installed.

Driver CD-ROM for the IR-700

In case you use a locally procured OS on the IR-700, the drivers for using the peripheral devices are on this CD-ROM.

The CD-ROM directory is shown below.

```
Root                    CDVER.TAG
 |--- COMMON             Common OS utility drivers
 | |--- 60KEYCFG     :       60-key POS keyboard definition utility
 | |--- APDRV        :       Advanced Printer driver
 | |--- ERM          :       Epson Remote Maintenance Software
 | |--- OPOSADK      :       OPOS ADK(Printer, Customer Display and Drawer)
 | |--- POSDVCFG     :       MSR setting utility / 28-key Definition Utility
 |--- DOS62             Drivers for MS-DOS
 | |--- NETWORK      :       Network drivers
 |--- WIN2K             Drivers for Windows2000
 | |--- 60KEYCFG     :       60-keyPOSkeyboard driver
 | |--- CHIPSET      :       Chipset drivers
 | |--- EPSERIAL     :       Serial Driver
 | |--- LOGON        :       Logon tool
 | |--- NETWORK      :       Network drivers
 | |--- POSDEV       :       POS device controller Driver
 | |--- SATARAID     :       SATA RAID related driver folder
 | | |--- DRIVER     :       SATA-RAID Driver
 | |   |--- TOOL     :       GUI Utility, RAID Event Monitoring Tool
 | |--- SOUND        :       Sound drivers
 | | |--- config     :
 | | |--- patch      :
 | | | |--- win98    :
 | | |--- wdm        :
 | |--- TOUCH        :       Touch Panel drivers
 | |--- VIVEO        :       Video drivers
 |--- WINXP             Drivers for Windows XP
  |--- 60KEY         :        60-key POS Keyboard drivers
  |--- CHIPSET       :       Chipset drivers
  |--- EPSERIAL      :       Serial tool
  |--- NETWORK       :       Network drivers
  |--- POSDEV        :       POS device controller Driver
  |--- SATARAID      :        SATA RAID related driver folder
  | |--- DRIVER      :       SATA-RAID Driver
  | |--- TOOL        :       GUI Utility, RAID Event Monitoring Tool
  |--- SOUND         :       Sound drivers
  | |--- config      :
  | |--- patch       :
  | | |--- win98     :
  | |--- wdm         :
  |--- TOUCH         :       Touch Panel drivers
  |--- VIDEO         :       Video drivers
```

Readme.txt files are in both the root directory and in subdirectories of the root directory.

1. The Readme.txt file in the root directory contains an overview of this CD-ROM and refers to the Readme.txt files in the various subdirectories.

2. The Readme.txt files in the operating system subdirectories explain driver installation/ un-installation for each operating system.

3. Readme.txt files for KEYCFG, OPOS-ADK, and APDRV are included with the software.

Windows 2000 Pre-Installed Model

The exclusive EPSON utility and drivers for using IR-700 are pre-installed in the HDD with the pre-installed Windows 2000 Professional.
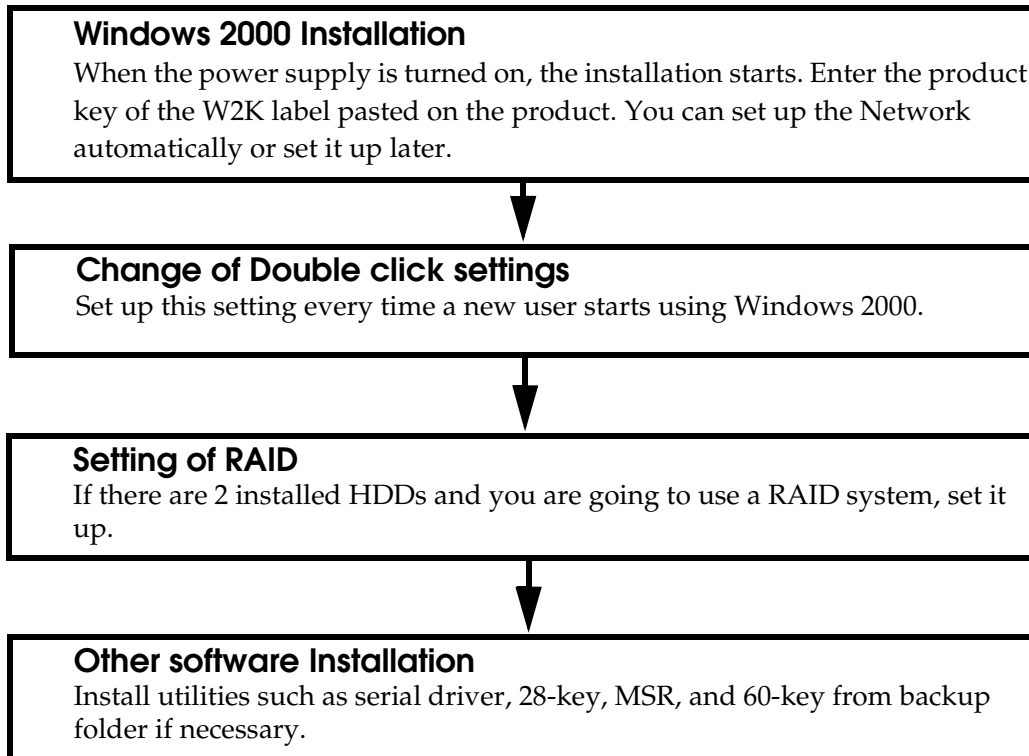
Installation Procedure

Windows 2000 Installation

When the power supply is turned on, the installation starts. Enter the product key of the W2K label pasted on the product. You can set up the Network automatically or set it up later.

Change of Double click settings

Set up this setting every time a new user starts using Windows 2000.

Setting of RAID

If there are 2 installed HDDs and you are going to use a RAID system, set it up.

Other software Installation

Install utilities such as serial driver, 28-key, MSR, and 60-key from backup folder if necessary.

Formatting the hard disk

The hard disk is composed of one partition of up to 10 GB as a system area. For a hard disk of more than 10 GB, the excess area other than the system area is not yet formatted. This drive can be converted to NTFS using the Convert command. Use the disk administrator when creating a drive in the unused area. The start-up drive has been formatted to the following file system.

- File system: FAT32

- Volume label: Windows 2000

Pre-installed software

❏ Microsoft Windows 2000 Professional

❏ Microsoft Windows 2000 Service Pack 4

❏ Microsoft Windows 2000 Multilingual User Interface Pack

❏ Intel Chipset software installation utility

❏ Intel Video driver

❏ Intel Network driver

❏ Realtek Sound driver

❏ Silicon Image SATA-RAID driver

❏ EPSON Touch Panel driver

❏ EPSON Logon tool *1

❏ EPSON Pos Device Utilities *1

❏ EPSON 60-key POS keyboard definition utility *1

❏ EPSON Serial driver *1

✎ *Note:*
1: These are not installed during the auto installation procedure.

Version of the Pre-installation HDD

To confirm the version of the HDD, see the file HDVER.TAG in the root directory of the boot drive. This file is text-formatted and can be read using Notepad or a similar text editor. The file HDVER.TAG has the following contents:

```
[HD Information]

MODEL=IM-700

OS=Windows2000

LANG=Dutch/English/French/German/Italian/Portuguese/Russian/Spanish

VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows.

```
|--- Backup
|       |--- 60KEYCFG      :      60-key POS keyboard definition utility
|       |     |--- DRIVER  :      60-key POS keyboard driver
|       |     |--- TOOL    :       Utility
|       |--- CHIPSET       :       Chipset driver backup folder
|       |--- EPSERIAL      :       EPSON Serial driver backup folder
|       |--- LOGON         :      Logon tool backup folder
|       |--- NETWORK       :       Network driver backup folder
|       |--- POSDVCFG      :       POS device (28-key POS keyboard, MSR) related utility
|       |                          backup folder
|       |     |--- DRIVER  :       POS device controller drivers
|       |     |--- TOOL    :       Utility
|       |--- SATARAID      :       SATA RAID related driver backup folder
|       |     |--- DRIVER  :       SATA-RAID driver
|       |     |--- TOOL    :       GUI Utility,  RAID Event Monitoring Tool
|       |--- Sound         :      Sound driver backup folder
|       |     |--- config  :
|       |     |--- patch   :
|       |     |--- wdm     :
|       |--- TOUCH         :      Touch Panel driver backup folder
|       |--- VIDEO         :      Video driver backup folder
|--- I386                  :      Setup file folder
|--- Mui                   :      Microsoft Windows XP Multilingual User Interface Pack
|--- Program Files         :      Windows utility folders
|--- WINNT                 :      Windows folders
```

The I386 directory may be deleted after the addition of the Windows 2000 application and the addition / change of the driver.

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up into CD-R or other media. After being backed up, these directories may be deleted.

If you install the optional CD-R/RW drive, you need to get software for CD-R/RW writing. The software is not supplied by EPSON.

Windows 2000 Setup Procedure

⚠ CAUTION

Be sure to keep the keyboard connected. If necessary, start the setup procedure after connecting the mouse.
The keyboard is necessary for inputting the product ID and password. The keyboard is also necessary for user verification during logon to Windows 2000, even if the touch panel is in a usable state.

Windows 2000 is set up by using the following procedure.

1. Turn on the system, and boot the system from the pre-installation HDD. Windows 2000 setup will start.

2. The License Agreement screen is displayed. Check the contents, then select [I accept this agreement] and click **Next**.

3. The Regional Settings screen is displayed. Make sure the system locale, user locales and keyboard layout are set to United States, then click **Next**.

4. The Personalize Your Software screen is displayed. Input the Name and Organization, then click **Next**.

5. The Your Product Key screen is displayed. Input the product key entered on the cover of the First Step Guide in the COA (Certificate of Authenticity) package included with this product; then click **Next**.

6. The Computer Name and Administrator Password screen is displayed. Input the Computer Name and Administrator Password, then click **Next**.

7. The Date and Time Settings screen is displayed. Set the date and time, then click **Next**.

8. The Networking Settings screen is displayed. Select either Typical Settings or Custom Settings according to the environment, then click **Next**. The Networking Components screen is displayed if Custom Settings is selected. Set the settings in accordance with the environment, then click **Next**.

9. The Workgroup or Computer Domain screen is displayed. Set the settings in accordance with the environment, then click **Next**.

10. The system will start automatically when **Restart** is clicked.

11. The Network Identification Wizard starts. Click **Next**.

12. The Users of this Computer screen is displayed. Set the settings in accordance with the environment, then click **Next**.

13. The Completing the Network Identification Wizard screen is displayed. Click **Finish**.

14. Windows 2000 starts and the setup is completed.

Setting the recognition range of the double click

When Windows 2000 is installed, the permissible double click level is limited and it is difficult to double click with your finger. To change the permissible double click level, start up the EPSON Touch Panel Configuration Tool. It changes the registry key automatically. This setting makes easy to double click with your finger.

However, when a new user first logs on, the permissible level is limited because the default value of Windows is the value of the registry key. So the registry key must be modified for individual users.

When Windows 2000 is set up and a new user is created, the registry key must be modified for individual users by following the steps below.

✎ *Note*
The administrator modifies the registry key.

Method

Select Programs - Epson Touch Panel Tool - Touch Panel Configuration Tool from the Start menu. Click **OK**. (There is no need to do any other operation.)

Various Configurations (Windows 2000)

To change their configurations, use the control panel.

Setting the Network

A dialog box prompting the user to manually install the network is displayed. Set the network settings by the following procedure.

1. Open the Control Panel, then select Network and Dial-up Connections.

2. The Network and Dial-up Connections dialog box is displayed. Select Make New Connection.

3. The Network Connection Wizard starts. If the location information setting has not been completed by this time, the Location Information dialog box is displayed at this time. Set the settings in accordance with the environment, then click **OK**. If all the location information has been set, this dialog box is not displayed. Proceed to item (5) and set the settings in subsequent steps.

4. The Telephone and Modem Option dialog box is displayed. Select the location set in the previous item, then click **OK**.

5. The Network Connection Wizard opening dialog box is displayed. Click **Next**.

6. The Network Connection Type dialog box is displayed. Set the settings in accordance with the environment; then click **Next**. The dialog displayed by the following procedure is different depending on the type of the set network connection. The explanation here is for the case in which Connect directly to another computer is selected. Setting of other network connections can be accomplished in the same way by following instructions of the Network Connection Wizard.
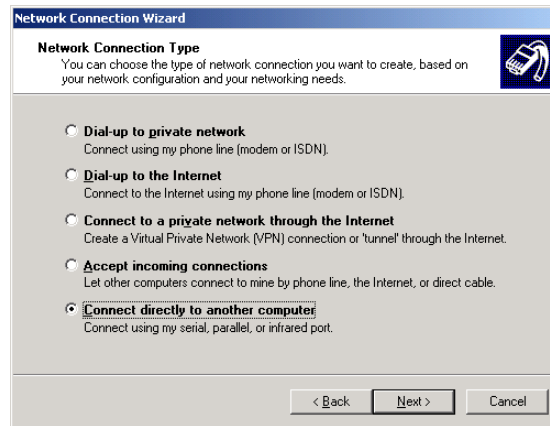
7. The Host or Guest dialog box is displayed. Set the settings in accordance with the environment, then click **Next**. The explanation here is for the case in which Host is selected.

8. The Connection Device dialog box is displayed. Set the settings in accordance with the environment, then click **Next**.

9. The Allowed Users dialog box is displayed. Set the settings in accordance with the environment, then click **Next**.

10. The Completing the Network Connection Wizard dialog box is displayed. Input the name to be given to the current settings, then click **Finish**.

11. The newly set connection is added to the Network and Dial-up Connection dialog box. To change the connection method, right click on the newly added icon, and select Properties. The settings can then be changed.

EPSON Serial Driver

When the serial port is transmitting with Windows 2000, this Driver prevents the OS from shifting to the Standby mode, and the operation of the full-on mode can be continued.

When installing the service pack, install the serial driver again.

Install

✎ *Note*
Be sure an administrator installs the serial driver.

Install the serial driver using the following procedure.

1. Execute C:\backup\epserial\Epserial.exe.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstall

Uninstall the serial driver using the following procedure.

1. Open the Control Panel and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **Yes**.

4. The Remove Programs From Your Computer dialog box is displayed. The uninstall process then begins.

5. A dialog box is displayed when uninstall is completed. Click **OK**.

Dual Display

If an external monitor is added, the IR-700 can display the same content on both the LCD display and the external monitor, or each of them can display different content (expansion of the work area).

Displaying the same content on both monitors

Follow the following procedure.

1. Select [Start]-[Settings]-[Control Panel]-[Display]

2. The [Display Properties] screen is displayed. Select the [Settings] tab and click the [Advanced] button.

3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.

4. The [Intel(R) Extreme Graphics 2 for mobile] screen is displayed. Select the [Display Devices] button and then `check` the [Intel(R) Dual Display Clone], and click the [OK] button..

5. The [Confirm the Desktop Change] screen is displayed. Click the [OK] button.

6. Each monitor displays the same content.

Displaying different content on each monitor (expansion of the work area)
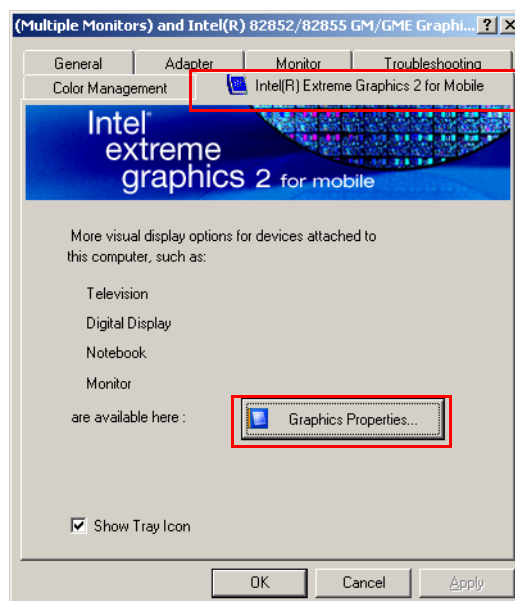
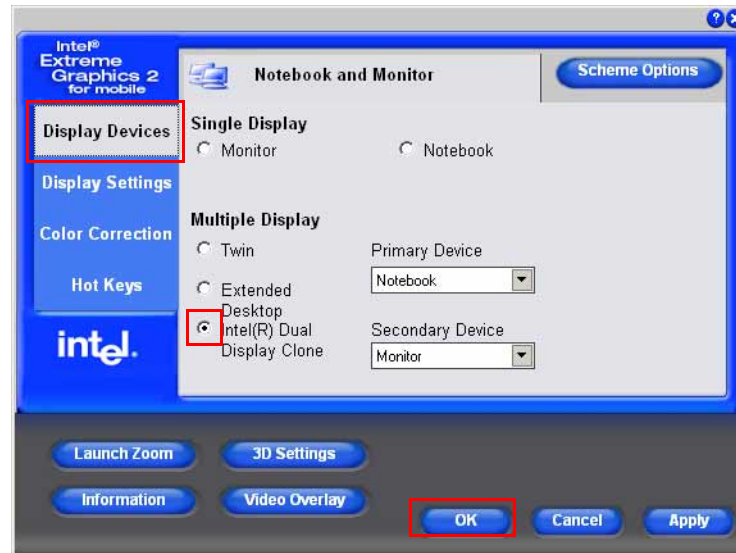Follow the following procedure.

1. Select [Start]-[Settings]-[Control Panel]-[Display]

2. The [Display Properties] screen is displayed. Select the [Settings] tab and click the [Advanced] button.

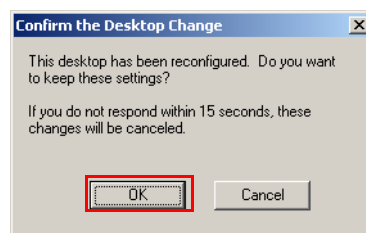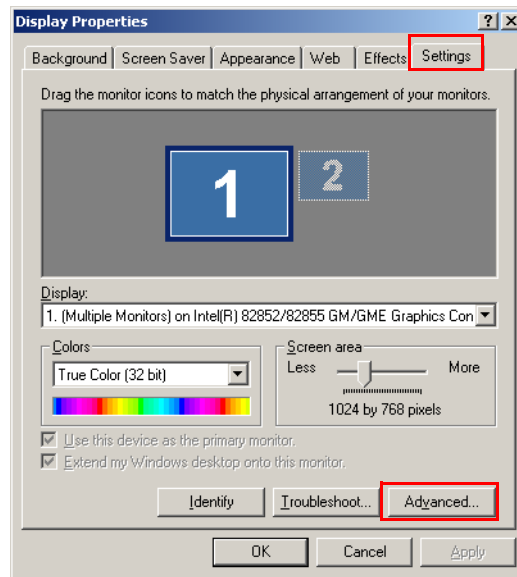3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.
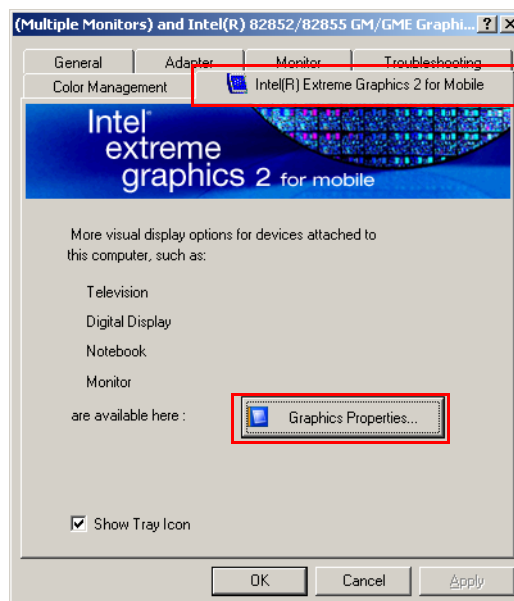
4. The [Intel(R) Extreme Graphics 2 for Mobile] screen is displayed. Select the [Display Devices] button and then `check` the [Extended Desktop] button, and click the [OK] button.
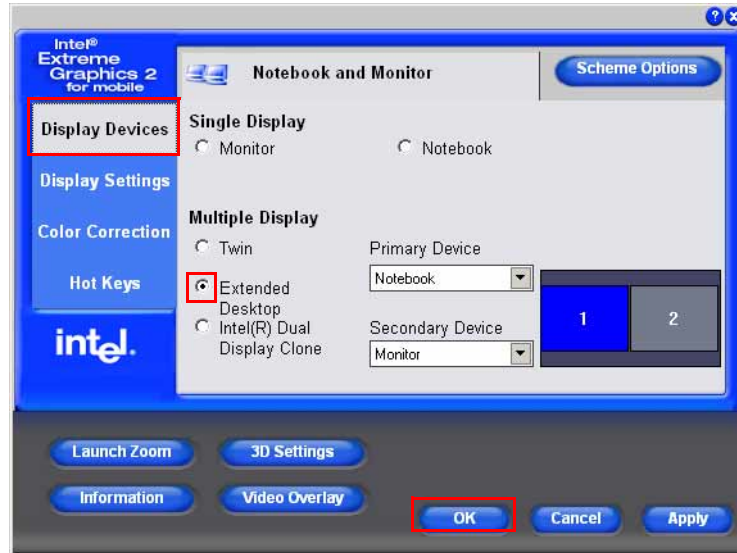
5. Change the method of allocating the work area by dragging and dropping the icons of the monitors.
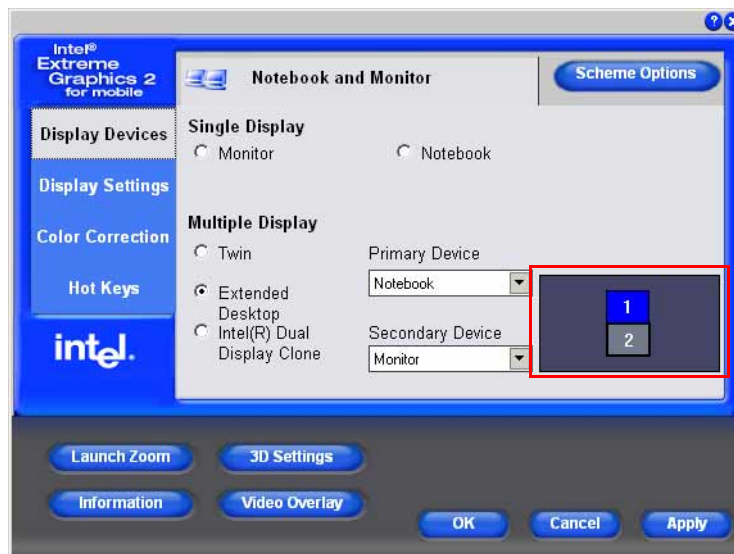
6. Click the [Display Settings] button. Change the setting of each monitor, and click the [OK] button.
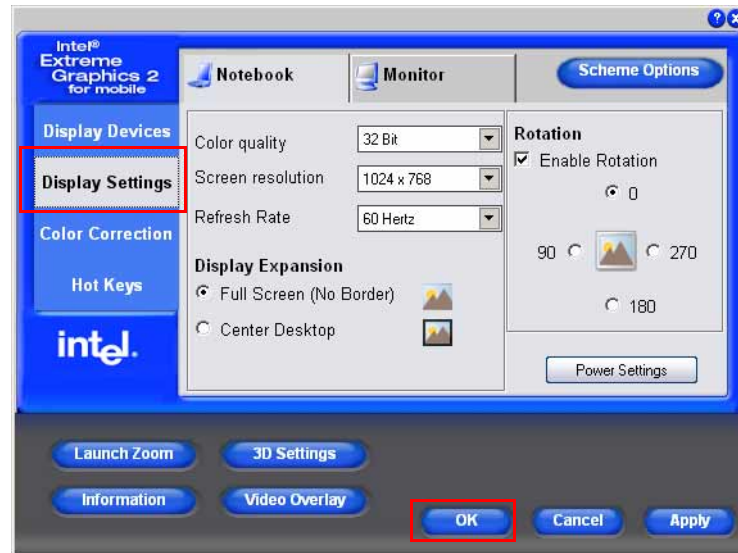
7. The [Confirm Desktop Change] screen is displayed. Click the [OK] button.
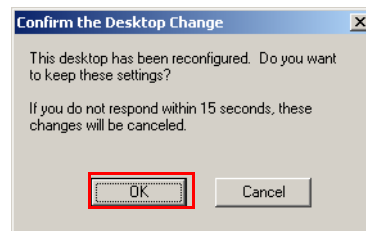
Adding Windows 2000 Applications

When adding any Windows 2000 application, specify the C:\I386 directory. In this directory, \I386 has been backed up from the Windows 2000 DVD-ROM.

Support Information

Right click the My Computer icon and select Properties from the pull down menu. Then the System properties are displayed.
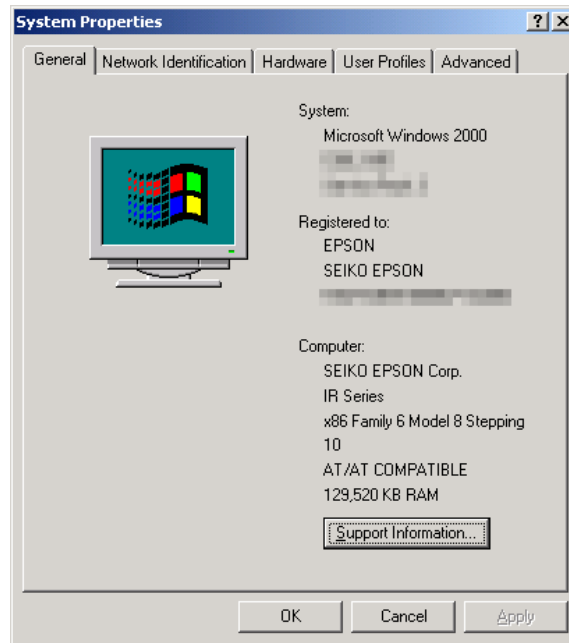
Click the **Support information** button, so the information on the contact is displayed

Recovering the OS

Preparing confirmation

Confirm the following before OS recovery.

❏ DVD-ROM drive is prepared by the user.

❏ "The Windows 2000 DVD-ROM" included with the product is used for recovering Windows 2000.

❏ In the model with 2 installed HDDs, construct the RAID first, then perform OS recovery to construct the RAID.

❏ Use the HDD included in the shipment or an unused HDD for OS recovery.

❏ The external keyboard is necessary for the recovery.

❏ In the setup of OS after recovering the OS, it is necessary to enter the product ID. In EPSON OS pre-installed model, the product ID is printed on the Windows sticker label on the side of the system.

❏ Set the BIOS setting to "Optimal Defaults." When using the customized BIOS setting, note down the BIOS setting value beforehand. After the recovery is done, you must reset it to that value.

❏ OS recovery erases all contents of the HDD. Back up the necessary data to a USB Memory Stick or other media.

Recovering method

Follow the steps below to carry out OS recovery.

1. Turn power to the IR-700 off. Pull out the power cord from the IR-700.

2. Remove the peripheral devices.

3. Install the HDD unit for which OS recovery will be done to the IR-700 main body. For the single HDD model, install it on the R side.

⚠ CAUTION:

Insert the HDD as far as you can or it may cause a poor connection.

4. Connect the external keyboard to the IR-700 keyboard connector and connect the DVD-ROM Drive to the USB connector on the side.

5. Connect the power cord to the IR-700.

6. Boot the system, press the Del key during the POST process, and the BIOS setup will start.

7. To set the BIOS to Optimal Defaults, execute Load Optimal Defaults in the Exit menu.

8. Set to the DVD-ROM model number connecting 1st Boot Device of Boot Device Priorityin the Boot menu.

9. Set the USB 2.0 ControllerMode to Hispeed in the Advanced menu.

10. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

   ```
   Save configuration changes and exit setup?
              [OK]                 [Cancel]
   ```

11. Select [OK], and press the Enter key.

12. The system will reboot. Insert the "Windows 2000 DVD-ROM" into the DVD-ROM drive.

13. The following message will appear. Select and enter the partition size of the HDD.

   ```
   Please select the system partition size.
     1: 10GB (Default size)
     F: Full size of HD.
   Please push a key of 1 or F._
   ```

14. Select the range to format as the system area on the hard disk. Press the "1" key to select 10GB or press the "F" key to select the full size. After that, the OS recovery starts.

15. When the prompt below is displayed on the screen, OS recovery work is complete.

   ```
   c:\RESTORE>_
   ```

16. Eject the "Windows 2000 DVD-ROM" from the DVD-ROM drive.

17. Reboot and start the BIOS setup utility.

18. Set USB 2.0 ControllerMode to Full Speed in the Advanced menu.

19. Set to the HDD model number connecting 1st Boot Device of Boot Device Priority in the Boot menu.

20. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

   ```
   Save configuration changes and exit setup?
           [OK]                 [Cancel]
   ```

21. Select [OK], and press the Enter key.

Detach the external keyboard.Limitation

❏ Recovery cannot be performed starting from a hard disk. You must perform recovery from a DVD-ROM.

Windows XP Pre-Installed Model

The exclusive EPSON utility and drivers for using IR-700 are pre-installed in the HDD with the pre-installed Windows XP Professional.
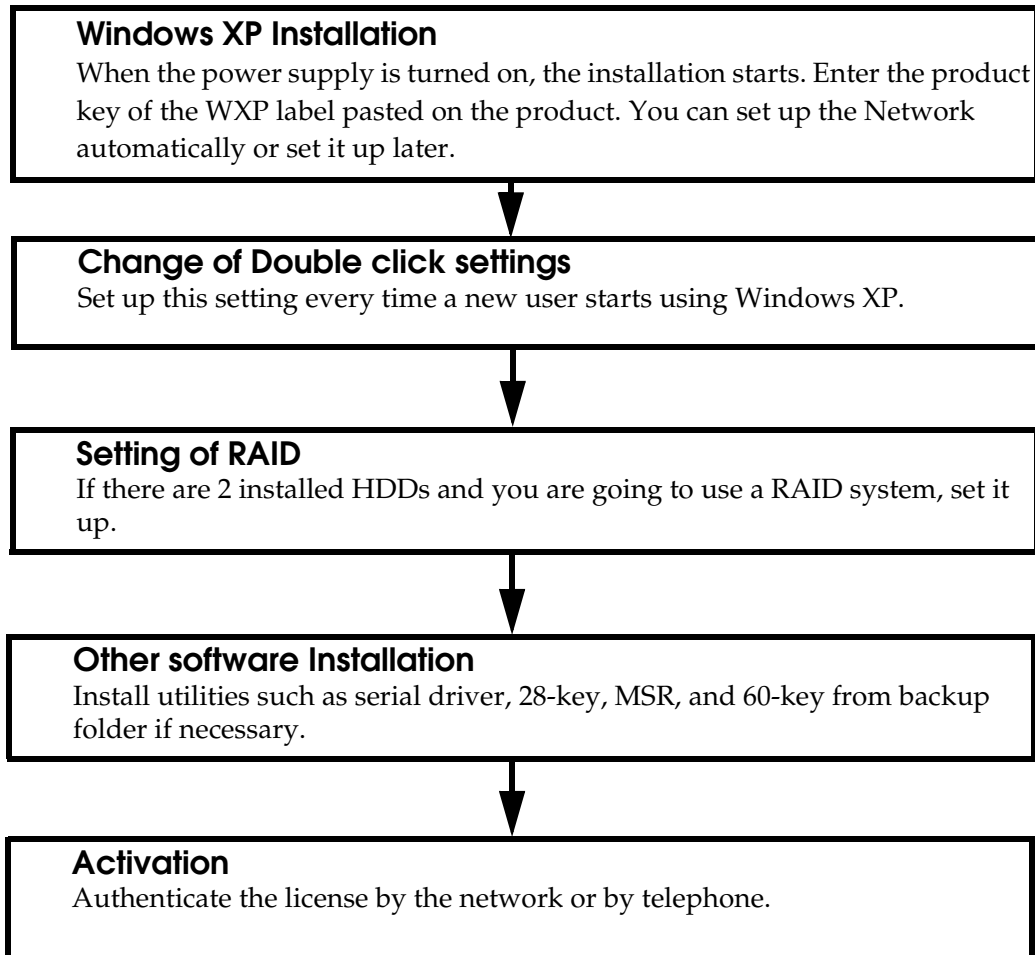
Installation Procedure

Windows XP Installation
When the power supply is turned on, the installation starts. Enter the product key of the WXP label pasted on the product. You can set up the Network automatically or set it up later.

Change of Double click settings
Set up this setting every time a new user starts using Windows XP.

Setting of RAID
If there are 2 installed HDDs and you are going to use a RAID system, set it up.

Other software Installation
Install utilities such as serial driver, 28-key, MSR, and 60-key from backup folder if necessary.

Activation
Authenticate the license by the network or by telephone.

Formatting the hard disk

The hard disk is composed of one partition of up to 10 GB as a system area. For a hard disk of more than 10 GB, the excess area other than the system area is not yet formatted. This drive can be converted to NTFS using the Convert command. Use the disk administrator when creating a drive in the unused area. The start-up drive has been formatted to the following file system.

- File system: NTFS

- Volume label: Windows XP

Pre-installed software

❏ Microsoft Windows XP Professional

❏ Microsoft Windows XP Service Pack 2

❏ Microsoft Windows XP Multilingual User Interface Pack

❏ Intel Chipset software installation utility

❏ Intel Video driver

❏ Intel Network driver

❏ Realtek Sound driver

❏ Silicon Image SATA-RAID driver

❏ EPSON Touch Panel driver

❏ EPSON 60-key POS keyboard definition utility*1

❏ EPSON Serial driver *1

✎ *Note:*
1: These are not installed during the auto installation procedure.

Version of the Pre-installation HDD

To confirm the version of the HDD, see the file HDVER.TAG in the root directory of the boot drive. This file is text-formatted and can be read using Notepad or a similar text editor. The file HDVER.TAG has the following contents:

```
[HD Information]

MODEL=IM-700

OS=WindowsXP OEM

LANG=Dutch/English/French/German/Italian/Portuguese/Russian/Spanish

VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows.

```
|--- Backup
|      |--- 60KEYCFG     :      60-key POS keyboard definition utility
|      |     |--- DRIVER :      60-key POS keyboard driver
|      |     |--- TOOL   :       Utility
|      |--- CHIPSET      :       Chipset driver backup folder
|      |--- EPSERIAL     :       EPSON Serial driver backup folder
|      |--- NETWORK      :       Network driver backup folder
|      |--- POSDVCFG     :       POS device (28-key POS keyboard, MSR) related utility
|      |                         backup folder
|      |     |--- DRIVER :       POS device controller drivers
|      |     |--- TOOL   :       Utility
|      |--- SATARAID     :       SATA RAID related driver backup folder
|      |     |--- DRIVER :       SATA-RAID driver
|      |     |--- TOOL   :       GUI Utility,  RAID Event Monitoring Tool
|      |--- Sound        :      Sound driver backup folder
|      |     |--- config :
|      |     |--- patch  :
|      |     |--- wdm    :
|      |--- TOUCH        :      Touch Panel driver backup folder
|      |--- VIDEO        :      Video driver backup folder
|--- I386               :      Setup file folder
|--- Mui                :      Microsoft Windows XP Multilingual User Interface Pack
|--- Program Files      :      Windows utility folders
|--- WINNT              :      Windows folders
```

The I386 directory may be deleted after the addition of the Windows XP application and the addition / change of the driver.

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up into CD-R or other media. After being backed up, these directories may be deleted.

If you install the optional CD-R/RW drive, you need to get software for CD-R/RW writing. The software is not supplied by EPSON.

Windows XP Setup Procedure

⚠ CAUTION

Be sure to keep the keyboard connected. If necessary, start the setup procedure after connecting the mouse.
The keyboard is necessary for inputting the product ID and password. The keyboard is also necessary for user verification during logon to Windows XP, even if the touch panel is in a usable state.

Windows XP is set up by using the following procedure.

1. Turn on the system, and boot the system from the pre-installation HDD. Windows XP setup will start.

2. The [Welcome to the Windows XP Setup Wizard] screen is displayed. Click **Next**.

3. The License Agreement screen is displayed. Check the contents, then select [I accept this agreement] and click **Next**.

4. The [Regional and Language Options] dialog box is displayed. Confirm the setting contents and click **Next**.

5. The [Personalize Your Software] dialog box is displayed. Input your name and your organization, and then click **Next**.

6. The [Your Product key] dialog box is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity) and click **Next**.

7. The [Computer Name and Administrator Password] dialog box is displayed. Input the necessary information and click **Next**.

8. The [Date and Time Settings] dialog box is displayed. Confirm the setting and click **Next**.

9. The Networking Settings screen is displayed. Select either Typical Settings or Custom Settings according to the environment, then click **Next**. The Networking Components screen is displayed if Custom Settings is selected. Set the settings in accordance with the environment, then click **Next**.

10. The Workgroup or Computer Domain screen is displayed. Set the settings in accordance with the environment, then click **Next**.

11. The [Completing the Windows XP setup wizard] dialog box is displayed. Click **Finish**.

Setting the recognition range of the double click

When Windows XP is installed, the permissible double click level is limited and it is difficult to double click with your finger. To change the permissible double click level, start up the EPSON Touch Panel Configuration Tool. It changes the registry key automatically. This setting makes easy to double click with your finger.

However, when a new user first logs on, the permissible level is limited because the default value of Windows is the value of the registry key. So the registry key must be modified for individual users.

When Windows XP is set up and a new user is created, the registry key must be modified for individual users by following the steps below.

✎ *Note*
The administrator modifies the registry key.

Method

Select Programs - Epson Touch Panel Tool - Touch Panel Configuration Tool from the Start menu. Click **OK**. (There is no need to do any other operation.)

Various Configurations (Windows XP)

To change their configurations, use the control panel.

EPSON Serial Driver

When the serial port is transmitting with Windows XP, this Driver prevents the OS from shifting to the Standby mode, and the operation of the full-on mode can be continued.

Install

✎ *Note*
Be sure an administrator installs the serial driver.

Install the serial driver using the following procedure.

1. Execute C:\BACKUP\EPSERIAL\EPSERIAL.exe.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstalling the serial driver

Uninstall the serial driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Dual Display

If an external monitor is added, the IR-700 can display the same content on both the LCD display and the external monitor, or each of them can display different content (expansion of the work area).

Displaying the same content on both monitors

Follow the following procedure.

1. Select [Start]-[Control Panel]-[Appearance and Themes]-[Display]

2. The [Display Properties] screen is displayed. Select the [Settings] tab and click the [Advanced] button.

3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.

4. The [Intel(R) Extreme Graphics 2 for mobile] screen is displayed. Select the [Display Devices] button and then check the [Intel(R) Dual Display Clone], and click the [OK] button.

5. The [Confirm the Desktop Change] screen is displayed. Click the [OK] button.

6. Each monitor displays the same content.
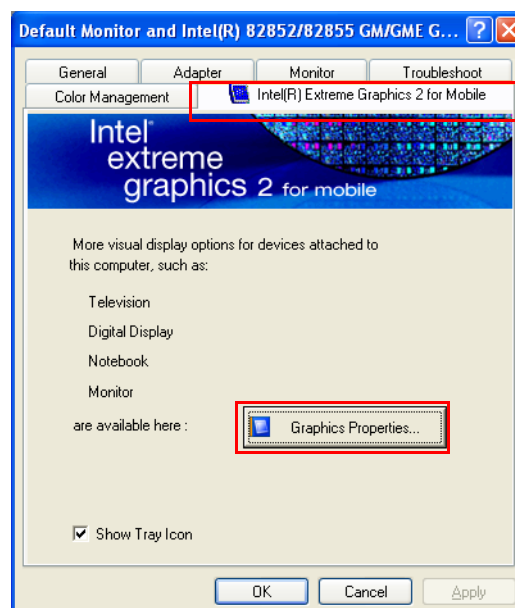
Displaying the different content with each monitor (The expansion of the work area)
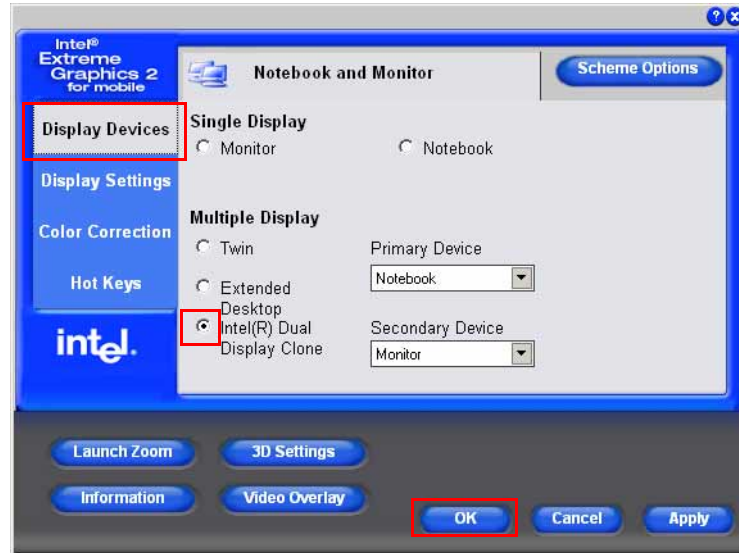
Follow the following procedure.

1. Select [Start]-[Control Panel]-[Appearance and Themes]-[Display].

2. The [Display Properties] screen is displayed. Select the [Settings] tab and click the [Advanced] button.
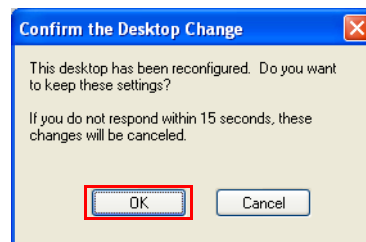

3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.

4. The [Intel(R) Extreme Graphics 2 for Mobile] screen is displayed.Select the [Display Devices] button and then check the [Extended Desktop] button, and click the [Apply] button.

5. Change the method of allocating the work area by dragging and dropping the icons of the monitors.

6. Select the [Display Settings] button. Change the setting of each monitor, and click the [OK] button.

7. The [Confirm the Desktop Change] screen is displayed. Click the [OK] button.

Adding Windows XP Applications

When adding any Windows XP application, specify the C:\I386 directory. In this directory, \I386 has been backed up from the Windows XP DVD-ROM.

Activation

The copy prevention technology for softwares called Product Activation (hereafter referred to as License authentication) is used in Windows XP. Thus, license authentication is required to reinstall or recover the OS.

The following is the procedure for the license authentication.

1. Turn on the power of IR-700.

2. The following message is displayed on the lower right of the screen shortly after Windows XP starts up. Click the icon.

3. Windows license authentication screen is displayed."Select Yes, let's activate Windows over the Internet now" or "Yes, I want to telephone a customer service representative to activate Windows", and click the [Next] button.

4. Follow the instructions on the screen, and complete the license authentication procedure.

✎ *Note:*

If the license authentication is not carried out, you will not be able to use XP after expiration. Thus, be sure to carry it out when the OS is installed.

Recovering the OS

Preparing confirmation

✎ *Note:*
Disconnect the mouse before recovering the OS. If the mouse is connected, this will not work

Confirm the following before OS recovery.

❏ DVD-ROM drive is prepared by the user.

❏ "The Windows XP DVD-ROM" included with the product is used for recovering Windows XP.

❏ In the model with 2 installed HDDs, construct the RAID first, then perform OS recovery to construct the RAID.

❏ Use the HDD included in the shipment or an unused HDD for OS recovery.

❏ The external keyboard is necessary for the recovery.

❏ In the setup of OS after recovering the OS, it is necessary to enter the product ID. The product ID is printed on the Windows sticker label on the side of the system.

❏ Set the BIOS setting to "Optimal Defaults." When using the customized BIOS setting, note down the BIOS setting value beforehand. After the recovery is done, you must reset it to that value.

❏ OS recovery erases all contents of the HDD. Back up the necessary data to a USB Memory Stick or other media.

Recovering method

Follow the steps below to carry out OS recovery.

1. Turn power to the IR-700 off. Pull out the power cord from the IR-700.

2. Remove the peripheral devices.

3. Install the HDD unit for which OS recovery will be done to the IR-700 main body. For the single HDD model, install it on the R side.

⚠ CAUTION:

Insert the HDD as far as you can or it may cause a poor connection.

4. Connect the external keyboard to the IR-700 keyboard connector and connect the DVD-ROM Drive to the USB connector on the side.

5. Connect the power cord to the IR-700.

6. Boot the system, press the Del key during the POST process, and the BIOS setup will start.

7. To set the BIOS to Optimal Defaults, execute Load Optimal Defaults in the Exit menu.

8. Set to the DVD-ROM model number connecting 1st Boot Device of Boot Device Priority in the Boot menu.

9. Set the USB 2.0 ControllerMode to Hispeed in the Advanced menu.

10. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

    Save configuration changes and exit setup?
    [OK]   [Cancel]

11. Select [OK], and press the Enter key.

12. The system will reboot. Insert the "Windows XP DVD-ROM" into the DVD-ROM drive.

13. The following message will appear. Select and enter the partition size of the HDD.

    Please select the system partition size.
    1: 10GB (Default size)
    F: Full size of HD.
    Please push a key of 1 or F._

14. Select the range to format as the system area on the hard disk. Press the "1" key to select 10GB or press the "F" key to select the full size. After that, the OS recovery starts.

15. When the prompt below is displayed on the screen, OS recovery work is complete.

    c:\RESTORE>_

16. Eject the "Windows XP DVD-ROM" from the DVD-ROM drive.

17. Reboot and start the BIOS setup utility.

18. Set USB 2.0 ControllerMode to Full Speed in the Advanced menu.

19. Set to the HDD model number connecting the 1st Boot Device of Boot Device Priority in the Boot menu.

20. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

    Save configuration changes and exit setup?
    [OK]   [Cancel]

21. Select [OK], and press the Enter key.

22. Detach the external keyboard.

Limitation

Recovery cannot be performed starting from a hard disk. You must perform recovery from a DVD-ROM.

WEPOS Pre-Installed Model

The exclusive EPSON utility and drivers for using IR-700 are pre-installed in the HDD with the pre-installed WEPOS.

Installation Procedure
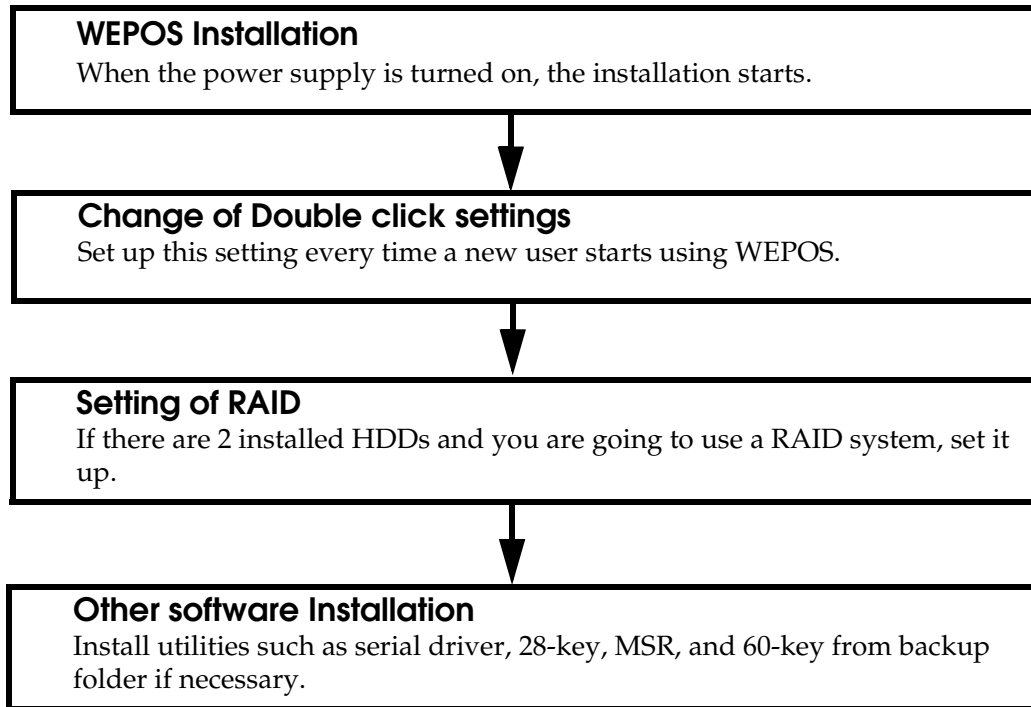
```
┌─────────────────────────────────────────────────────────┐
│ WEPOS Installation                                       │
│ When the power supply is turned on, the installation     │
│ starts.                                                  │
└─────────────────────────────────────────────────────────┘
                           │
                           ▼
┌─────────────────────────────────────────────────────────┐
│ Change of Double click settings                          │
│ Set up this setting every time a new user starts using   │
│ WEPOS.                                                   │
└─────────────────────────────────────────────────────────┘
                           │
                           ▼
┌─────────────────────────────────────────────────────────┐
│ Setting of RAID                                          │
│ If there are 2 installed HDDs and you are going to use a │
│ RAID system, set it up.                                  │
└─────────────────────────────────────────────────────────┘
                           │
                           ▼
┌─────────────────────────────────────────────────────────┐
│ Other software Installation                              │
│ Install utilities such as serial driver, 28-key, MSR,    │
│ and 60-key from backup folder if necessary.              │
└─────────────────────────────────────────────────────────┘
```

Formatting the hard disk

The hard disk is composed of one partition of up to 10 GB as a system area. For a hard disk of more than 10 GB, the excess area other than the system area is not yet formatted. This drive can be converted to NTFS using the Convert command. Use the disk administrator when creating a drive in the unused area. The start-up drive has been formatted to the following file system.

- File system: NTFS

- Volume label: WEPOS

Pre-installed software

❑ Windows Embedded for Point of Service

❑ Intel Chipset software installation utility

❑ Intel Video driver

❑ Intel Network driver

❑ Realtek Sound driver

❑ Silicon Image SATA-RAID driver

❑ EPSON Touch Panel driver

❑ EPSON 60-key POS keyboard definition utility*1

❑ EPSON Serial driver *1

❑ EPSON OPOS-ADK *1

❑ EPSON OPOS-ADK for .NET *1

❑ EPSON Advanced Printer Driver *1

✎ *Note:*
1: These are not installed during the auto installation procedure.

Version of the Pre-installation HDD

To confirm the version of the HDD, see the file HDVER.TAG in the root directory of the boot drive. This file is text-formatted and can be read using Notepad or a similar text editor. The file HDVER.TAG has the following contents:

```
[HD Information]

MODEL=IM-700

OS=WEPOS

LANG=Dutch/English/French/German/Italian/Portuguese/Russian/Spanish

VER=1.**.*
```

Directory Configuration

The root directory of the HDD is structured as follows.

```
|--- Backup                  :
|      |--- 60KEYCFG         :     60-key POS keyboard definition utility
|      |     |--- DRIVER     :     60-key POS keyboard driver
|      |     |--- TOOL       :     Utility
|      |--- CHIPSET          :     Chipset driver backup folder
|      |--- EPSERIAL         :     EPSON Serial driver backup folder
|      |--- NETWORK          :     Network driver backup folder
|      |--- POSDVCFG         :     POS device (28-key POS keyboard, MSR) related utility
|      |                           backup folder
|      |     |--- DRIVER     :     POS device controller drivers
|      |     |--- TOOL       :     Utility
|      |--- SATARAID         :     SATA RAID related driver backup folder
|      |     |--- DRIVER     :     SATA-RAID driver
|      |     |--- TOOL       :     GUI Utility,  RAID Event Monitoring Tool
|      |--- SOUND            :     Sound driver backup folder
|      |     |--- config     :
|      |     |--- patch      :
|      |     |--- wdm        :
|      |--- TOUCH            :     Touch Panel driver backup folder
|      |--- VIDEO            :     Video driver backup folder
|--- Program Files           :     Windows utility folders
|--- Windows                 :     Windows Embedded for Point of Service system
```

The directories under the Backup directory are the backups for drivers and utilities. Each of these directories can be backed up into CD-R or other media. After being backed up, these directories may be deleted.

If you install the optional CD-R/RW drive, you need to get software for CD-R/RW writing. The software is not supplied by EPSON.

WEPOS Setup Procedure

WEPOS is set up automatically when starting up OS the first time. The product key is already subscribed, so the entering of it is not needed.

✎ *Note*
When starting up OS the first time, access time takes several minutes after the screen is displayed. However, only the first time.

Setting the recognition range of the double click

When Windows WEPOS is installed, the permissible double click level is limited and it is difficult to double click with your finger. To change the permissible double click level, start up the EPSON Touch Panel Configuration Tool. It changes the registry key automatically. This setting makes easy to double click with your finger.

However, when a new user first logs on, the permissible level is limited because the default value of Windows is the value of the registry key. So the registry key must be modified for individual users.

When WEPOS is set up and a new user is created, the registry key must be modified for individual users by following the steps below.

✎ *Note*
The administrator modifies the registry key.

Various Configurations (WEPOS)

To change their configurations, use the control panel.

Setting the Network

Select [Network and Internet Connection] in Control panel and Set the network according to the using environment.

Setting the FAX

When using the FAX service, change the Fax service type to Automatic because it is set Disable at the time of setup.

1. Select [Control panel]-[Performance and Maintenance]-[Administrative Tools]-[Services] in the start menu of Windows.

2. The "Services(Local)" screen is displayed. Double click the [Fax] icon.

3. The "Fax properties(Local computer)" screen is displayed. Click the [General] tab.

4. Select [Automatic] in the [Startup type] option.
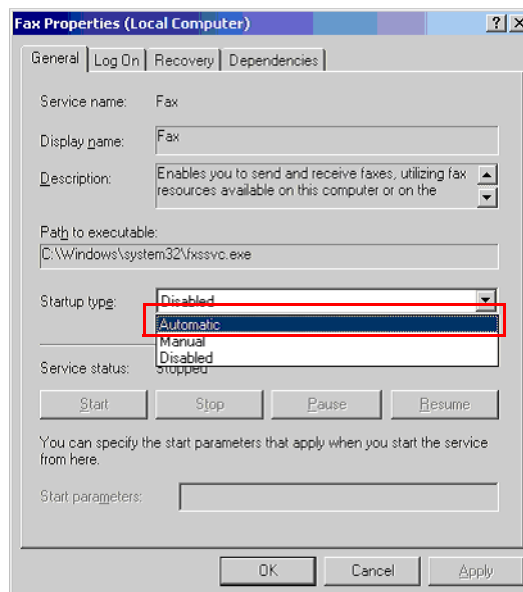
5. Click the [OK] button.

EPSON Serial Driver

When the serial port is transmitting with WEPOS, this Driver prevents the OS from shifting to the Standby mode, and the operation of the full-on mode can be continued.

Install

✎ *Note*

Be sure an administrator installs the serial driver.

Install the serial driver using the following procedure.

1. Execute C:\BACKUP\EPSERIAL\EPSERIAL.exe.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstalling the serial driver

Uninstall the serial driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

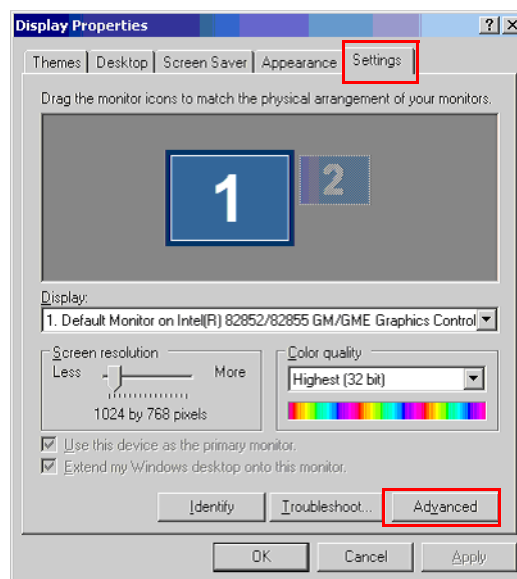3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Dual Display

If an external monitor is added, the IR-700 can display the same content on both the LCD display and the external monitor, or each of them can display different content (expansion of the work area).
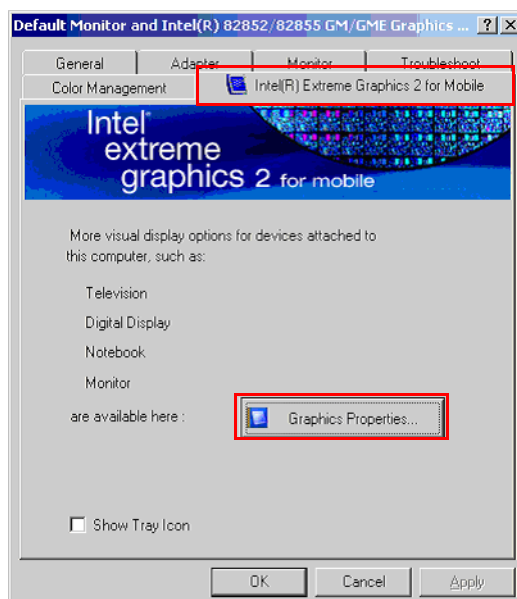
Displaying the same content on both monitors

Follow the following procedure.

1. Select [Start]-[Control Panel]-[Appearance and Themes]-[Display]

2. The [Display Properties] screen is displayed. Select the [Settings] tab and click the [Advanced] button.

3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.

4. The [Intel(R) Extreme Graphics 2 for mobile] screen is displayed. Select the [Display Devices] button and then check the [Intel(R) Dual Display Clone], and click the [OK] button.

5. The [Confirm the Desktop Change] screen is displayed. Click the [OK] button.

6. Each monitor displays the same content.

Displaying the different content with each monitor (The expansion of the work area)
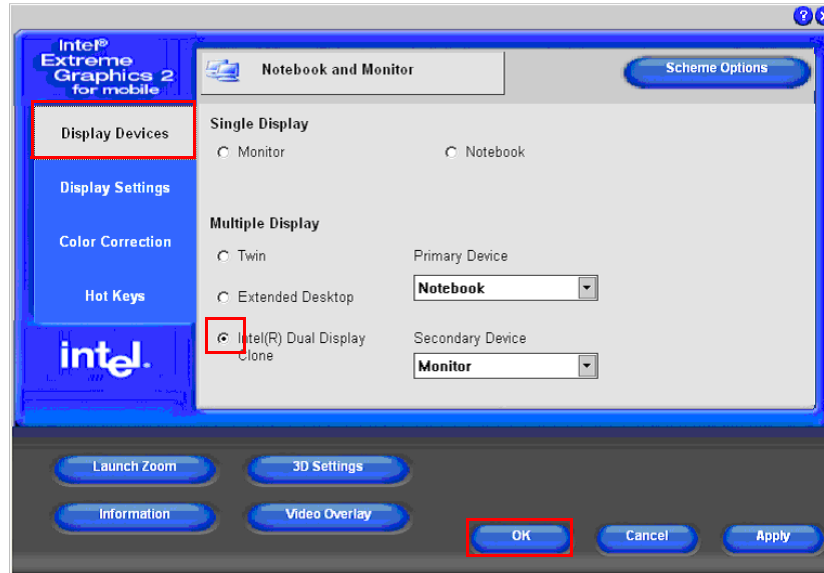
Follow the following procedure.

1. Select [Start]-[Control Panel]-[Appearance and Themes]-[Display].

2. The "Display Properties" screen is displayed. Select the [Settings] tab and click the [Advanced] button.
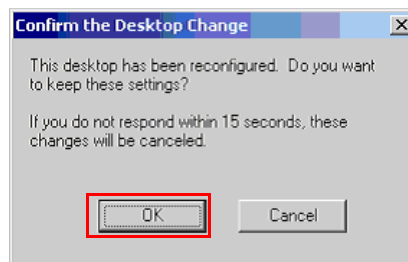

3. The following screen is displayed. Select the [Intel(R) Extreme Graphics 2 for Mobile] tab and click the [Graphics Properties] button.

4. The "Intel(R) Extreme Graphics 2 for Mobile" screen is displayed. Select the [Display Devices] button and then check the [Extended Desktop] button, and click the [Apply] button.

5. Change the method of allocating the work area by dragging and dropping the icons of the monitors.

6. Select the [Display Settings] button. Change the setting of each monitor, and click the [OK] button.

7. The "Confirm the Desktop Change" screen is displayed. Click the [OK] button.

The addition and the deletion of the Windows component

The Windows components cannot be added or deleted for WESPOS. All necessary components are incorporated.

The device manager display

Even if the device is already digitally signed, WEPOS displays "Not digitally signed."
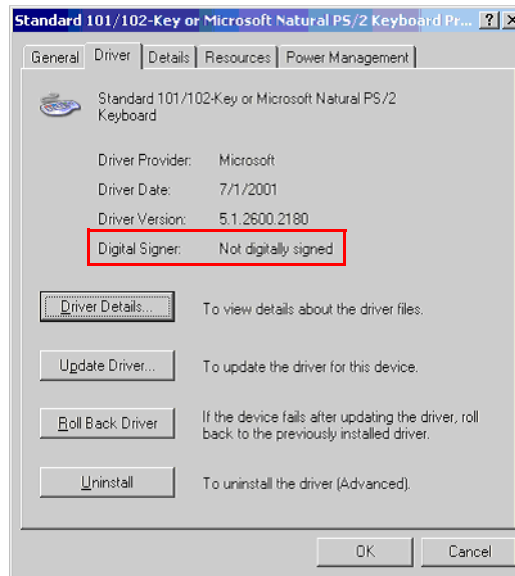
Recovering the OS

Preparing confirmation

✎ *Note:*
Disconnect the mouse before recovering the OS. If the mouse is connected, this will not work

Confirm the following before OS recovery.

❏ DVD-ROM drive is prepared by the user.

❏ "Windows Embedded for Point of Service DVDROM" included with the product is used for recovering WEPOS.

❏ In the model with 2 installed HDDs, construct the RAID first, then perform OS recovery to construct the RAID.

❏ Use the HDD included in the shipment or an unused HDD for OS recovery.

❏ The external keyboard is necessary for the recovery.

❏ In the setup of OS after recovering the OS, it is necessary to enter the product ID. The product ID is printed on the Windows sticker label on the side of the system.

❏ Set the BIOS setting to "Optimal Defaults." When using the customized BIOS setting, note down the BIOS setting value beforehand. After the recovery is done, you must reset it to that value.

❏ OS recovery erases all contents of the HDD. Back up the necessary data to a USB Memory Stick or other media.

Recovering method

Follow the steps below to carry out OS recovery.

1. Turn power to the IR-700 off. Pull out the power cord from the IR-700.

2. Remove the peripheral devices.

3. Install the HDD unit for which OS recovery will be done to the IR-700 main body. For the single HDD model, install it on the R side.

⚠ **CAUTION:**

Insert the HDD as far as you can or it may cause a poor connection.

4. Connect the external keyboard to the IR-700 keyboard connector and connect the DVD-ROM Drive to the USB connector on the side.

5. Connect the power cord to the IR-700.

6. Boot the system, click the Del key during the POST process, and the BIOS setup will start.

7. To set the BIOS to Optimal Defaults, execute Load Optimal Defaults in the Exit menu.

8. Set to the DVD-ROM model number connecting 1st Boot Device of Boot Device Priority in the Boot menu.

9. Set the USB 2.0 ControllerMode to Hispeed in the Advanced menu.

10. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

```
Save configuration changes and exit setup?
        [OK]                    [Cancel]
```

11. Select [OK], and press the Enter key.

12. The system will reboot. Insert the "Windows XP DVD-ROM" into the DVD-ROM drive.

13. The following message will appear. Select and enter the partition size of the HDD.

```
Please select the system partition size.
  1: 10GB (Default size)
  F: Full size of HD.
Please push a key of 1 or F._
```

14. Select the range to format as the system area on the hard disk. Press the "1" key to select 10GB or press the "F" key to select the full size. After that, the OS recovery starts.

15. When the prompt below is displayed on the screen, OS recovery work is complete.

```
c:\RESTORE>_
```

16. Eject the "Windows XP DVD-ROM" from the DVD-ROM drive.

17. Reboot and start the BIOS setup utility.

18. Set USB 2.0 ControllerMode to Full Speed in the Advanced menu.

19. Set to the HDD model number connecting the 1st Boot Device of Boot Device Priority in the Boot menu.

20. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

```
Save confiugration changes and exit setup?
        [OK]                    [Cancel]
```

21. Select [OK], and press the Enter key.

22. Detach the external keyboard.

Limitation

Recovery cannot be performed starting from a hard disk. You must perform recovery from a DVD-ROM.

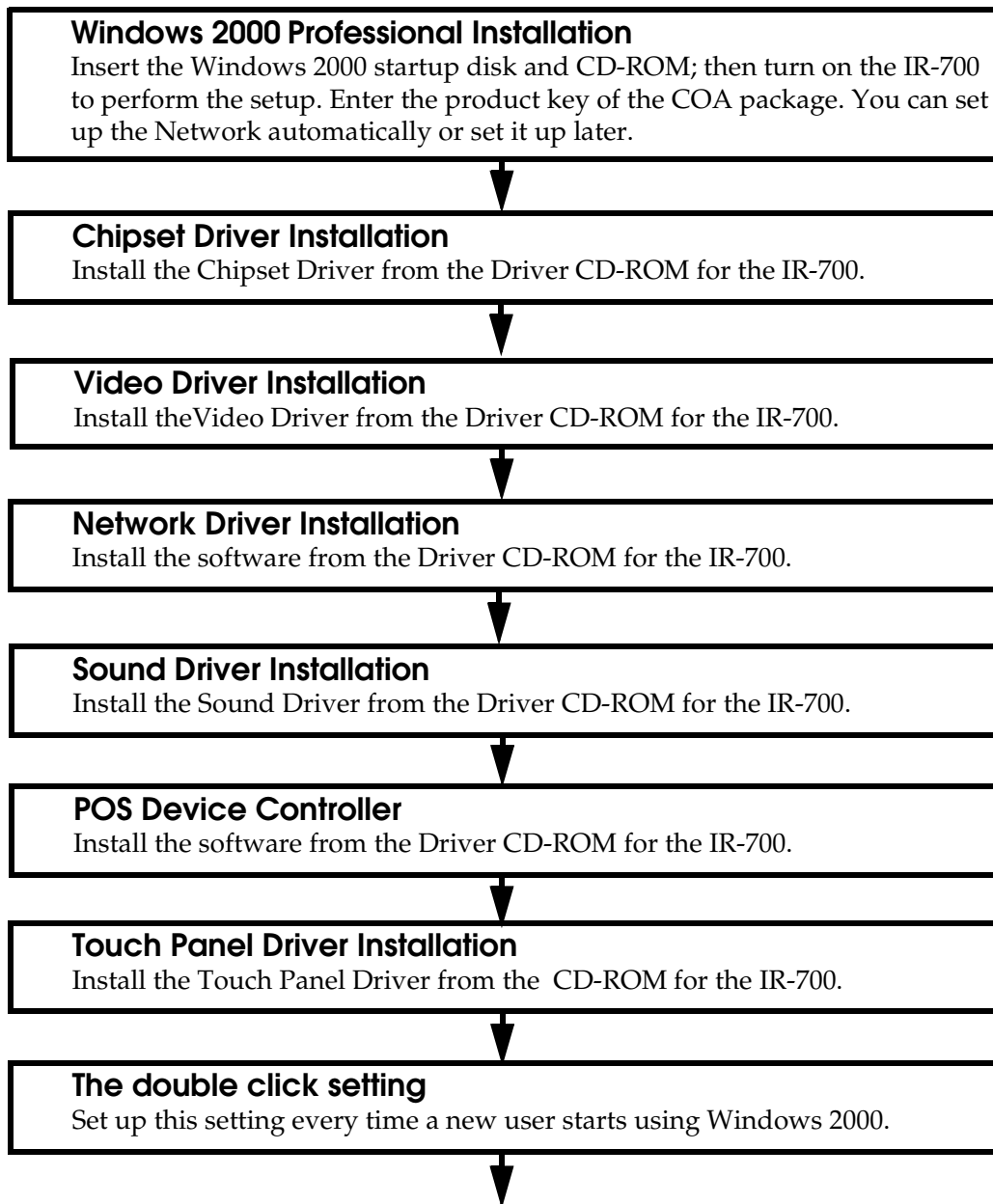## Installation for Windows 2000 Professional Locally Procured Edition

✎ *Note:*
Use Windows 2000 Service Pack4 or later. The Operating System cannot be installed with the CD-ROM of Service Pack 2 or earlier

Installation Procedure

If you install Windows 2000 Professional locally procured edition, follow the steps below.

Windows 2000 Professional Installation
Insert the Windows 2000 startup disk and CD-ROM; then turn on the IR-700 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.

↓

Chipset Driver Installation
Install the Chipset Driver from the Driver CD-ROM for the IR-700.

↓

Video Driver Installation
Install theVideo Driver from the Driver CD-ROM for the IR-700.

↓

Network Driver Installation
Install the software from the Driver CD-ROM for the IR-700.

↓

Sound Driver Installation
Install the Sound Driver from the Driver CD-ROM for the IR-700.

↓

POS Device Controller
Install the software from the Driver CD-ROM for the IR-700.

↓

Touch Panel Driver Installation
Install the Touch Panel Driver from the CD-ROM for the IR-700.

↓

The double click setting
Set up this setting every time a new user starts using Windows 2000.

↓

Setting of RAID
If there are 2 installed HDDs and you are going to use a RAID system, set it up.

Setting of Power Management
Set the procedure of return from the standby mode.

Other software Installation
Install utilities such as serial driver, 28-key, MSR, and 60-key from backup folder if necessary.

Setup procedure

Prepare the following before starting the setup of Windows 2000.

1. Startup disk

    • Create the startup disk using the following procedure.

    1. Prepare a blank floppy disk.

    2. Copy all files in /WIN2K/SATARAID/Driver folder of the driver CD to the floppy disk.

2. CD/DVD-ROM drive

3. FD `drive`

    • This is necessary for reading the startup disk.

✎ *Note:*
When installing Windows 2000, be sure to connect the CD/DVD-ROM drive and FD drive to the USB connector on the side. It may cause malfunction if they are connected to the USB at the rear.

Windows 2000 is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-700.

2. Connect the CD/DVD-ROM drive and FD drive to the IR-700.

3. Insert the CD-ROM of Windows 2000 in the CD/DVD-ROM drive and boot up the system.

4. Start up the BIOS setup utility. (Refer to Chapter 5 for the operating procedure of the BIOS setup utility.)

5. Select [Boot Device Priority] in the BOOT menu of BIOS setup utility. Set to the CD/DVD-ROM model number connecting 1st Boot Device of Boot Device Priority.

6. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

    Save configuration changes and exit setup?
          [OK]   **[Cancel]**

    Select [OK], and press the Enter key.

7. Press the Enter key when the following message is displayed.
    "Press any key to boot from CD. ."

8. Installation is started when the OS setup screen is displayed, and the following message is displayed at the lower left on the screen.
    "Press F6 if you need to install a third party SCSI or RAID driver"
    When this message is displayed, press the F6 key. Since this screen will not stop, watch the screen with care to press theF6 key.

9. The following message is displayed. Press the S key.
    * To specify additional SCSI adapters, CD-ROM drives, or apecial disk controllers for use with Windows, inckuding those for which you have a device support disk from a mass storage device manufacture, press S.

10. Insert the startup disk into the FD drive after the following message is displayed, and press the Enter key.
    Please insert the disk labeled
    Manufacturer-supplied hardware support disk
    into Drive A:
    Press ENTER when ready.

11. When the selection screen of Silicon Image is displayed, select "Silicon Image SiI 3x12 RaidLinl Controller for Windows 2000/NT", and press the Enter key.

12. Confirm that the display of Silicon Image is "Silicon Image SiI 3x12 RaidLinl Controller for Windows 2000/NT", then press the Enter key.

13. The Setup Wizard starts, and the Welcome dialog box is displayed. Press [Enter].

14. The License Agreement is displayed. Read it through and confirm your agreement to the terms. And then press the [F8] key (I agree).

15. Select the partition to set up Windows, and press [Enter]. When an unformatted partition is selected, a confirmation screen is displayed. Execute the format according to the instructions on the screen. After that, copying of the file starts.

16. Reboot the system again according to the instructions on the screen.

17. The Regional Settings screen is displayed. Make sure the system locale, user locales and keyboard layout are set to United States, then click **Next**.

18. The Personalize Your Software screen is displayed. Input the Name and Organization, then click **Next**.

19. The Your Product Key screen is displayed. Input the product key entered on the cover of the First Step Guide in the COA (Certificate of Authenticity) package included with this product; then click **Next**.

20. The Computer Name and Administrator Password screen is displayed. Input the Computer Name and Administrator Password, then click **Next**.

21. The Date and Time Settings screen is displayed. Set the date and time, then click **Next**.

22. The Completing the Windows 2000 Setup Wizard screen is displayed. Click **Finish**.

23. The Networking Settings screen is displayed. Select either Typical Settings or Custom Settings according to the environment, then click **Next**. The Networking Components screen is displayed if Custom Settings is selected. Set the settings in accordance with the environment, then click **Next**.

24. The Users of this Computer screen is displayed. Set the settings in accordance with the environment, then click **Next**.

25. The Completing the Network Identification Wizard screen is displayed. Click **Finish**.

26. Windows 2000 starts and the setup is completed.

Installing the Intel Chipset Diver

✎ *Note*

The Chipset Driver must be installed before you install other drivers.

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WIN2K\Chipset\infinst_enu.EXE.

2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

3. The License Agreement screen is displayed. Click **Yes**.

4. The Readme Information dialog box is displayed. Click **Next**.

5. Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the Intel chipset driver

Uninstalling cannot be done.

Installing the VIDEO Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WIN2K\VIDEO\win2k_xp1413.exe.

2. The Readme Information dialog box is displayed. Click **Next**.

3. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

4. The License Agreement screen is displayed. Click **Yes**.

5. Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the video driver

To uninstall the VIDEO Driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Extreme Graphics 2 Driver. Click Remove.

3. The System Settings Change dialog box is displayed. Click **YES**.

Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WIN2K\Network\v6.4_pro2kxp_only.exe.

2. The Setup Wizard starts, and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is c:\IntelPRO.

4. When copying of the file is completed, the following dialog box is displayed. Click **Install now**.

5. The following dialog box is displayed. Click **Finish**.

Uninstalling the network driver

To uninstall the Network Driver use the following procedure:

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Network Adapters and Drivers is selected. Click Change/Remove.

3. The Intel(R) PRO Network Adapters and Drivers is selected Uninstaller dialog box is displayed. Click **OK**.

Installing the Sound Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WIN2K\Sound\SETUP.EXE.

2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.

3. The Digital Signature Not Found dialog box is displayed. Click **Yes**.

4. The reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the sound driver

Uninstall the Sound Driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Realtek AC '97 Audio is selected. Click Change/Remove.

3. The reboot dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.
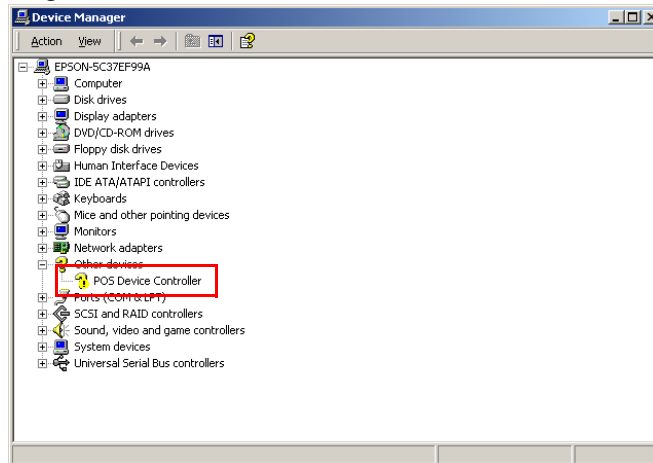
Installing the POS Device Controller

This is installed by the exclusive installation program.

1. Select [Start]-[settings]-[Control Panel]-[system], and open "System Properties".
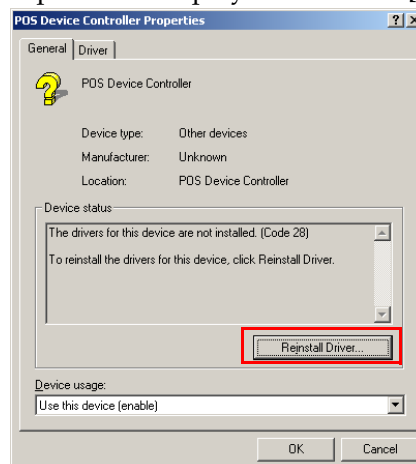
2. Select the Hard ware tab, and click the [Device Manager] button.
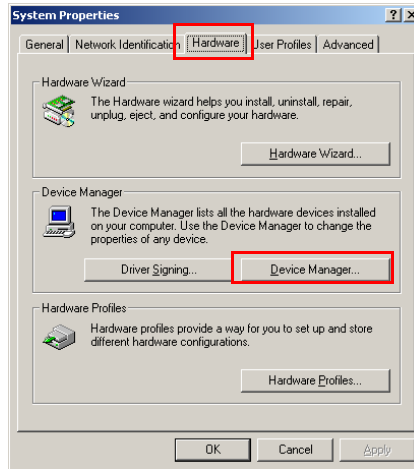
3. Start Device Manager.Select [Other device]-[POS-Device Controller] in the Device Manager.

4. POS Device Controller Properties is displayed. Click the [Reinstall Driver] button.

5. The Welcome to the Upgrade Device Driver Wizard screen is displayed. Click the [Next] button.
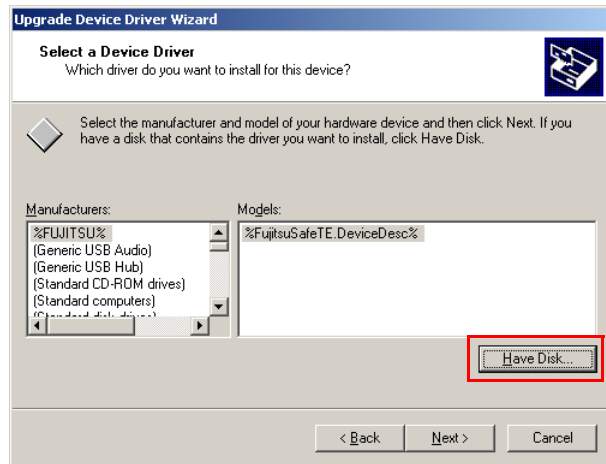

6. Install Hardware Device Drivers screen is displayed. Select "Display a list of the know drivers for this device so that I can choose a specific driver", and click the [Next] button.
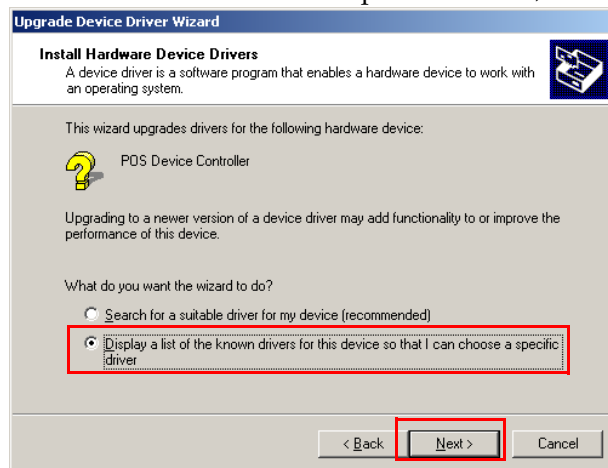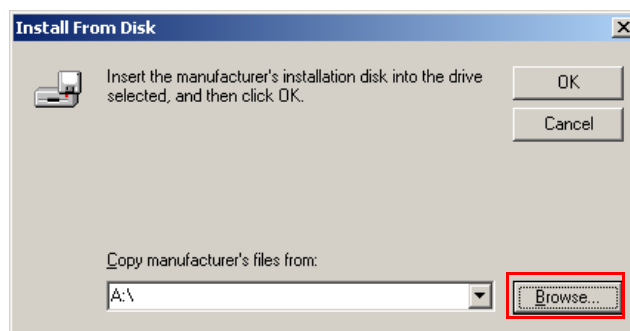
7. Hardware Type screen is displayed. Select" Other and click the devices", and click the [Next] button.
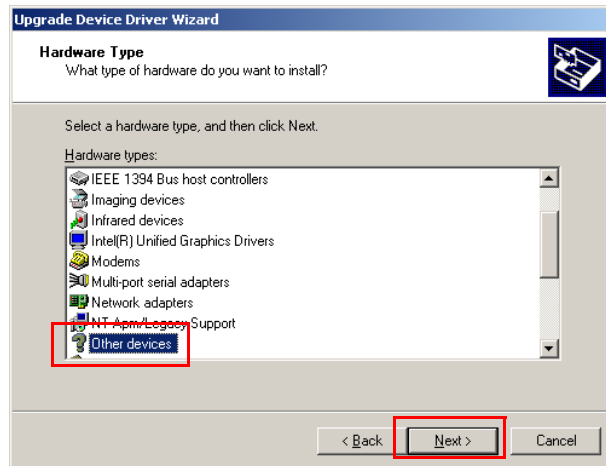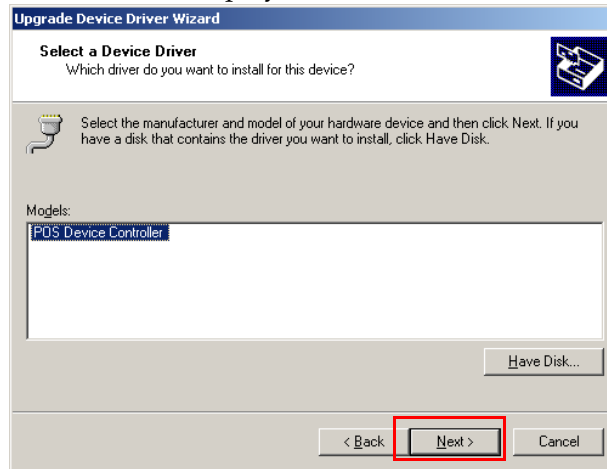

8. Select a Device Driver screen is displayed. Click the [Have Disk] button.

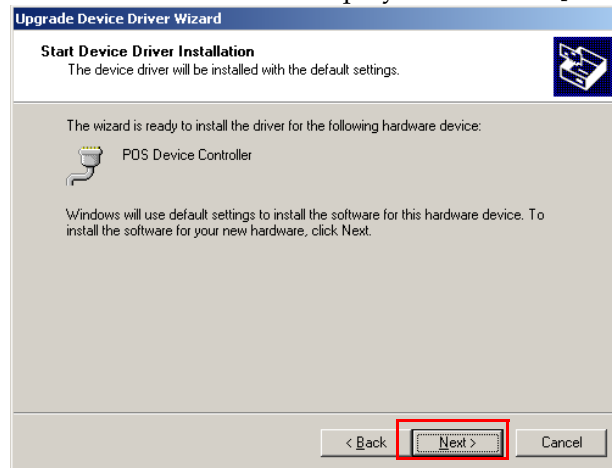9. Install From Disk screen is displayed. Click the [Browse] button, and select epvcomm.inf file in the \WIN2K\POSDEV of the connected CD drive. Click the [OK] button.
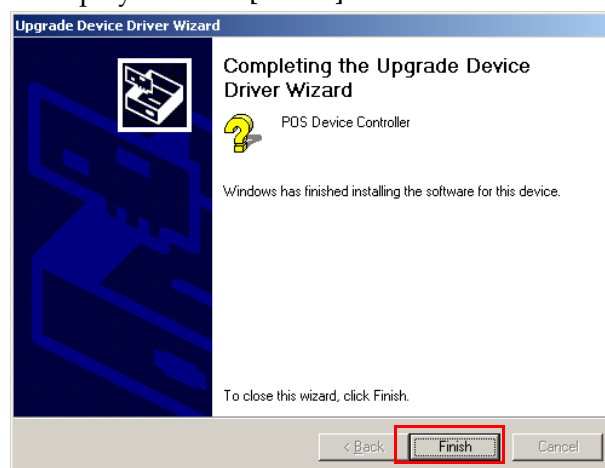
10. Select a Device Driver screen is displayed. Click the [Next] button.

11. Start Device Driver Installation screen is displayed. Click the [Next] button.

12. Complete screen is displayed. Click [Finish] button.
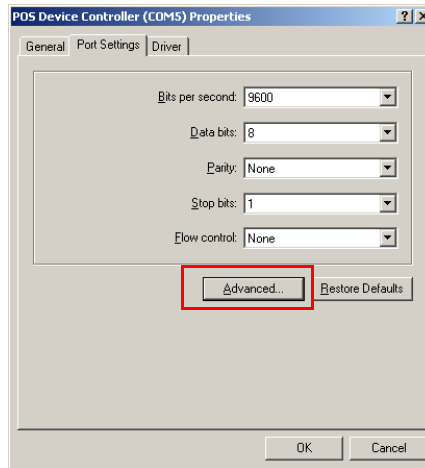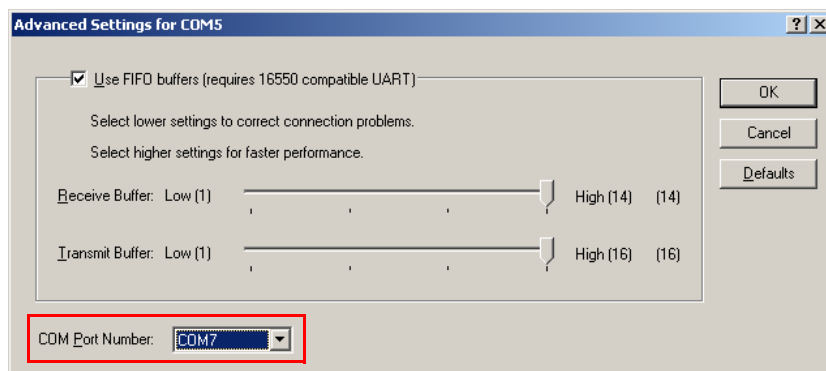

13. Close POS Device Controller Properties.

14. Select [Ports]-[POS- Device Controller (COM5)] from the Device Manager.
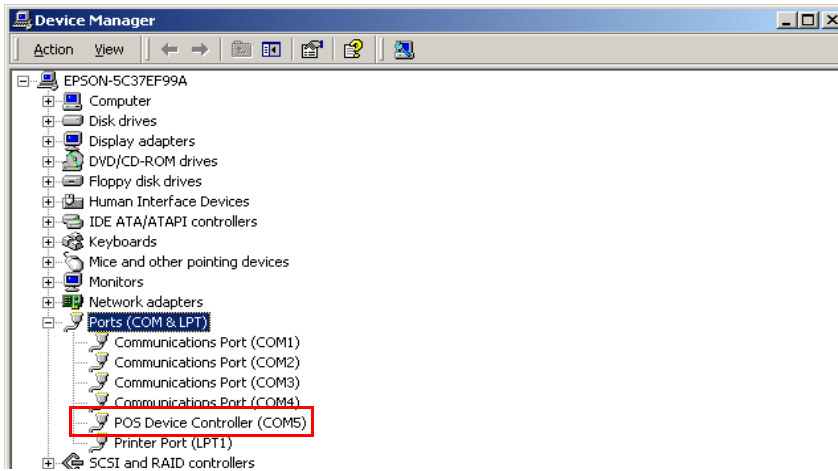
15. POS-Device Controller Properties is displayed. Select the Port Settings tab, and click the [Advance] button.

16. Advance setting screen is displayed. Change the COM Port Number from COM5 to COM7, and click the [OK] button.

17. Close all screens to reboot.

Uninstalling the POS Device Controller

Uninstalling cannot be done.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WIN2K\Touch\EPsTPWDM.EXE.

2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.

3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.

4. The Digital Signature Not Found dialog box is displayed. Click **Yes**.

5. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the touch panel driver

Uninstall the Touch Panel Driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Touch Panel Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **Yes**.

4. The reboot dialog box is displayed. Click **OK**.

5. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Setting the recognition range of the double click

When Windows 2000 is installed, the permissible double click level is limited and it is difficult to double click with your finger. To change the permissible double click level, start up the EPSON Touch Panel Configuration Tool. It changes the registry key automatically. This setting makes easy to double click with your finger.

However, when a new user first logs on, the permissible level is limited because the default value of Windows is the value of the registry key. So the registry key must be modified for individual users.

When Windows 2000 is set up and a new user is created, the registry key must be modified for individual users by following the steps below.

✎ *Note*
The administrator modifies the registry key.

Method

> Select Programs - Epson Touch Panel Tool - Touch Panel Configuration Tool from the Start
> menu. Click **OK**. (There is no need to do any other operation.)

Setting of Power management

The return from the standby mode is set by operating with touchpanel keyboard and mouse.

✎ *Note*

*For the Windows 2000 Professional Locally Edition, the return from the standby mode is operated with
the power button.*

The setting is following.

1. Select [START] - [Settings] - [Control Panel] - [System], and open System Properties.

2. Select the Hardware tab, and click the **Device Manager** button.

3. Device Manager starts up. Select [Keyboard] - [HID Keyboard Device].

4. Select [Power Management]. Check [Allow this device to bring the computer out of
   standby] and click [OK].
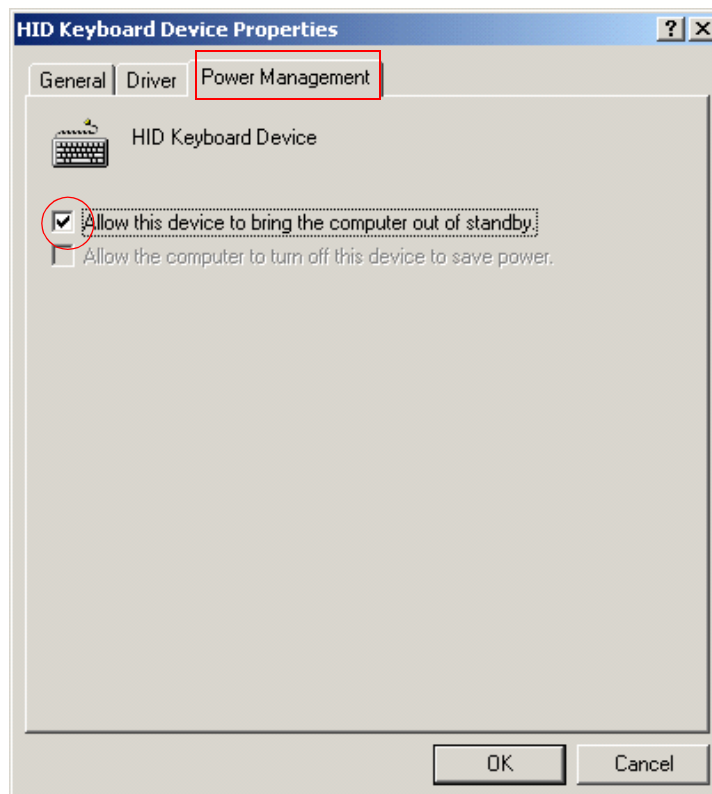
5. Device Manager - Select [Keyboard] - [Standard 101/102-key or Microsoft Natural PS/2 Keyboard].

6. Select [Power Management]. Check [Allow this device to bring the computer out of standby] and click [OK].
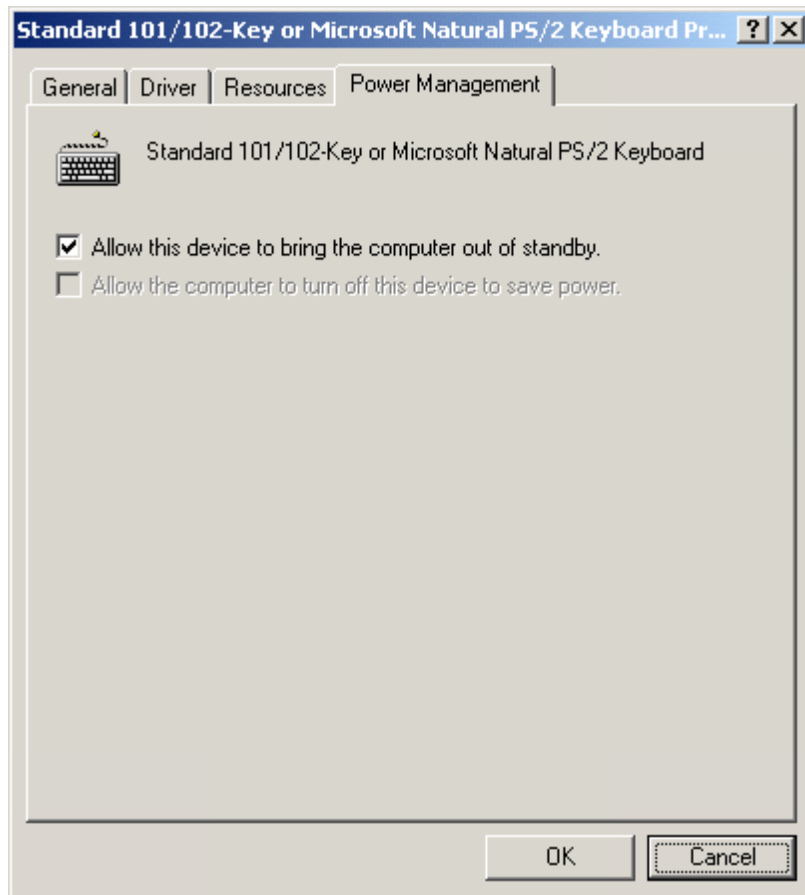
Installing the Serial Port Driver

When the serial port is transmitting with Windows 2000, this Driver prevents the OS from shifting to the Standby mode and the operation of the full-on mode is continued.

When installing the service pack, install the serial driver again.

✎ *Note*
Be sure an administrator installs the serial driver.

Install the serial port driver using the following procedure.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start Win2K\Epserial\EPSERIAL.EXE.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now; then click **Finish** to restart the system.

Uninstalling the serial port driver

Uninstall the serial port driver using the following procedure.

1. Open the Control Panel, and select Add/Remove Programs.

2. The Add/Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Installation for Windows XP Professional Locally Procured Edition

✎ *Note:*
Use Windows XP Service Pack2 or later. The Operating System cannot be installed with the CD-ROM of Service Pack 2 or earlier
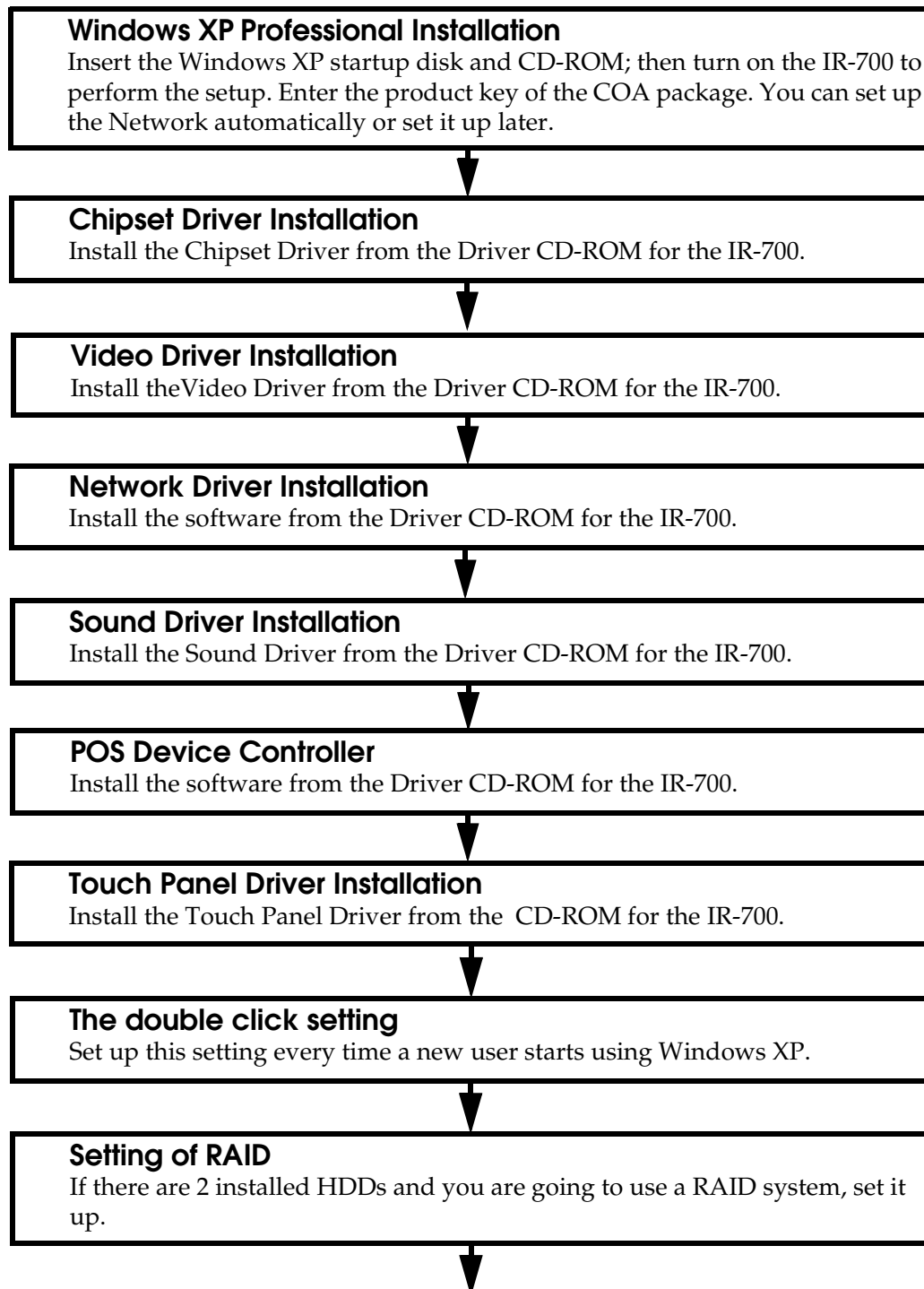
Installation Procedure

If you install Windows XP Professional locally procured edition, follow the steps below.

Windows XP Professional Installation
Insert the Windows XP startup disk and CD-ROM; then turn on the IR-700 to perform the setup. Enter the product key of the COA package. You can set up the Network automatically or set it up later.

Chipset Driver Installation
Install the Chipset Driver from the Driver CD-ROM for the IR-700.

Video Driver Installation
Install theVideo Driver from the Driver CD-ROM for the IR-700.

Network Driver Installation
Install the software from the Driver CD-ROM for the IR-700.

Sound Driver Installation
Install the Sound Driver from the Driver CD-ROM for the IR-700.

POS Device Controller
Install the software from the Driver CD-ROM for the IR-700.

Touch Panel Driver Installation
Install the Touch Panel Driver from the CD-ROM for the IR-700.

The double click setting
Set up this setting every time a new user starts using Windows XP.

Setting of RAID
If there are 2 installed HDDs and you are going to use a RAID system, set it up.

```
          │
          ▼
┌─────────────────────────────────────────────────────────────┐
│ Other software Installation                                  │
│ Install utilities such as serial driver, 28-key, MSR, and 60-key from backup │
│ folder if necessary.                                         │
└─────────────────────────────────────────────────────────────┘
          │
          ▼
┌─────────────────────────────────────────────────────────────┐
│ Activation                                                   │
│ Authenticate the license by the network or by telephone.     │
│                                                              │
└─────────────────────────────────────────────────────────────┘
```

Setup procedure

Prepare the following before starting the setup of Windows XP.

1. Startup disk

   • Create the startup disk using the following procedure.

   1. Prepare a blank floppy disk.

   2. Copy all files in /WINXP/SATARAID/Driver folder of the driver CD to the floppy disk.

2. CD/DVD-ROM drive

3. FD drive

   • This is necessary for reading the startup disk.

✎ *Note:*
When installing Windows XP, be sure to connect the CD/DVD-ROM drive and FD drive to the USB connector on the side. It may cause malfunction if they are connected to the USB at the rear.

Windows XP is set up by using the following procedure:

1. Connect the keyboard and mouse to the IR-700.

2. Connect the CD/DVD-ROM drive and FD drive to the IR-700.

3. Insert the CD-ROM of Windows XP in the CD/DVD-ROM drive and boot up the system.

4. Start up the BIOS setup utility. (Refer to Chapter 5 for the operating procedure of the BIOS setup utility.)

5. Set [USB 2.0 (EHCI)] to Disabled in the Chipset menu of the BIOS setup utility.

6. Select [Boot Device Priority] in the BOOT menu of BIOS setup utility. Set to the CD-ROM model number connecting the 1st Boot Device of Boot Device Priority.

7. Select "Save Changes and Exit" in the Exit menu, and press the Enter key. The following dialog box is displayed.

   Save configration changes and exit setup?
              [OK]   **[Cancel]**

   Select [OK], and press the Enter key.

8. Press the Enter key when the following message is displayed.
   "Press any key to boot from CD. ."

9. Installation is started when the OS setup screen is displayed, and the following message is displayed at the lower left on the screen.
   "Press F6 if you need to install a third party SCSI or RAID driver"
   When this message is displayed, press the F6 key. Since this screen will not stop, watch the screen with care to press the F6 key.

10. The following message is displayed. Press the S key.
    * To specify additional SCSI adapters, CD-ROM drives, or apecial disk controllers for use with Windows, inckuding those for which you have a device support disk from a mass storage device manufacture, press S.

11. Insert the startup disk into the FD drive after the following message is displayed, and press the Enter key.
    Please insert the disk labeled
    Manufacturer-supplied hardware support disk
    into Drive A:
    Press ENTER when ready.

12. When the selection screen of Silicon Image is displayed, select "Silicon Image SiI 3x12 RaidLinl Controller for Windows XP/2003", and press the Enter key.

13. Confirm that the display of Silicon Image is "Silicon Image SiI 3x12 RaidLinl Controller for Windows 2003/NT", then press the Enter key.

14. The [Welcome to Setup] screen is displayed. Press [Enter].

15. The [END-USER LICENSE AGREEMENT] screen is displayed. Read it through and confirm contents. If you agree with them, press the [F8] key.

16. Select the partition to set up Windows, and press [Enter]. When an unformatted partition is selected, a confirmation screen is displayed. Execute the format according to the instructions on the screen. After that, copying of the file starts.

17. Reboot the system again according to the instructions on the screen.

18. The [Regional and Language Options] dialog box is displayed. Confirm the setting contents and click **Next**.

19. The [Personalize Your Software] dialog box is displayed. Input your name and your organization, and then click **Next**.

20. The [Your Product key] dialog box is displayed. Input the 25-digit product key shown on the COA (Certificate of Authenticity) and click **Next**.

21. The [Computer Name and Administrator Password] dialog box is displayed. Input the necessary information and click **Next**.

22. The [Date and Time Settings] dialog box is displayed. Confirm the setting and click **Next**.

23. The system reboots automatically.

24. The [Monitor Settings] dialog box is displayed. Click **OK**.

25. The [Welcome to Microsoft Windows] dialog box is displayed. Click **Next**.

26. The [Help protect your PC] dialog box is displayed. Confirm the setting and click **Next**.

27. The [Who will use this computer ?] dialog box is displayed. Input the user name according to the instruction on the screen.

28. The [Thank you!] dialog box is displayed. Click **Finish**; Windows XP will start.

29. Reboot the system again, and start up the BIOS setup utility.

30. Set [USB 2.0 (EHCI)] to `Enabled` in the Chipset menu of BIOS setup utility.

31. Select "Save Changes and Exit" in the Exit menu, and press the Enter key, and Reboot the system again.

⚠ *CAUTION:*

Setup is executed with the VGA display.

Installing the Intel Chipset Diver

✎ *Note*

The Chipset Driver must be installed before you install other drivers

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WINXP\CHIPSET\infinst_enu.EXE.

2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

3. The License Agreement screen is displayed. Click **Yes**.

4. The Readme Information dialog box is displayed. Click **Next**.

5. Complete dialog box is displayed. Click **Finish**.

Uninstalling the Intel chipset driver

Uninstalling cannot be done.

Installing the VIDEO Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WINXP\VIDEO\win2k_xp1413.exe.

2. The Readme Information dialog box is displayed. Click **Next**.

3. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

4. The License Agreement screen is displayed. Click **Yes**.

5. Complete dialog box is displayed. Click **Finish**.

Uninstalling the video driver

To uninstall the VIDEO Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Extreme Graphics 2 Driver. Click Remove.

3. The System Settings Change dialog box is displayed. Click YES.

Installing the Network Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WINXP\NETWORK\v6.4_pro2kxp_only.exe.

2. The Setup Wizard starts, and the License Agreement dialog box is displayed. Select [I accept the terms in the license agreement] and click **Next**.

3. The Location to Save Files dialog box is displayed. Input the folder and click **Next**. The default setting is C:\IntelPRO.

4. When copying of the file is completed, the Complete dialog box is displayed. Click **Install now**.

5. The Complete dialog box is displayed. Click **Finish**.

Uninstalling the network driver

To uninstall the Network Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Intel(R) PRO Network Adapters and Drivers is selected. Click Change/Remove.

3. The Intel(R) PRO Network Adapters and Drivers Uninstaller dialog box is displayed. Click **OK**.

Installing the SOUND Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WINXP\SOUND\Setup.exe.

2. The Setup Wizard starts and the Welcome screen is displayed. Click **Next**.

3. The Complete dialog box is displayed. Click **Finish**.

Uninstalling the sound driver

To uninstall the Network Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when Realtek AC '97 Audio is selected. Click Change/Remove.

3. The Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

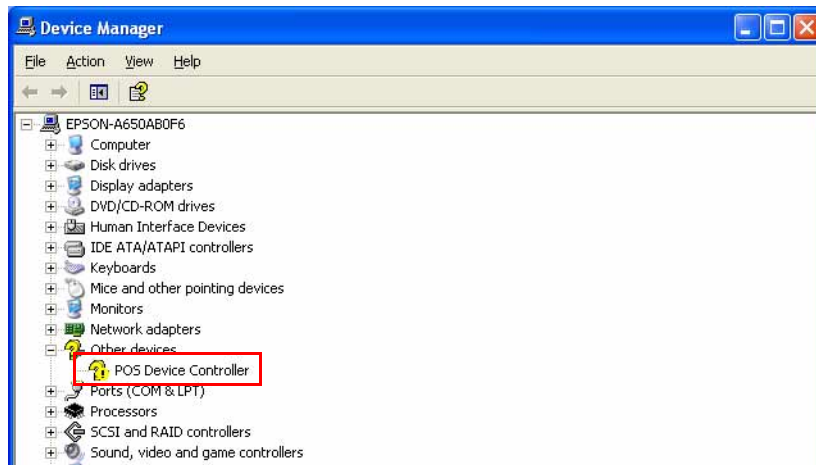## Installing the POS Device Controller

This is installed by the exclusive installation program.

1. Select [START] - [Control Panel] - [Performance and Maintenance] - [System], and open System Properties.
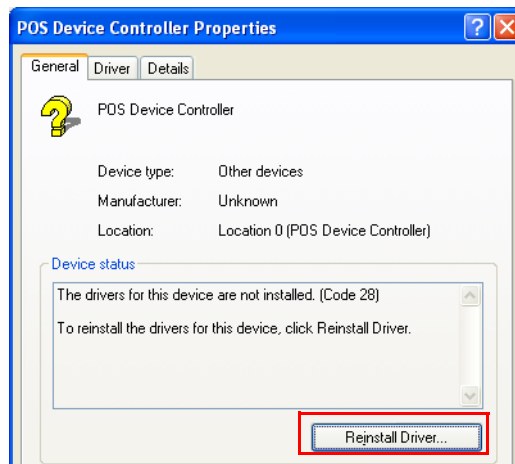
2. Select the Hardware tab, and click the **Device Manager** button.
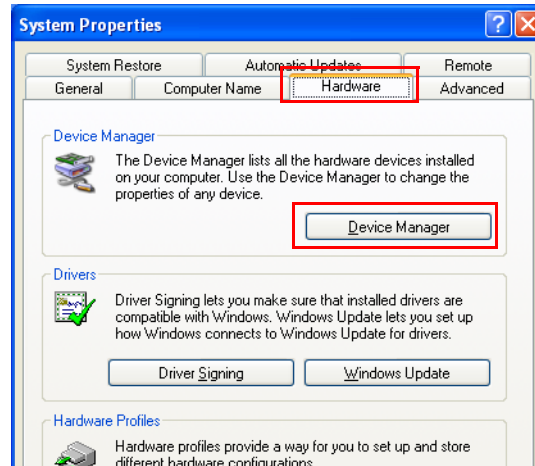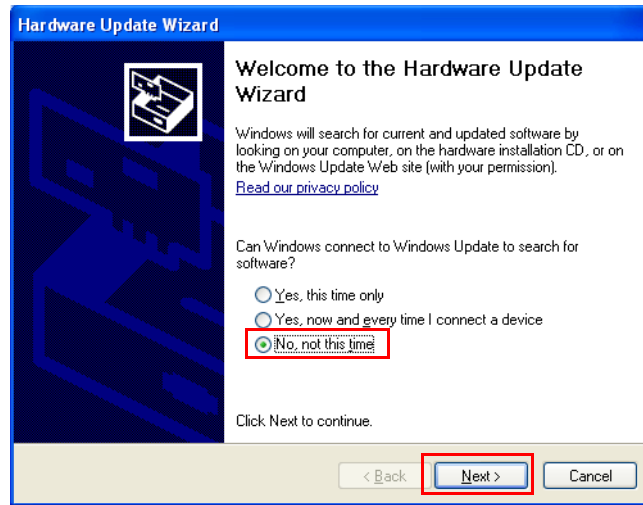

3. Device Manager starts up. Select [Other Device] - [POS Device Controller].

4. POS Device Controller Properties opens. Click [Reinstall Driver] button.

5. Update Wizard starts and the Welcome screen is displayed. Select [No. not this time], and click the **Next** button.


6. The following screen is displayed. Select [Install from a list or specific location [Advance]] and click the **Next** button.
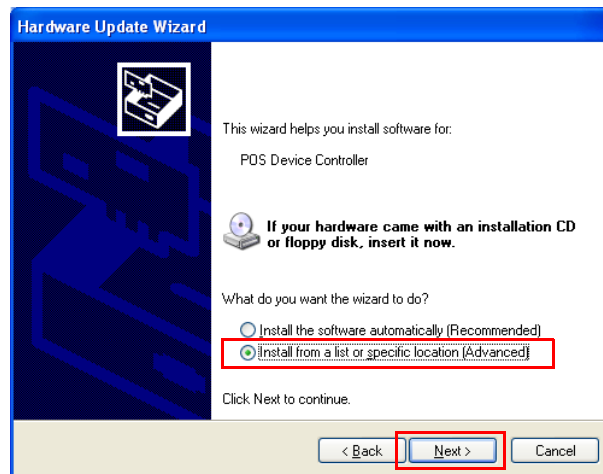
7. Please choose your search and installation options screen is displayed. Select [Search for the best driver in these location.], uncheck [Search removable media (floppy, CD-ROM...)] and check [Include this location in the search].
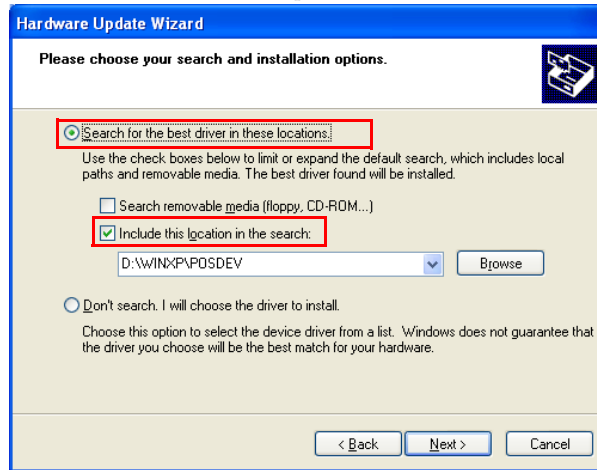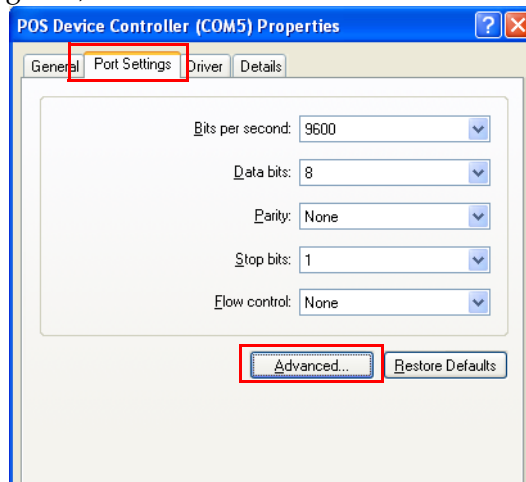

8. Click the **Browse** button, and select /WINXP/POSDEVof the connected CD drive. Press the [Next] button.

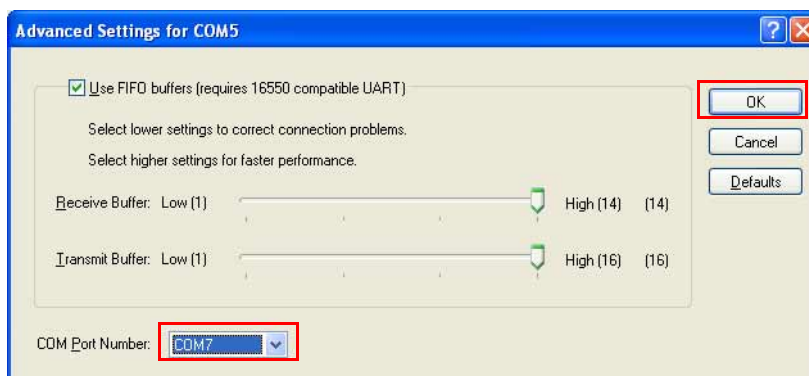9. The Complete dialog box is displayed. Click **Finish**.
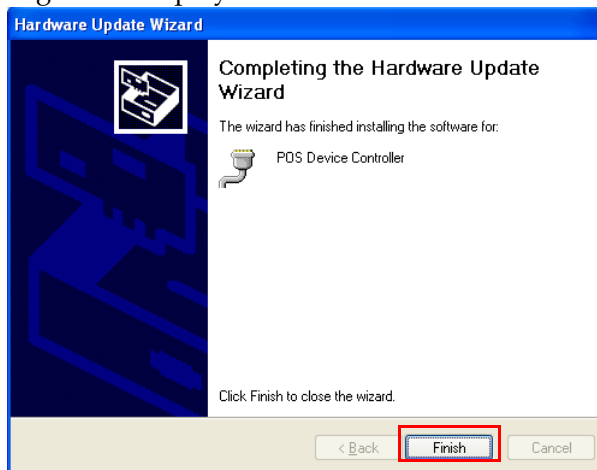
10. Select [Ports (COM & LPT)] - [POS Device Controller (COM 5)] in the Device Manager screen, and open POS Device Controller Proparties.
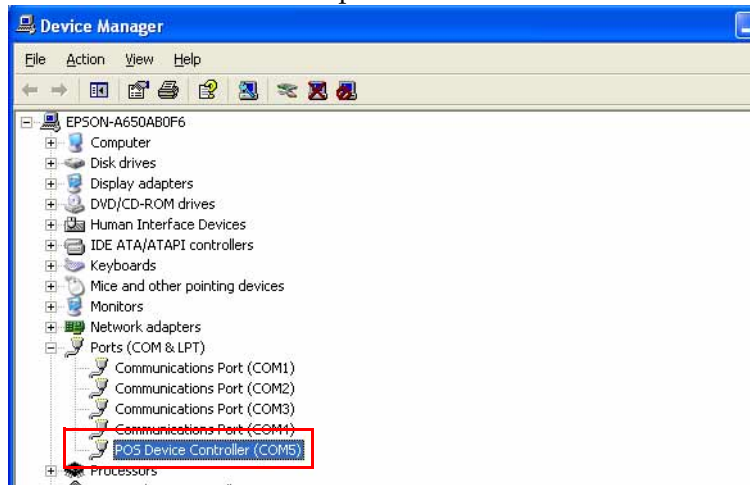
11. Select the Port Settings tab, and click the **Advance** button.

12. Advanced Settings for COM5 screen is displayed.Change the COM Port Number from COM5 to COM7, and click the **OK** button.

13. Close other screens, and restart the IR-700.

Uninstalling the POS Device Controller

Uninstalling cannot be done.

Installing the Touch Panel Driver

This is installed by the exclusive installation program.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WINXP\TOUCH\EpsTPWDM.EXE.

2. The Setup Wizard starts and the Welcome dialog box is displayed. Click **Next**.

3. The Choose Destination Location dialog box is displayed. Input the folder and click **Next**. The default setting is C:\Program Files\EPSON\TouchPanel.

4. The Setup Complete dialog box is displayed. Confirm that [Yes, I want to restart my computer now] is selected, and click **Finish** to reboot the system.

Uninstalling the touch panel driver

Uninstall the Touch Panel Driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Touch Panel Driver is selected. Click Change/Remove.

3. The Confirm File Deletion dialog box is displayed. Click **Yes**.

4. The reboot dialog box is displayed. Click **OK**.

5. Uninstalling is completed and the dialog box is displayed. Click **OK**.

Setting the recognition range of the double click

When Windows XP is installed, the permissible double click level is limited and it is difficult to double click with your finger. To change the permissible double click level, start up the EPSON Touch Panel Configuration Tool. It changes the registry key automatically. This setting makes easy to double click with your finger.

However, when a new user first logs on, the permissible level is limited because the default value of Windows is the value of the registry key. So the registry key must be modified for individual users.

When Windows XP is set up and a new user is created, the registry key must be modified for individual users by following the steps below.

✎ *Note*
The administrator modifies the registry key.

Installing the Serial Port Driver

When the serial port is transmitting with Windows XP, this Driver prevents the OS from shifting to the Standby mode and the operation of the full-on mode is continued.

✎ *Note*
Be sure an administrator installs the serial driver.

Install the serial port driver using the following procedure.

1. Insert the Driver CD-ROM for the IR-700 in the CD-ROM drive. Start WinXP\Epserial\EPSERIAL.EXE.

2. Start serial driver Setup. The welcome screen is displayed. Click **Next**.

3. After installation is completed, the InstallShield Wizard Complete dialog box is displayed. Select Yes, I want to restart my computer now, then click **Finish** to restart the system.

Uninstalling the serial port driver

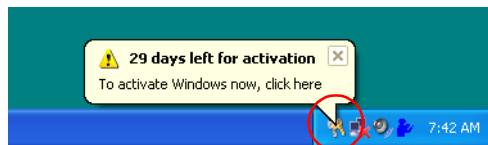Uninstall the serial port driver using the following procedure.

1. Open the Control Panel, and select Add or Remove Programs.

2. The Add or Remove Programs dialog box is displayed. Click Change or Remove Programs to display a list of the currently installed programs. Change/Remove will be displayed when EPSON Serial Driver is selected. Click Change/Remove.

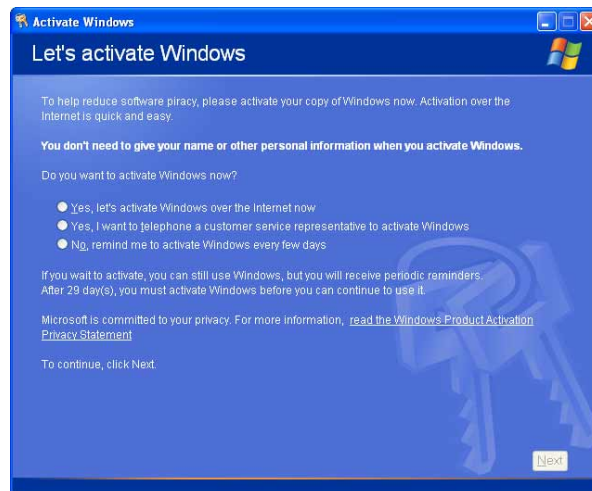3. The Confirm File Deletion dialog box is displayed. Click **OK**.

Activation

The copy prevention technology for softwares called Product Activation (hereafter referred to as License authentication) is used in Windows XP. Thus, license authentication is required to reinstall or recover the OS.

The following is the procedure for the license authentication.

1. Turn on the power of IR-700.

2. The following message is displayed on the lower right of the screen shortly after Windows XP starts up. Click the icon.

3. Windows license authentication screen is displayed."Select Yes, let's activate Windows over the Internet now" or "Yes, I want to telephone a customer service representative to activate Windows", and click the [Next] button.

4. Follow the instructions on the screen, and complete the license authentication procedure.

✎ *Note:*
If the license authentication is not carried out, you will not be able to use XP after expiration. Thus, be sure to carry it out when the OS is installed.
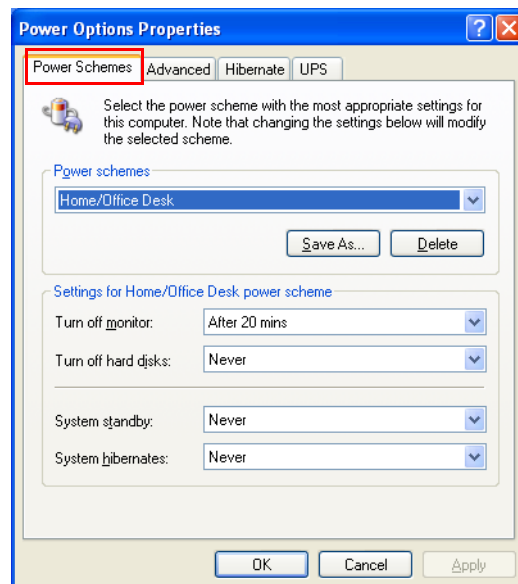
HDD Power Down Timer Setting

When the time the HDD is not accessed exceeds the specified time, the HDD motor can be stopped. The method of setting depends on the OS.

❏   Windows XP Professional   This is set with the OS

❏   Windows 2000 Professional   This is set with the OS

❏   WEPOS   This is set with the OS

Windows XP

1.   Select [Control Panel]-[Performance and Maintenance]-[Power Options] in the Start menu of Windows.

2.   [Power Options Properties] is displayed. Click the [Power Schemes] tab.

3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.
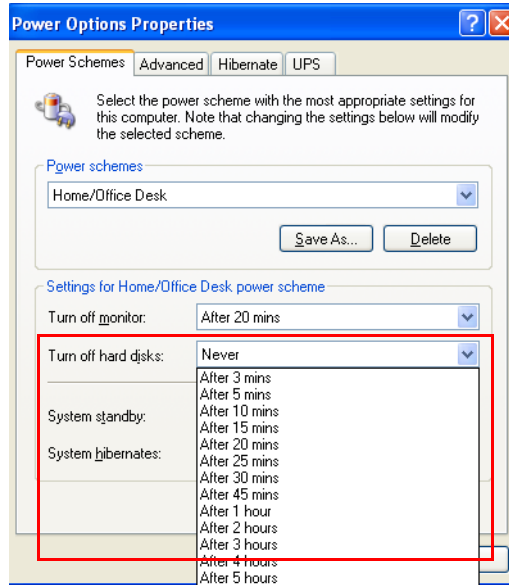
4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

Windows 2000 Professional

1. Select [Settings]-[Control Panel]-[Power Options] in the Start menu of Windows.

2. [Power Options Properties] is displayed. Click the [Power Schemes] tab.

3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.
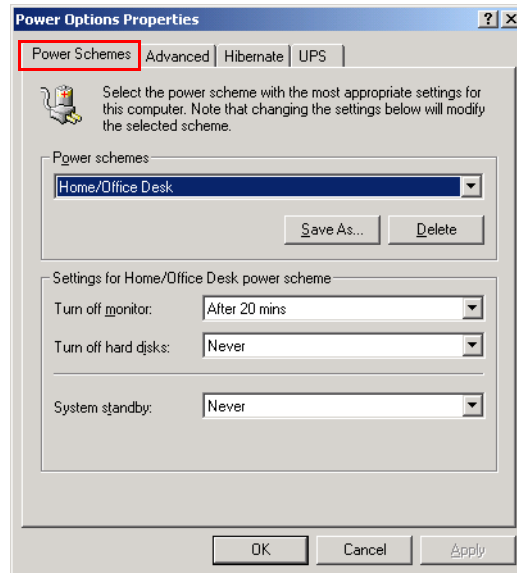

4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.

WEPOS

1. Select [Control Panel]-[Performance and Maintenance]-[Power Options] in the Start menu of Windows.

2. [Power Options Properties] is displayed. Click the [Power Schemes] tab.

3. Select the time in the [Settings for Home/Office Desk power scheme: Turn off hard disks] option.
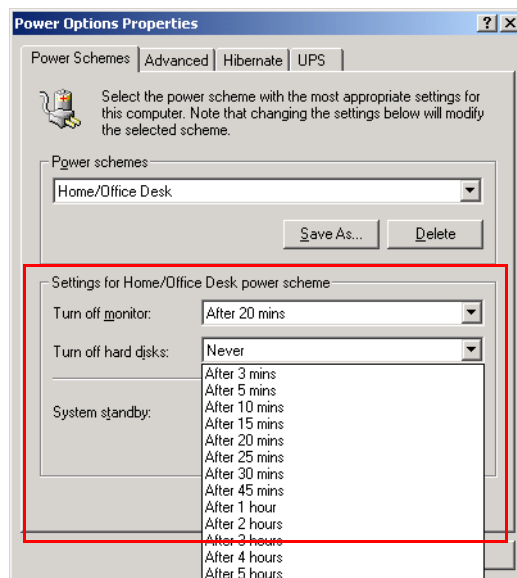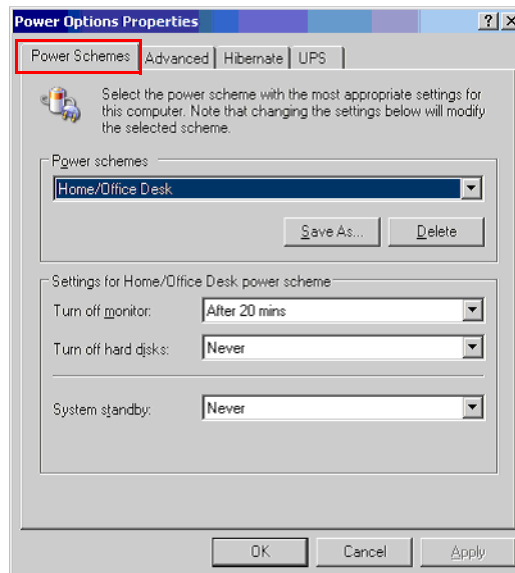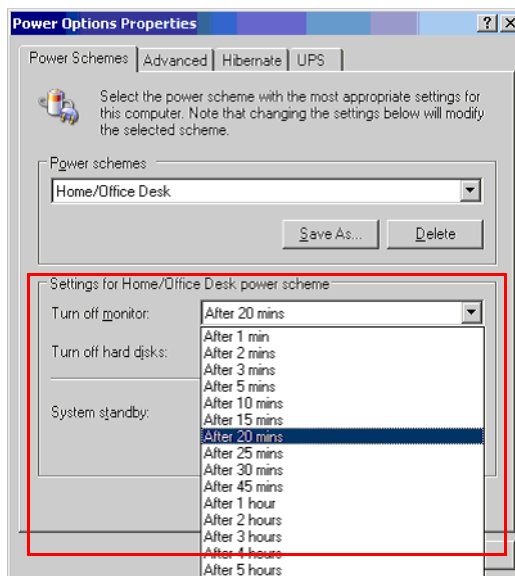

4. Click [OK].

When there is no HDD access for the time set, the HDD Power Down Timer switches over to HDD Power Down and the motor of the HDD stops.
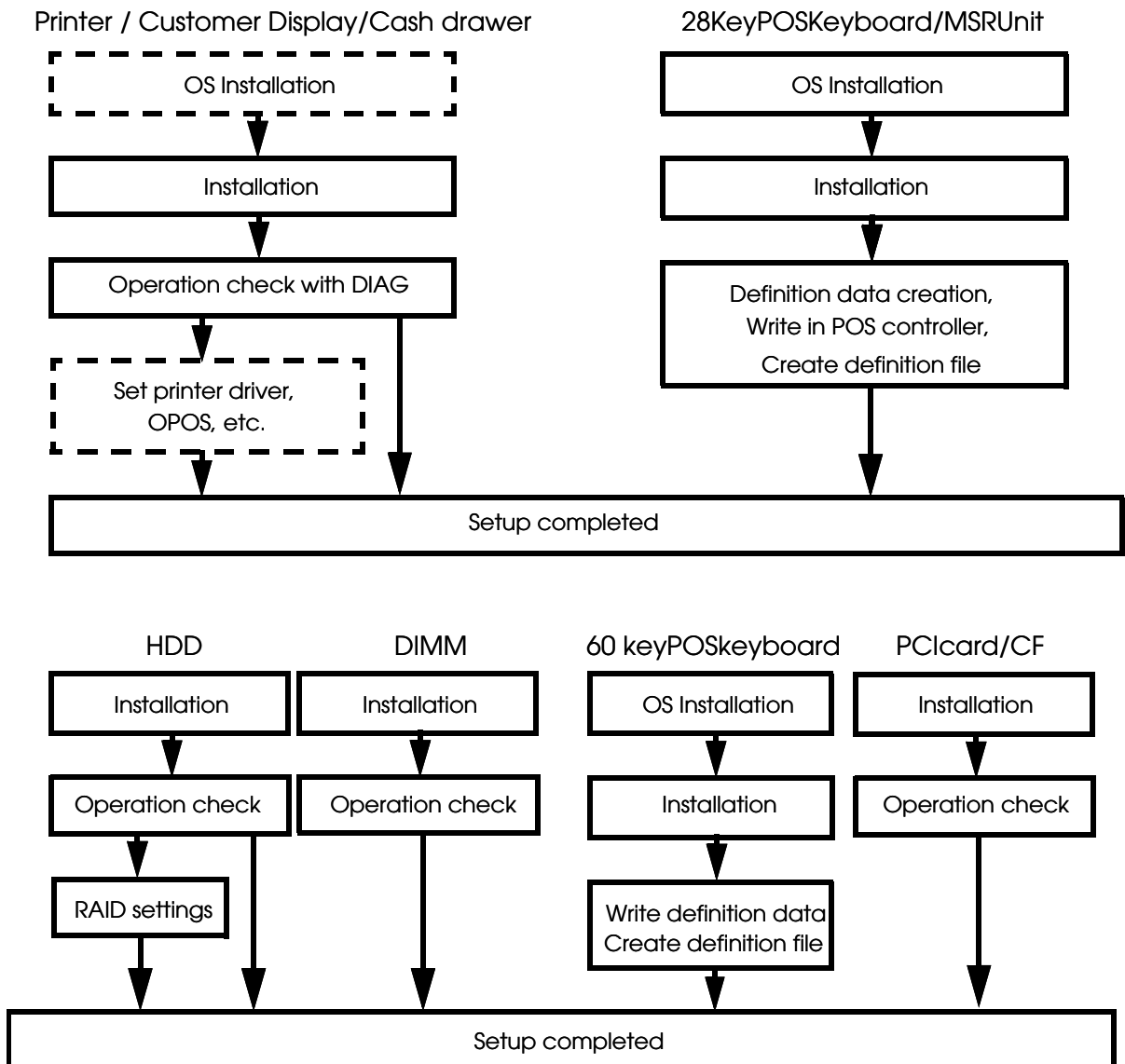
Chapter 3
Hardware Setup

This chapter explains how to set up options and peripheral units of the IR-700.

Overview of the setup

The peripherals of the IR-700 include the ones that are set by a driver or a utility at the time of setup and must confirm in the operation. Peripherals may not operate correctly if the installation order of OS and driver is not correct.

The basic flow of the setup is described below.

Printer / Customer Display/Cash drawer   28KeyPOSKeyboard/MSRUnit

```
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐      ┌────────────────────────┐
│      OS Installation       │      │      OS Installation        │
└ ─ ─ ─ ─ ─ ┬ ─ ─ ─ ─ ─ ┘      └───────────┬────────────┘
            ↓                                  ↓
┌────────────────────────┐      ┌────────────────────────┐
│      Installation          │      │      Installation           │
└───────────┬────────────┘      └───────────┬────────────┘
            ↓                                  ↓
┌────────────────────────┐      ┌────────────────────────┐
│ Operation check with DIAG │      │ Definition data creation,   │
└───────────┬────────────┘      │   Write in POS controller,  │
            ↓                     │   Create definition file    │
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐      └───────────┬────────────┘
│    Set printer driver,     │                  ↓
│      OPOS, etc.            │
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```

Setup completed

HDD   DIMM   60 keyPOSkeyboard   PCIcard/CF

```
┌──────────┐  ┌──────────┐  ┌──────────────┐  ┌──────────────┐
│Installation│  │Installation│  │ OS Installation │  │  Installation   │
└────┬─────┘  └────┬─────┘  └──────┬───────┘  └──────┬───────┘
     ↓              ↓               ↓                  ↓
┌──────────┐  ┌──────────┐  ┌──────────────┐  ┌──────────────┐
│Operation  │  │Operation  │  │  Installation   │  │Operation check│
│  check    │  │  check    │  └──────┬───────┘  └──────┬───────┘
└────┬─────┘  └────┬─────┘         ↓                  ↓
     ↓           ┌──────────────┐
┌──────────┐    │Write definition data│
│RAID settings│    │Create definition file│
└────┬─────┘    └──────┬───────┘
```

Setup completed

Refer to each item about the other peripheral devices and options.

Precautions for Setting Up

In addition to the precautions below, warning instructions and cautions to note are given at each work stage.

⚠ CAUTION:

❑ Turn off the power of all equipment, such as the IR-700 and peripherals, before setup. Also, unplug the power cables of the IR-700 and peripherals.

If the power is not turned off, the IR-700 or peripheral units may be damaged during setup.

Static electricity can damage the components of the IR-700. Before you touch any components, touch a grounded metal surface to discharge the static electricity in your body. It is also recommended that you wear a grounded wristband and work on an antistatic surface.

Do not touch the connectors. Dirt may cause a malfunction.

Do not apply excessive force to connectors, cables, or screws during connection. Excessive force may damage the connectors or the screw threads.

Do not allow cables to be pinched. The cables may be damaged or disconnected.

How to Install Options/Peripheral Units

Refer to the relevant page below for how to install options for the IR-700 and peripherals.

| Options/Peripheral	Page
rear cover	3-3
28-key POS keyboard unit (DM-KX028)	3-4
MSR unit (DM-MX123)	3-17
60 key POS keyboard unit (DM-KX060)	3-22
HDD unit	3-40
Main board unit	3-43
DIMM	3-45
Printer unit	3-46
Dummy Cover (OI-X02)	3-50
Printer Tray (OI-X01)	3-51
Customer display	3-53
Powered USB board	3-63
PCI Card	3-68
Cash drawer	3-70
Power cable	3-72
Peripheral Devices to the COM Port	3-73

Rear cover

Remove by the following procedure.

1. Loosen the four screws of **the rear cover**. These screws cannot be removed from the case.

2. Incline **the rear cover** in the direction shown in the illustration, to remove **the rear cover.**
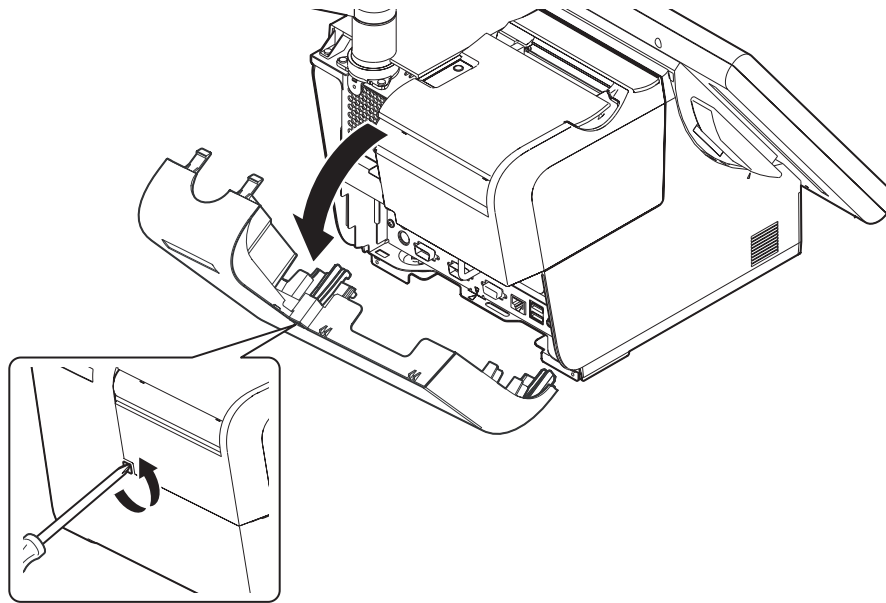
When **the rear cover** is installed, align the ribs under **the rear cover** to the notches of the frame and the main body.

Ribs and notches
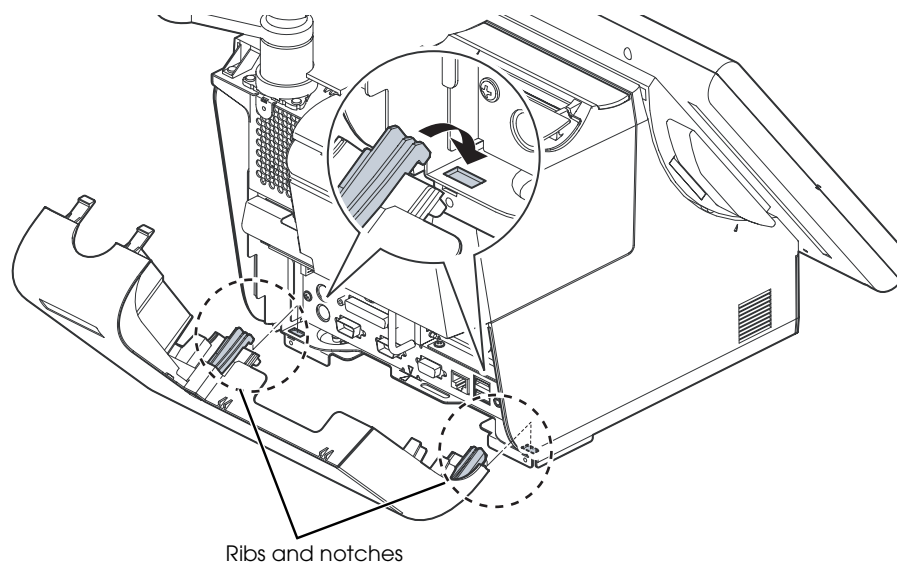
Setup of 28-key POSkeyboard (DM-KX028)

A 28-key POS keyboard unit (DM-KX028) can be used by connecting to the LCD unit of IR-700, which has a total of 28 keys in 4 lines horizontally and 7 lines vertically. Also, it can be used by connecting an MSR (Magnetic Stripe Reader) unit.

The 28-key POS keyboard unit is enabled by writing definition data into the POS controller in the LCD unit of LCD 700. This definition data can also be used in another IR-700 by saving as a file.

The POS controller is connected to the USB port in the inside of IR-700. When it receives key input from the 28-key POS keyboard unit, it outputs the defined data. This data is input into IR-700 as a character string, just as with a USB keyboard.

Since data is not saved in the 28-key POS keyboard unit, you can use it without changing the definition data if you replace the keyboard. However, resetting of the definition data is required when the LCD unit is replaced.

The definition data of IR-320/310 can also be read in as a definition file for the IR-700.

It can also be used by switching, with the layer change key, or in software, by assigning several definition data to one key, with the layer function.

✎ *Note:*
Do not input data from an input device (external keyboard, POS keyboard, etc.) connected to the keyboard interface, during data input from the 28-key POS keyboard unit and the MSR unit.

The 28-key POS keyboard unit cannot be connected to the 15" Display model.

Bundled items

The following items are bundled with the 28-key POS keyboard unit (DM-KX028).

28-key POS keyboard unit main body

❏ Mounting screw 4

❏ Upper screw cover 1

❏ Lower screw cover 1

❏ Key top cover (for single size, for double size)

❏ Key top ("0" key single size, "0" key double size, "00" key, "1" ~ "9" key, "."key, double size key)

❏ User's manual

❏ Key top remover

Flow of setup

1. Check that the OS and POS controller related utilities are installed in the IR-700.

2. Install 28-key POS keyboard unit in the LCD unit and connect it to the IR-700.

3. Design the key arrangement to change the key tops.

4. Turn the IR-700 on to boot the 28-key definition utility.

5. Print the key labels and set the keys to define them in the POS controller.
   If you also use this setting in another IR-700, save the definition data into a file.
   If there is a definition file, read the definitions into the POS controller.

6. Check the input data, using the memo pad of Windows, etc.

7. Attach the printed key labels on the key tops of the 28-key POS keyboard unit.

8. This completes the setup of the 28-key POS keyboard unit.

Installation

Connect the 28-key POS keyboard unit according to the following procedure.
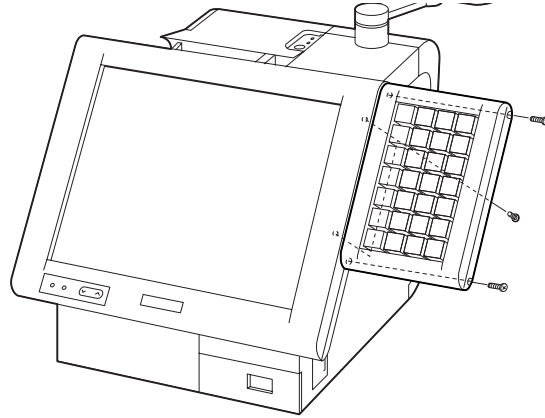
1. Remove two screws and remove the connector cover installed in the right rear of the LCD.
   Remove the MSR unit if it is installed.
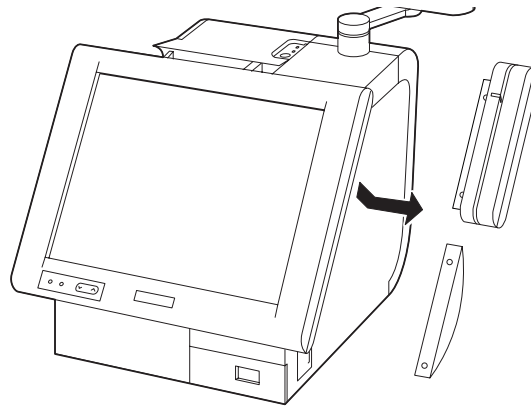
2. Connect the 28-key POS keyboard unit to the LCD unit.
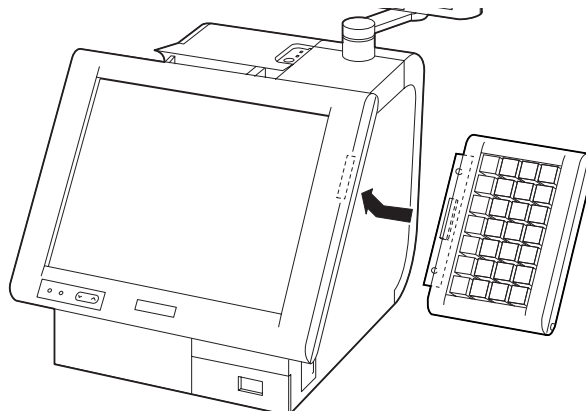
3. Fasten it to the LCD unit, using the four screws bundled with the 28-key POS keyboard unit. Two screws of M3 X 10 are screwed from beneath and two screws of M3 X 12 are screwed from the side.

4. Install the upper screw cover and lower screw cover bundled with the 28-key POS keyboard unit.
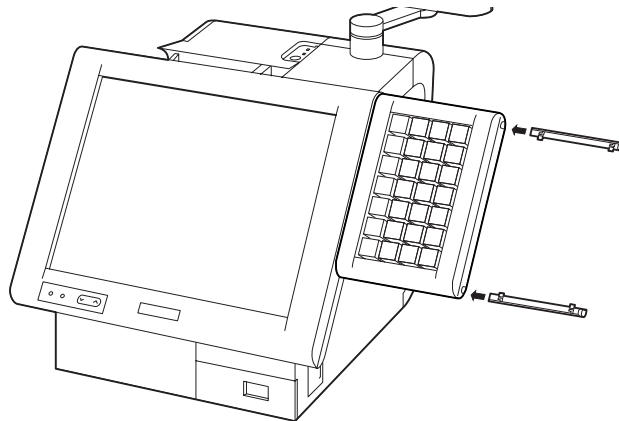

5. Install the connector cover or MSR unit on the POS keyboard unit with two screws that were removed in step 1.
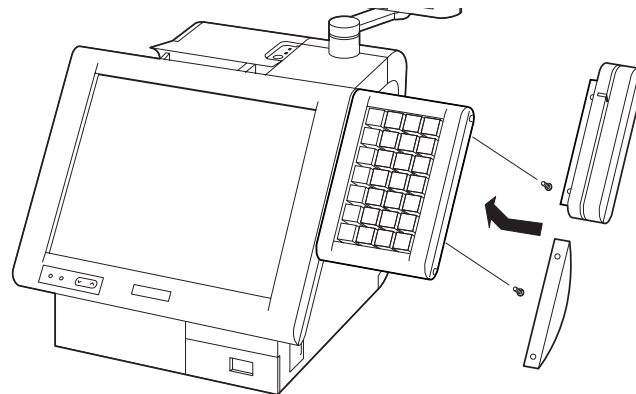
Installation of the 28-key definition utility

To define data in the 28-key POS keyboard unit, installation of the 28-key definition utility is required. The installation method is as follows.
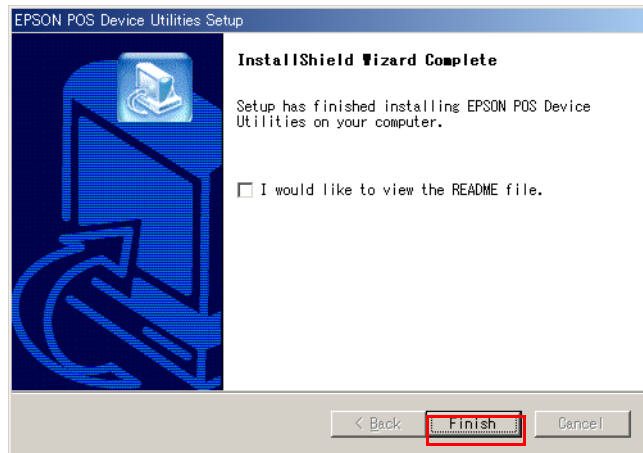
1. Boot EPSPOSDV.exe from **BACKUP\POSDVCFG\TOOL**.

2. "EPSON POS Device Utilities Setup" screen is displayed. Press the [Next] button.
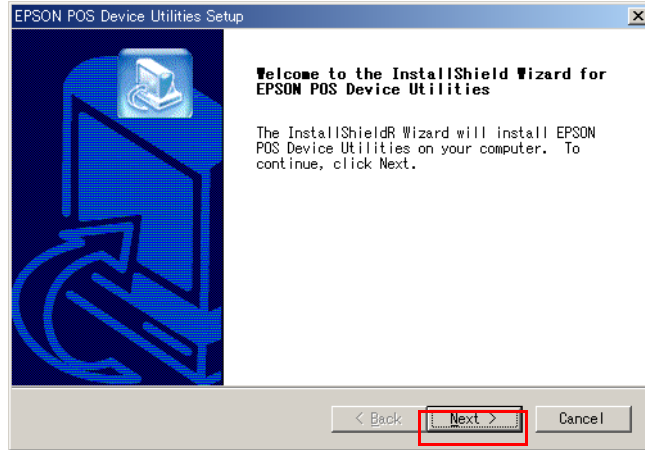
3. Setup Type screen is displayed. Normally, select "Typical" and press [Next] button.
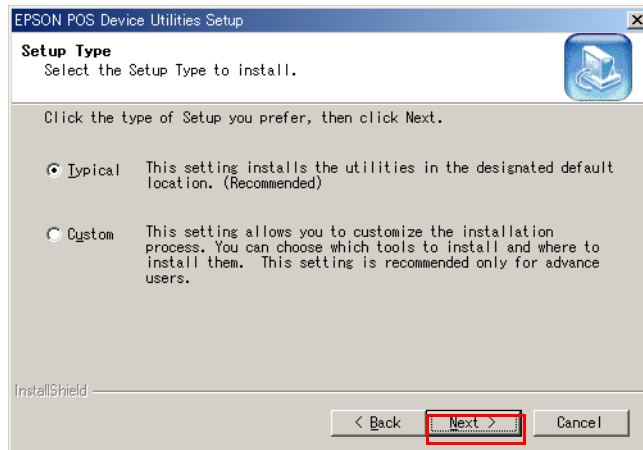
4. InstallShield Wizard Complete screen is displayed. Press [Finish] button.

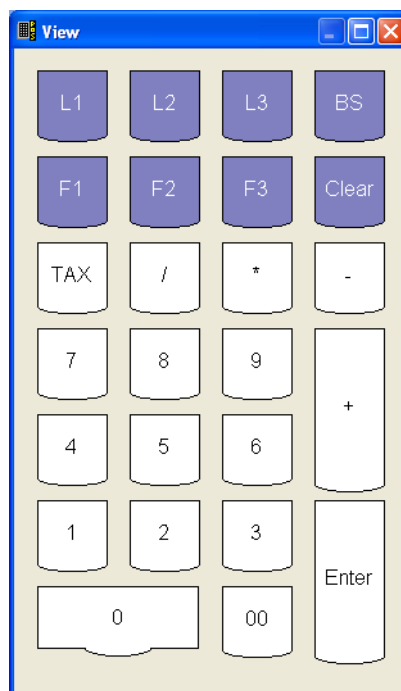## Design of definition data and change of key tops

Design data defined to each key and layout double size key, etc.

✎ *Note*
Refer to "Table 4-1 Definable Keys" on page 14 for definable keys.
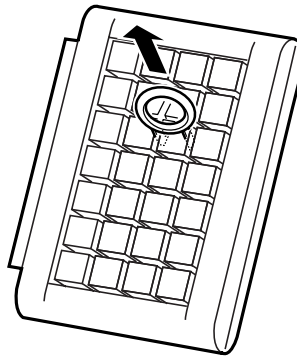
Example

Change of key tops

Change the key tops according to the designed arrangement. Change the key tops according to the following procedure.

1. As the figure bellow illustrates, insert the key top remover bundled with the keyboard unit on to the key top you wish to remove.

2. Pull up the key top remover to remove the key top.

3. Repeat procedures 1 and 2 when removing several key tops.

4. Insert the key top to be changed, directly from above.
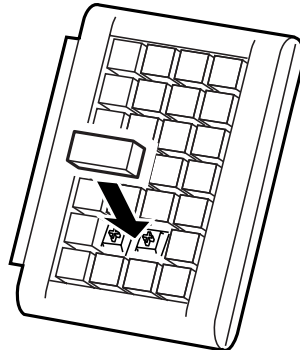
28 key definition utility

To key input using the 28-key POS keyboard, it requires setting definition data of each key using the 28-key definition utility to write the properties into the POS controller of the LCD.

❑ Set definition data of the 28-key keyboard to write it in the POS controller of the LCD.

   • 28 key definition utility

❑ Save of definition data

It is recommended that definition data be saved despite the fact that the definition data is written in the POS of the LCD. The saved file is created using the 28- key board definition utility. (Write the saved file in the POS controller using the definition data auto-configure utility. This method can be used for configuring the same settings on several systems, or it can also be used as a batch file.)

   • Definition data auto-configure utility

Refer to Chapter 4 Utility for more information.

Setting of key labels and key definitions

The method to newly define a key is described here. Refer to 3-15 when defining the key using an existing definition file.
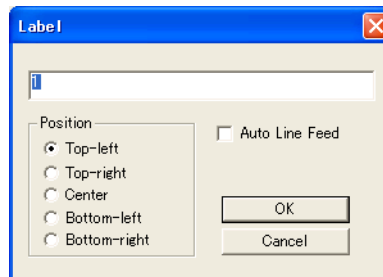
1. Connect the external keyboard to IR-700 and turn the power on.

2. Boot the 28-key POS keyboard setting utility. The following screen is displayed after booting the program.
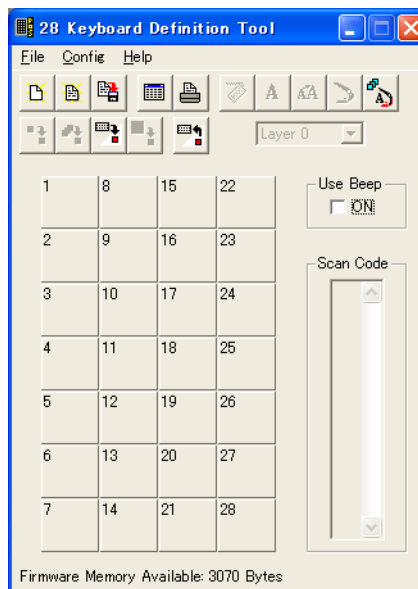
3. Select the key for which you wish to define the label and press the **Label** button.
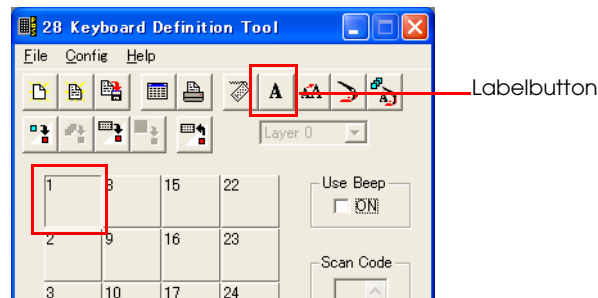
Labelbutton

4. Press the **Label** button to open the Label dialog.

5. Input character strings for label definition. Up to 20 characters can be input.
   "|" refers to a new line.
   The display position of the input characters can be set by selecting the option button [Position].
   They are displayed with word wrap when the [Auto Line Feed] check box is checked.

6. Press the **OK** button to close the Label dialog, and display the input characters. **Press the Cancel** button to cancel the input.

✎ *Note*

The character size, color and background of the defined label can be changed. Refer to "Table 4-1 Definable Keys" on page 14 for more information.

7. Press **(Code)** button.

Codebutton
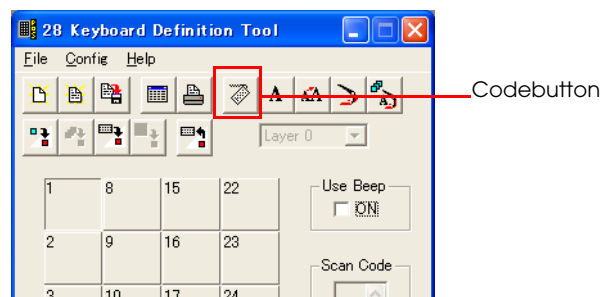
8. Press **Code** to open the Scan Code dialog.

9. Input character strings for key definition.The codes corresponding to the input characters in Scan Code. The codes can be input up to 63 bytes.

    The input value can be deleted by pressing [Clear].

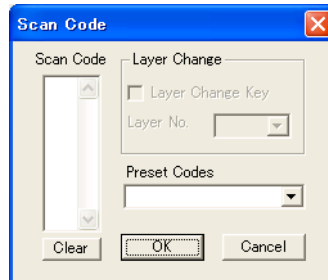   [Preset Codes] combo box can select *Ctrl*+*Alt*+*Del* as a special key and define it.

✎ *Note*
Refer to 3-16 for layer.

10. Press **OK** button to close Scan Code dialog with defining input scan code to the key. The input scan code is displayed on the scan code area.

Scan code area
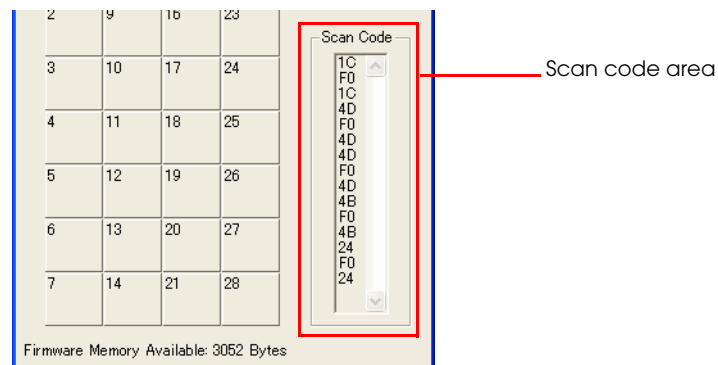
✎ *Note*
In this state, data is defined in the 28-key definition utility, and the data is not written to the POS controller.

11. Repeat procedures 3) to 10) to set the label setting of each key and carry out data definition.

12. When a double key is set, the two keys are linked by selecting the key immediately on the right or directly below while pressing **Shift** while the key is selected.

13. Press the **Prog All** button. All definitions of the key are written into the POS controller. Now you can input data of the 28-key POS keyboard unit in IR-700.

14. Boot a text editor program, such as the memo pad of Windows, to perform input using the 28-key POS keyboard unit. Check whether the defined data is input correctly.

To change definition data

Re-define the code by the following procedure when the defined data is not correct.

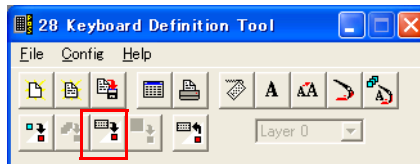1. Select the key for which you wish to change the code.

2. Press **Code** to open Key Code dialog.

3. Press the [Clear] button to clear the set value. Re-input the correct value.

4. Press the **OK** button to close the Key Code dialog, enabling the definition.

5. Select the key for which the definition data is corrected and press the **Prog Key** button. Properties of only the selected key are written to the POS controller.
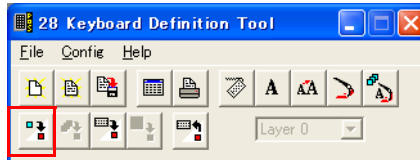
6. Check to see that the defined data is input correctly, by using the memo pad of Windows.

Printing of key labels

Connecting another printer to IR-700 and installing its printer driver are required, in order to use this function. Refer to the instruction manual of the printer to be connected for the printing settings.

1. Check to see that all labels of the keys are set.

2. Press the **View** button.
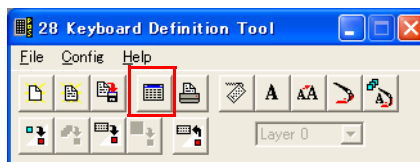
3. Printing contents are displayed. Press **X** after checking the contents.
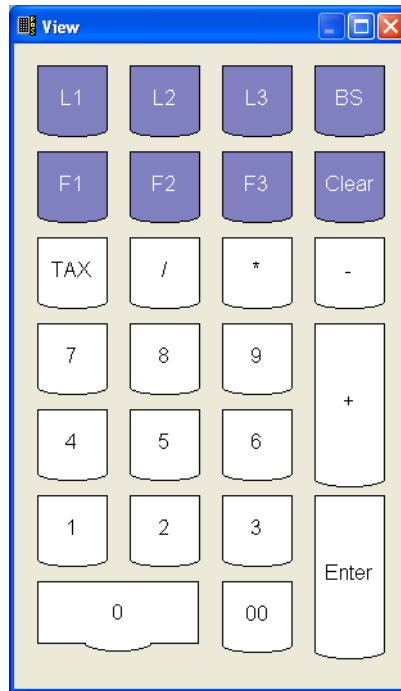
4. Press the **Print** button.
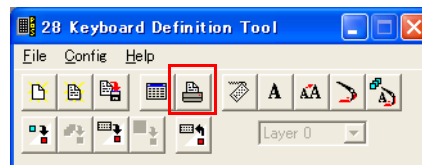
5. The Print Document screen of Windows is displayed. Check the settings of the installed printer and print.

Installation of key top cover

The key top cover is bundled with the keyboard unit. Install the key top cover on the upper surface of the key tops.

Cut out the printed label using the 28-key definition utility.

Place the key top cover in place, according to the following procedure.

1. Set the cut out key label on the appropriate key.

---

2. Fit the key top cover on to the key top, as in the figure below. When you do this, be sure to fit the key top cover firmly.

Key top cover

Printed label
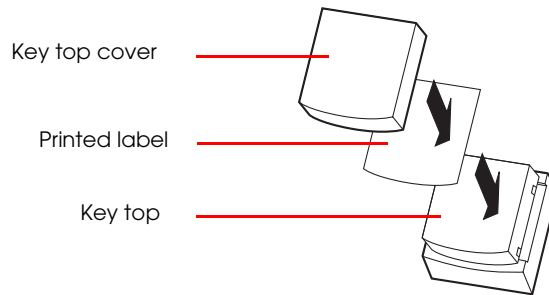
Key top

Removal of key top cover

Remove the key top cover according to the following procedure.

1. Remove the key top using the key top remover.

2. Remove the key top cover from the key tops.

Creation of key definition file

Create the key definition file according to the following procedure.

1. Boot the 28-key definition utility.

2. Read the key definition file or the properties written in the POS controller.

3. Define the key and press Save As button.

Refer to Chapter 4 Utility for more information.

Reading of key definition file

Read the key definition file according to the following procedure.

1. Boot the 28-key definition utility.

2. Press Load button.

3. The key definition created previously can be read.

Refer to Chapter 4 Utility for more information.

How to use layer function

The default setting of the layer function is disabled. To use the layer function, change the setting to ON selecting [Config] - [Layer Mode]
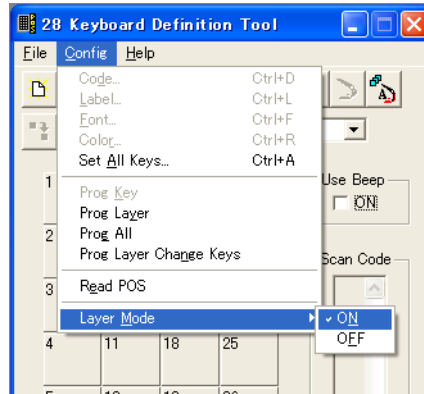
To use a layer, press the button for which the contents are defined in the appropriate layer number, and press the layer change button defined with the 28-key definition utility of the 28-key keyboard.

Example:

1. Button A is defined in layer 1 change button, and for button B, "Orange"is defined in the layer 0 and "Apple" is defined in the layer 1.
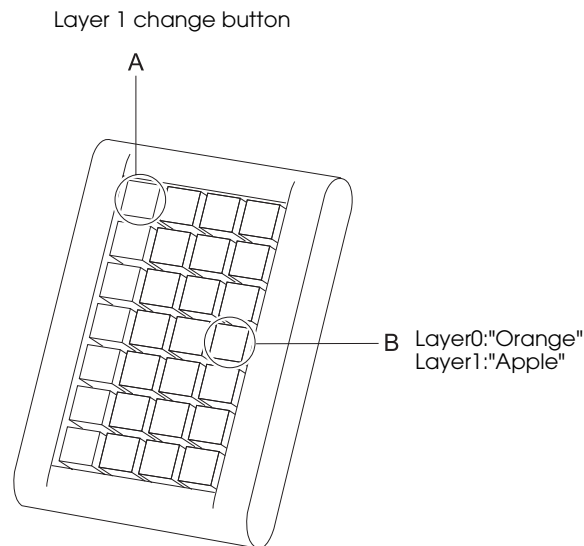
2. Press button B to output "Orange", and press button B with pressing A layer 1 change button to output "Apple".

Refer to Chapter 4 Utility for details of the key definition.

Setup of MSR unit (DM-MX123)

MSR unit (DM-MX123) is the data reader for a magnetic card which can be used by connecting to the LCD unit of IR-700 or the 28-key key board unit.

Although the MSR unit can read data of a card by simply connecting, program the definition data in the POS controller in the LCD of IR-700 using the MSR setting utility in the following cases. This definition data can also be used in another IR-700 by saving as a file.

- When you wish to change the default SS/ES code.

- When you do not wish to read data of a particular track.

- When you wish to specify a country other than the default country of Windows.

Since data is not saved in the MSR unit, you can use it without changing definition data if you replace the MSR unit. However, resetting the definition data is required when the LCD unit is replaced.

Readable specification ISO 7811 type track 1,2 and 3

Bundled items

The following parts are bundled in the MSR unit (DM-MX123).

❑ MSR unit main body

❑ User's manual

Flow of setup

1. Check that the OS and POS controller related utilities are installed in the IR-700.

2. Install the MSR unit in the IR-700 main unit. There is a way to attach it to the LCD unit and to the 28-key keyboard unit.

3. Turn IR-700 on to boot the MSR definition utility.

4. Define the MSR and program it in the POS controller.
   If you also use this setting in another IR-700, save the definitino data into a file.
   If there is a definition file, read it and program it in the POS controller.

5. Check the input data, using the memo pad of Windows, etc.

6. This completes the setup of the MSR unit.

Installation

Install the MSR unit using any of the following procedures.

Method for installation on LCD unit

1. Remove two screws and remove the connector cover installed in the right rear of the LCD unit.
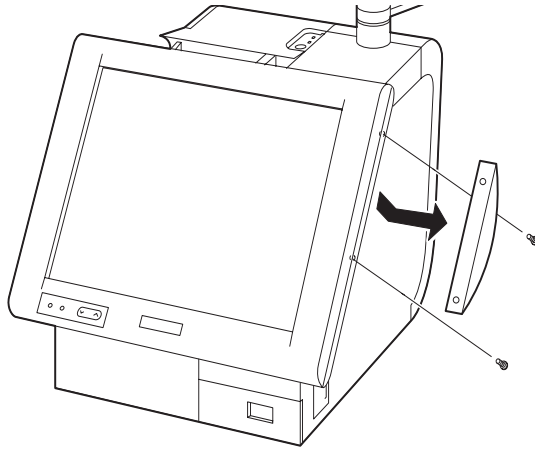
2. Connect the MSR unit to the MSR interface.
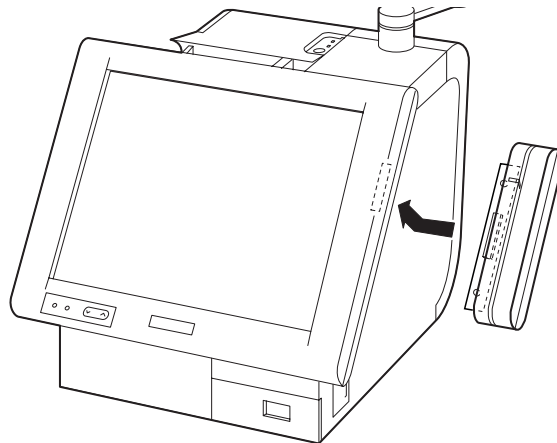
3. Fasten the MSR unit using two screws that were removed in step 1.
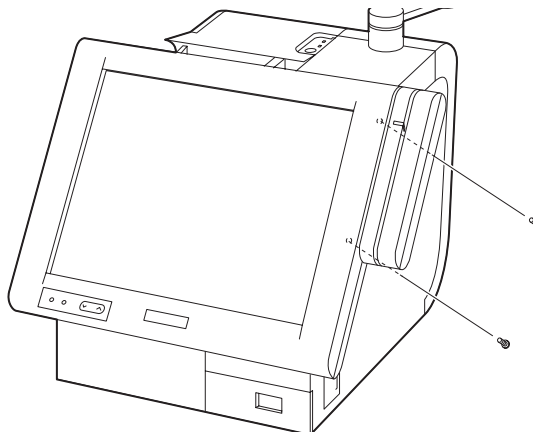
Method for installation on 28-key keyboard unit

✎ *Note:*

It should be installed on the 28-key keyboard unit after attaching the 28-key keyboard unit to the IR-700.

1. Remove two screws and remove the connector cover installed in the right rear of the 28-key keyboard unit.
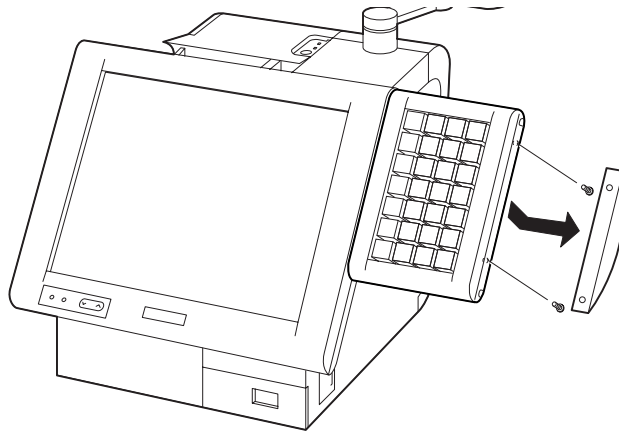
2. Connect the MSR unit to the 28-key keyboard unit.
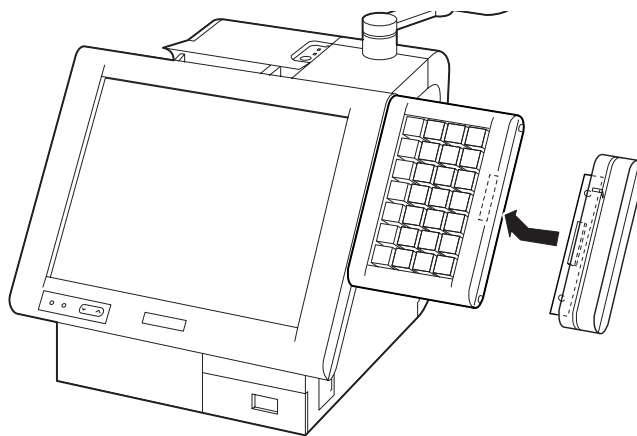
3. Fasten the MSR unit using two screws that were removed in step 1.
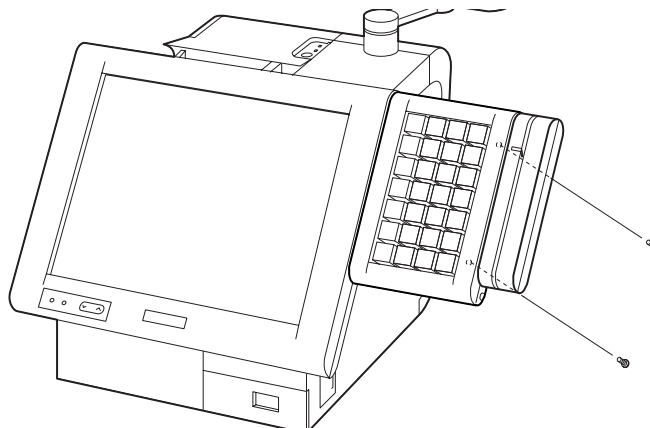
Setting of MSR

1. Connect the external keyboard to IR-700 and turn the power on.

2. Boot the MSR setting utility. The following screen is displayed after booting the program.

With or without beep

Specification of readable tracks

Specificat

Specification of SS/ES of card

Specification of SS/ES in every
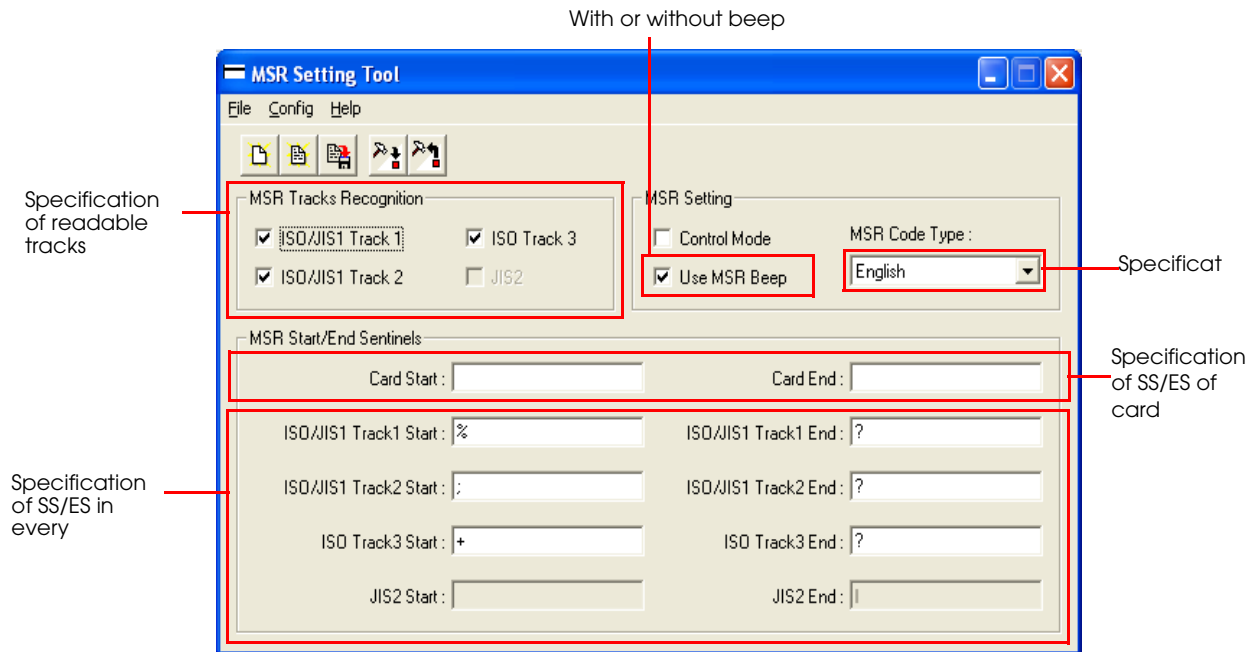
3. Program it into the POS controller after completing the setting. **Press the Program** button.
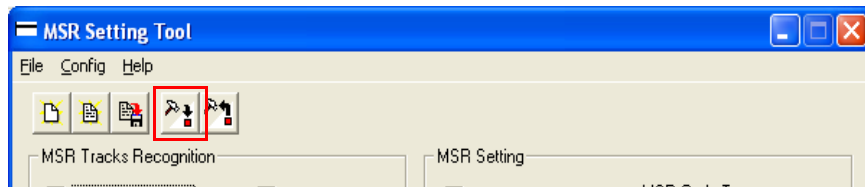
4. Boot a text editor program, such as the memo pad of Windows, to read the card using the MSR. Check to see that it is read correctly.

Utilities

To input the magnetic card data using the MSR unit, write the settings and the properties on the read data corresponding to various magnetic cards to the POS controller.

Refer to Chapter 4 Utility for installation and directions for each utility.

❏ Set the function of the *MSR* to write it in the POS controller.

- MSR settings utility

❏ Save of properties

It is recommended that the properties are saved into the file created by the MSR setting utility. Write the saved file in the POS controller using definition data auto-configure utility. This method can be used for configuring the same settings on several systems, or it can also be used as a batch file.

- Definition data auto-configure utility

Creation of MSR definition file

Create the key definition file according to the following procedure.

1. Boot the MSR setting utility.

2. Read the MSR definition file or the properties written in the POS controller.

3. Define the MSR and press the Save As button.

Refer to Chapter 4 Utility for more information.

Reading of MSR definition file

Read the MSR definition file according to the following procedure.

1. Boot the MSR setting utility.

2. Press the Load button.

Refer to Chapter 4 Utility for more information.

Replacement procedure of MSR

Since the setting data is not written in the MSR unit, resetting after replacement of the MSR unit is not required.However, resetting is required when the LCD is replaced.

Setup of 60 key POS keyboard (DM-KX060)

60-key POS keyboard unit (DM-KX060) can be used by connecting USB connector of IR-700, which has total 60 keys of 10 lines horizontally and 6 lines vertically, and has a key lock of 8 positions. Also, there are USB connectors in the rear.

By programming definition data into the controller of the 60-key POS keyboard unit, the 60-key POS keyboard unit becomes usable. Set the key lock key to the PRG position to program. This definition data can also be used in another IR-700, by saving it as a file. Also, it can be programmed by reading another definition file.
A keyboard for PCs is required to perform these operations.

The key lock cannot be used for OPOS for Windows 2000.

Definition to the 60-keys POS keyboard unit can also be carried out using a PC on which Windows 2000/XP and USB 2.0 is installed. In this case, installation of a dedicated utility is required.

When a keyboard is replaced, because data is saved in the 60-keys POS keyboard unit, definition data needs to be reconfigured in the new keyboard.

Bundled items

The following items are bundled in the 60-key POS keyboard unit (DM-KX060).

❏   60-key POS keyboard unit main body

❏   Key top cover (for single size, for double size, for quad type)

❏   Key top ("key single size", "key double size", "key,"1"~ "9" key, "double size key", "quad type key")

❏   Key top remover

❏   Key lock key (8 position, 8 keys in total)

❏   User's manual

Flow of setup

```
┌─────────────────────────────────────────────────────────────────┐
│  60Connection of key POS keyboard unit to the external key board  │
└─────────────────────────────────────────────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────────────────┐
│                        Turn IR-700 on                             │
└─────────────────────────────────────────────────────────────────┘
            │                                    │
            ▼  **Initial use**                   │
┌──────────────────────────────────────┐        │
│ Detection of new hardware detection   │        │
│ wizard                                │        │
└──────────────────────────────────────┘        │
            │                                    │
            ▼                                    │
┌──────────────────────────────────────┐        │
│ 60Installation of key definition      │        │
│ utility                               │        │
└──────────────────────────────────────┘        │
            │                                    │
            ▼                                    ▼
┌─────────────────────────────────────────────────────────────────┐
│               60Boot of key definition utility                    │
└─────────────────────────────────────────────────────────────────┘
            │                                    │
            ▼                                    ▼
┌──────────────────────────────────┐  ┌──────────────────────────────┐
│ Design of definition data (60    │  │  Reading of  existing file   │
│ key, key lock key),              │  │                              │
│ Design of key arrangement        │  │                              │
└──────────────────────────────────┘  └──────────────────────────────┘
            │ **Newly configuring the                 │ **Existing file is used**
            ▼  key definitions and labels**           │
┌──────────────────────────────────┐                  │
│        Change of key tops         │                  │
└──────────────────────────────────┘                  │
            │                                          │
            ▼                                          │
┌──────────────────────────────────┐                  │
│   Set key definitions and labels  │                  │
└──────────────────────────────────┘                  │
            │                                          │
            ▼                                          ▼
┌─────────────────────────────────────────────────────────────────┐
│                   Program in the controller of                    │
│                  the 60-key POS key board unit                    │
└─────────────────────────────────────────────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────────────────┐
│            Check input data with the memo pad of Windows          │
│                     Check basic operations                        │
└─────────────────────────────────────────────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────────────────┐
│                     Printing of key labels                        │
│ (it can be printed by another PC in which the printing            │
│  environment has been set up)                                     │
└─────────────────────────────────────────────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────────────────┐
│ Installation of key top covers (attachment of printed key labels) │
└─────────────────────────────────────────────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────────────────┐
│                       Setup completed                             │
└─────────────────────────────────────────────────────────────────┘
```
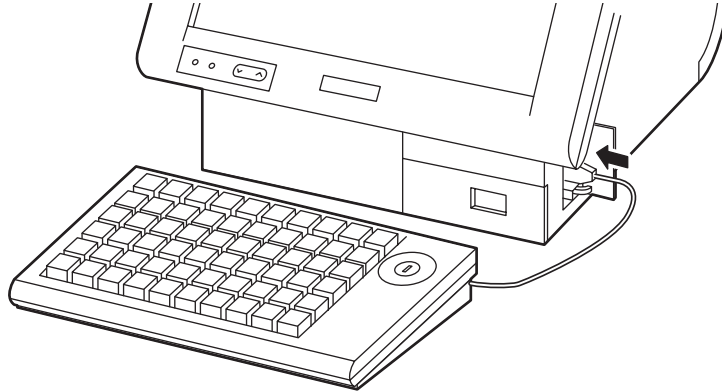
Connection of 60-key POS keyboard unit

Connect the 60-key POS keyboard unit to the USB connector of IR-700.
Also connect an external keyboard. Either a PS/2 keyboard or an USB key board can be used.
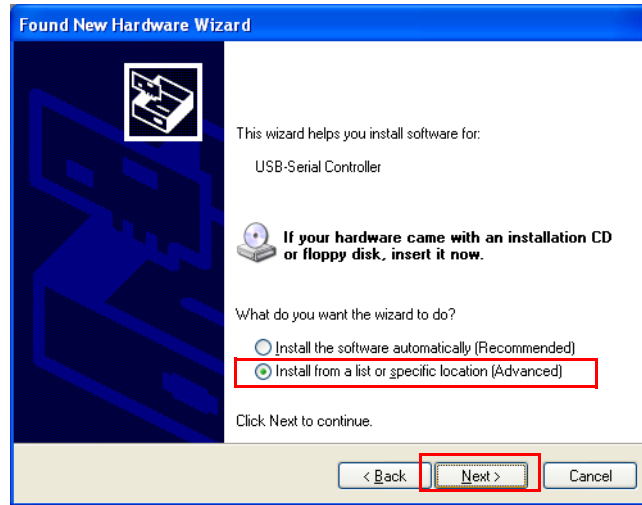
Installation of 60-key POS keyboard unit

For the first connection of the 60-key POS keyboard unit, the 60-key POS keyboard unit has to be installed according to the following procedure.

1. Check that the 60-key POS keyboard unit is connected to the USB bus before turning the power on.

2. "Welcome to the Found New Hardware Wizard" is displayed when Windows is booted after turning the power on. Select "Yes,now and every time I connect a device" and press [Next].

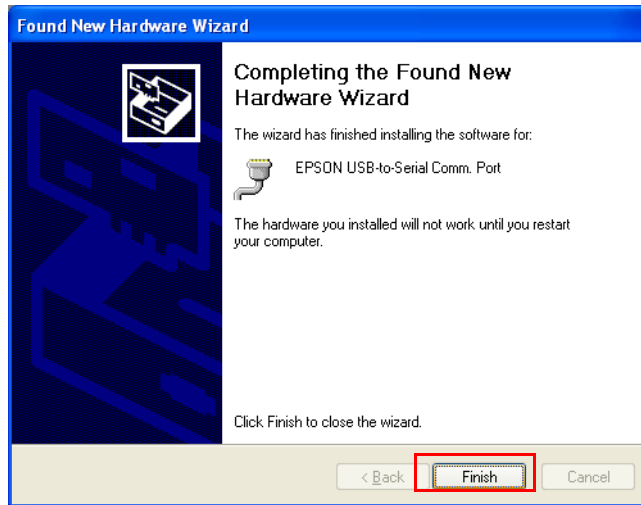3. Next, select "Install from a list of specific lcation [Advance]" and press [Next].

4. Then, select "Ssarch removable media (froppy,CD-ROM...)" and select the folder `BACKUP\60KEYCFG\DRIVER`.Press [Next].
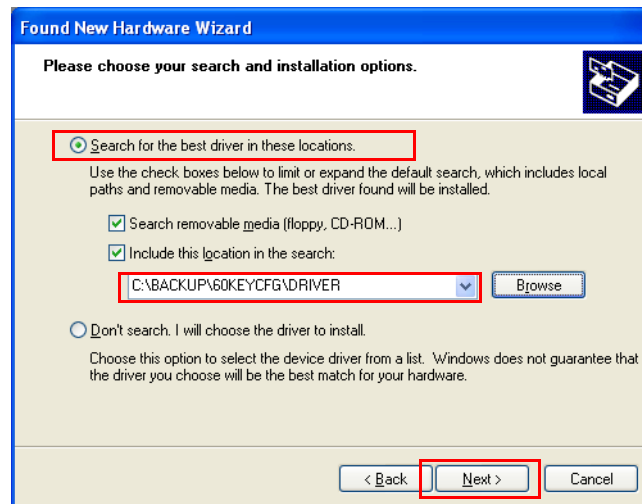
5. Installation begins.

6. Completing the Found New Hardwawe Wizard is displayed. Press [Finish].

Installation of the 60-key definition utility

To define data to the 60-key POS keyboard unit, installation of the 60-key definition utility (KeyDesigner) is required. Install it according to the following procedure.
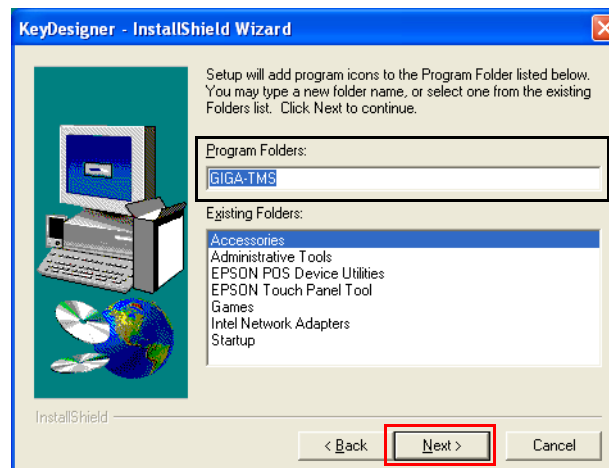
1. Boot KeyDesigner.exe from **BACKUP\60KEYCFG\TOOL**.

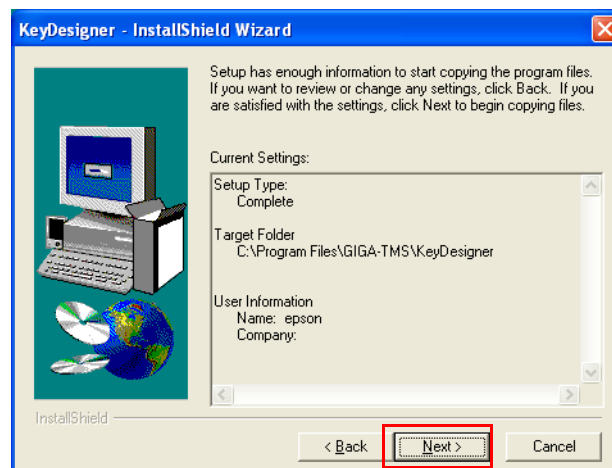2. "Key Designer-InstallShield Wizard" is displayed. Press [Next].
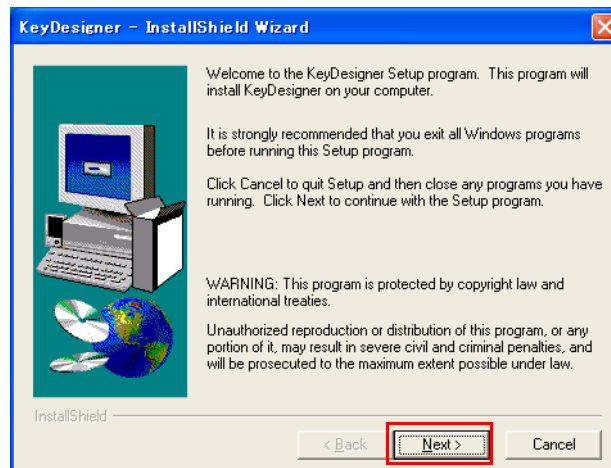
3. Next, select the place to install and press [Next].
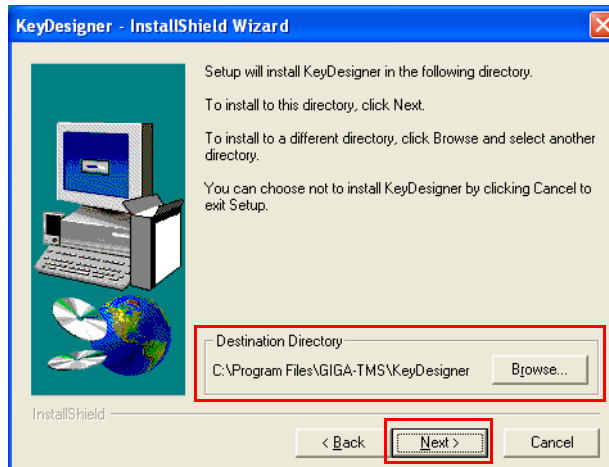
4. Next, decide the name of a folder to be created and press [Next].

5. Then, the confirmation screen of the properties is displayed. Press [Next] if the settings on the confirmation screen are satisfactory, or press [Back] to redo the setting.


6. Installation is completed. Press [Finish] button.

Reading of template file and programming

The following is an explanation of how to program data in a template file ahead of time, and to perform input from the 60-key POS keyboard.

1. Connect the external keyboard to IR-700 and turn the power on.

2. Select [START] - [All Programs] - [GIGA-TMS] - [Key Designer] to boot the 60-key POS keyboard setting utility.

3. Press **Open** button to open "DM-KX060.tab".
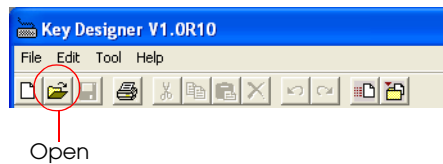
Open

4. The following screen is displayed after opening the file.
   The definition file and the label of the template file have been read into the 60-key POS keyboard setting utility. At this moment, writing to the controller of the 60-key POS keyboard has not been performed.
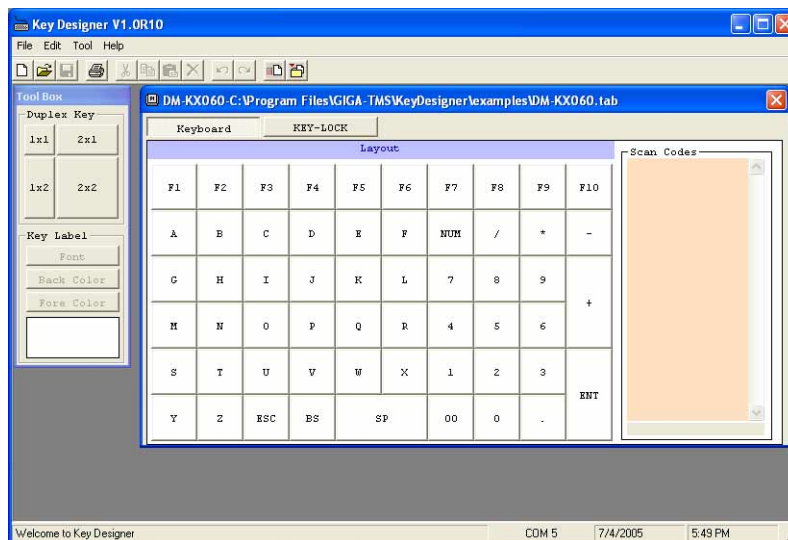
5. Program the controller of the 60-key POS keyboard.
   Insert the PRG key into the key lock key and turn to the PRG position. Then press the
   Chapter 3 **Download to KB** button. The set properties are programmed into the controller.
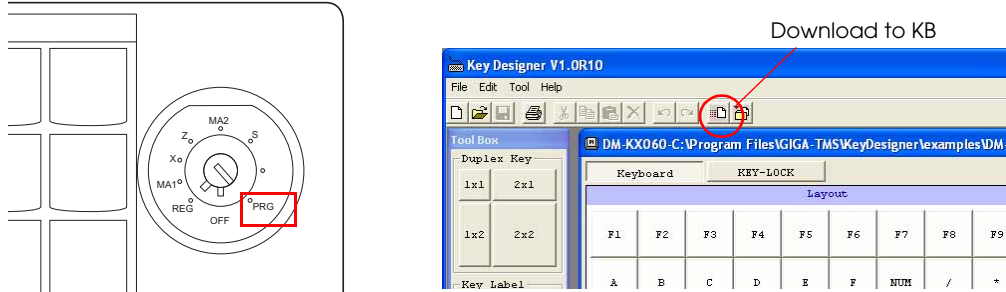

6. Check to see that input is possible from the 60-key POS keyboard.
   Boot the memo pad of Windows.

7. Input using the 60-key POS keyboard, and check to see that it is input in the memo pad, as
   defined data.
   Now you can use the 60-key POS key board.

8. The key labels can be printed and displayed on the key top by cutting them out.
   Refer to "Printing key labels" on page 37 for this method.

Design of definition data

Design the data definitions for each key, and the layout of double size keys and quad size keys, etc. Also, design the settings data for the key lock key.

All the keys which can be input from the keyboard can be defined.Select Ctrl + Alt +Delete from the special keys.

Example: 60-key arrangement of the template file
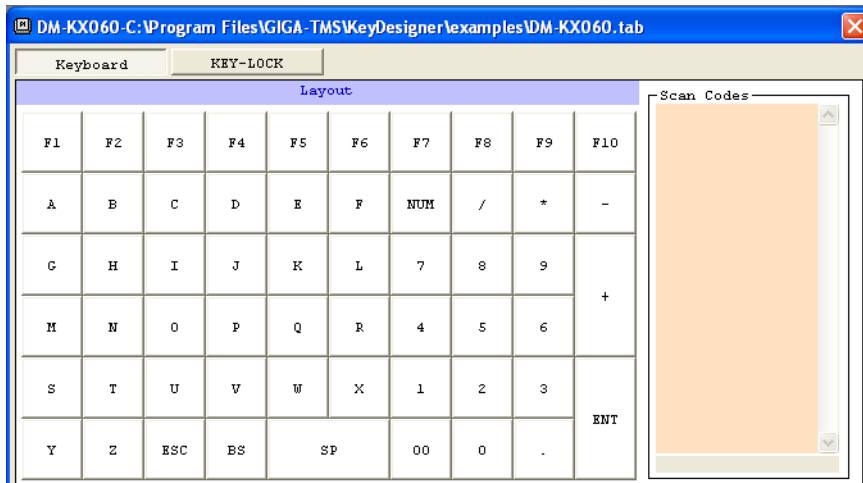
Example: key lock arrangement of the template file
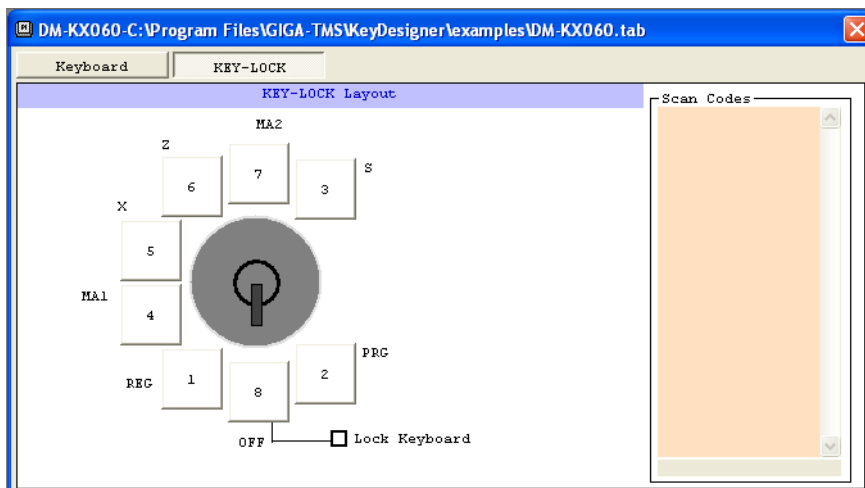
✎ *Note*

Use when the setting of the key lock key is template file, in cases where OPOS is used in Windows XP

The key lock key cannot be used, when OPOS is used in Windows 2000.

Design the keys referring to these factors.

Change of key tops

Change the key tops according to the designed arrangement. Change the key tops according to the following procedure.

1. As the figure bellow illustrates, insert the key top remover bundled with the keyboard unit on to the key top you wish to remove.
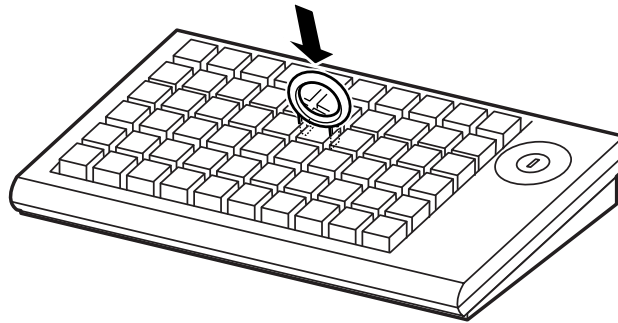
2. Pull up the key top remover to remove the key top.

3. Repeat procedures 1 and 2 when removing several key tops.

4. Insert the key top to be changed, directly from above.
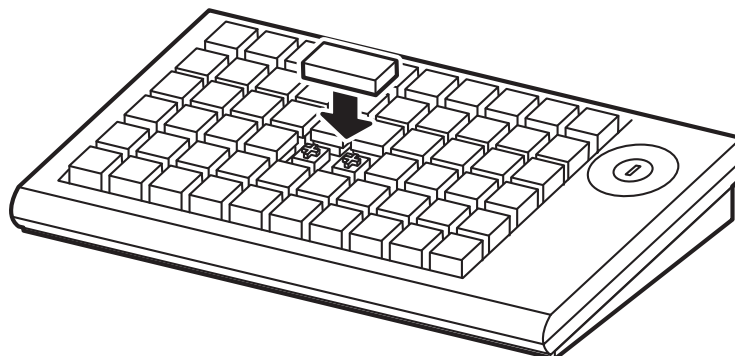
Setting of key definitions and key labels

The method for newly defining the key definitions and the key labels is described here.

1. Connect the external keyboard and the 60-key POS keyboard to IR-700 and turn the power on.

2. Select [START] - [All Programs] - [GIGA-TMS] - [Key Designer] to boot the 60-key POS keyboard setting utility.

3. Press the **New** button.
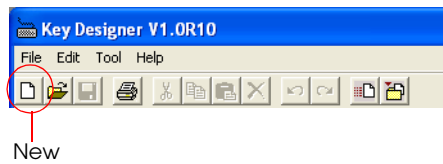
4. "New Keyboard Select" screen is displayed. Select DM-KX060 and press [Create].
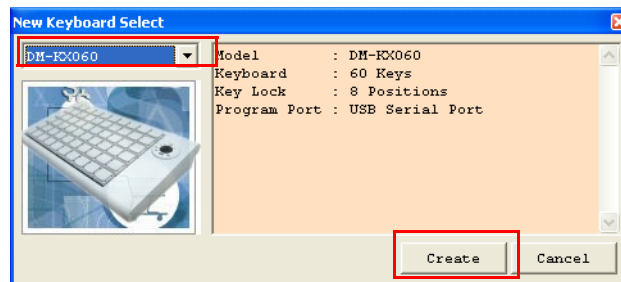
5. The key definition screen which nothing is defined is displayed.

6. Drag the desired key size from the toolbox to the definition of the keyboard when setting the double keys and quad keys.
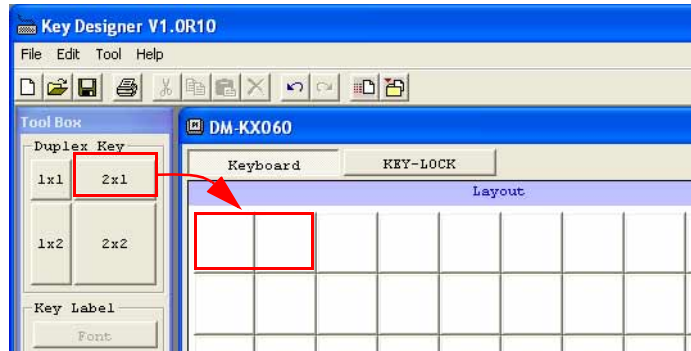
7. Click the key for which the key definitions and the labels are defined and input character strings to be defined. Click the upper left key to input apple here.
The scan code of the input data is input in the scan code and apple is input in the key label area.
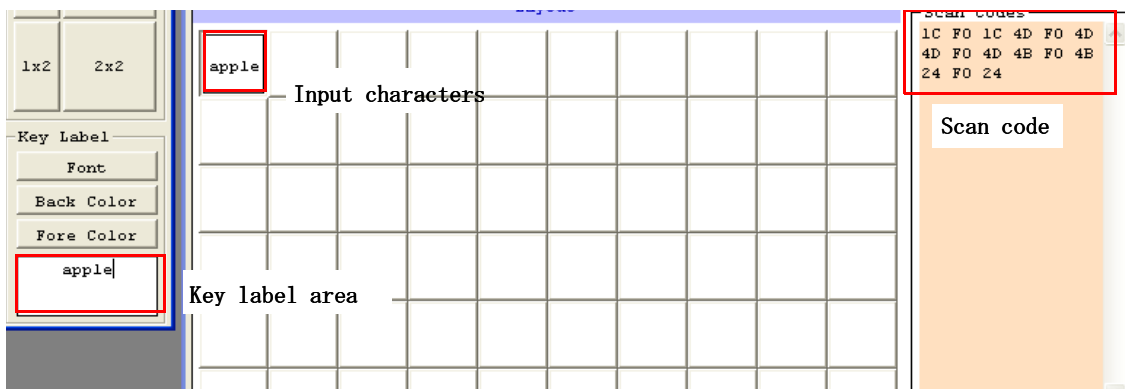
✏️ *Note*
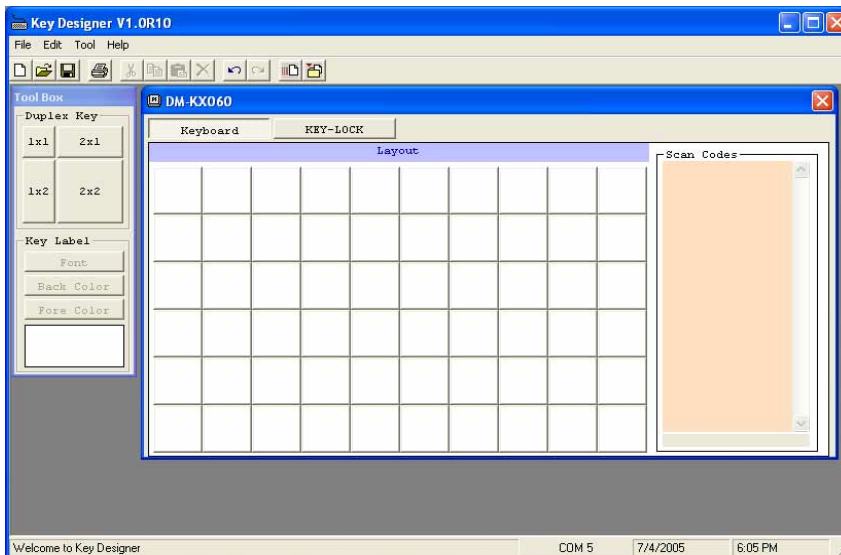*When the input is incorrect, press the Undo button to go back to the previous state, and press the Redo button to redo the undone procedure. Press the Delete button to cancel the input characters of the selected key.*
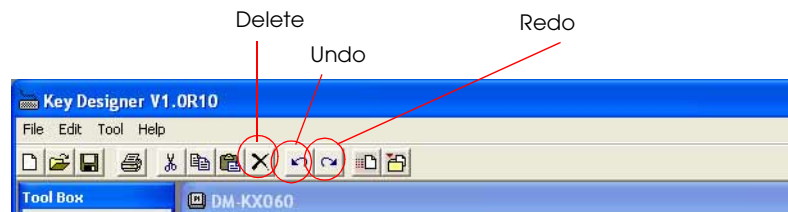
✏️ *Note*
Character size, color and background of the defined label can be changed. Refer to Chapter 4 Utilities for more information.
The data for the 60-key POS keyboard is defined, and it is not programmed into the controller of the 60-key POS keyboard.

To change definition data

Re-define the code by the following procedure, in order to change the defined data.

1. Select the key for which you wish to re-define the code.

2. Press the **Delete** button to clear the definition.

3. Re-input the correct value.

✎ *Note*

*To delete the input code, press **Delete button.***It cannot be deleted by pressing DEL or BACK SPACE* *because those key codes will be input.*

Change the label display

Change the label display from the key defined characters as follows.

1. Click the key for which the label is to be changed.

2. Click the key label area in the toolbox and change the character strings. (fruit1 is input) in this case, only the key label is changed without changing the scan code.

Definition of key lock

Re-define the code by the following procedure, in order to define the key lock.

1. Click "KEY-LOCK" to define the key lock. The key definition screen is changed into the key lock setting screen.
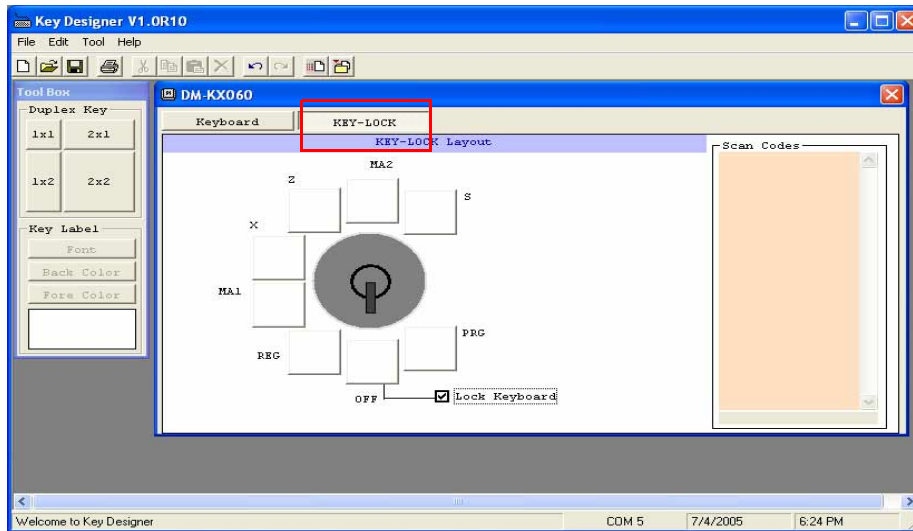
2. Select the position of the key lock to be changed to input definition data.
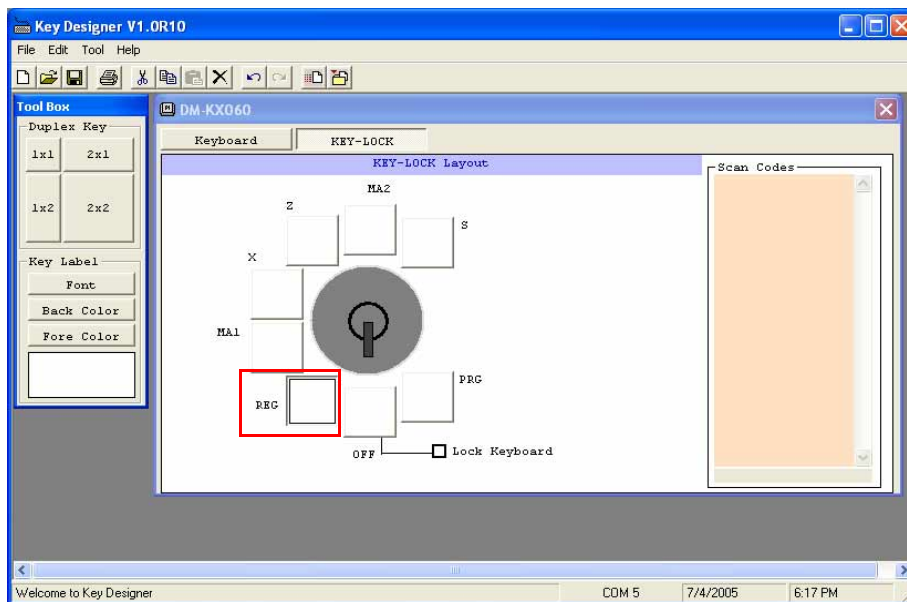
"op"is input to the key and the scan code of the input data is input in the scan code.
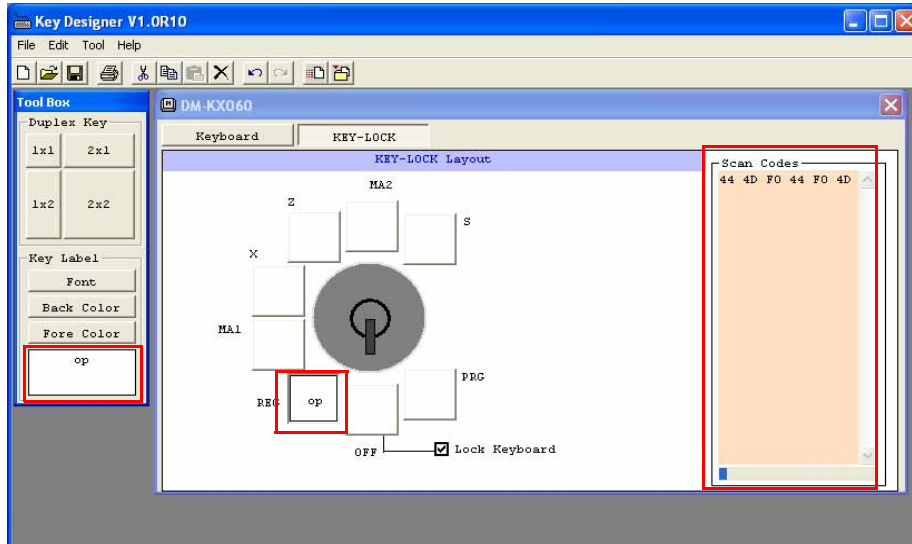
✎ *Note*

When the input is incorrect, press the Undo button to go back to the previous state, and press the Redo button to redo the undone procedure.Press the Delete button to cancel the input characters of the selected key.

If you check the box to disable Key input, you can set is so that you are unable to perform key input when the key lock is at OFF position.
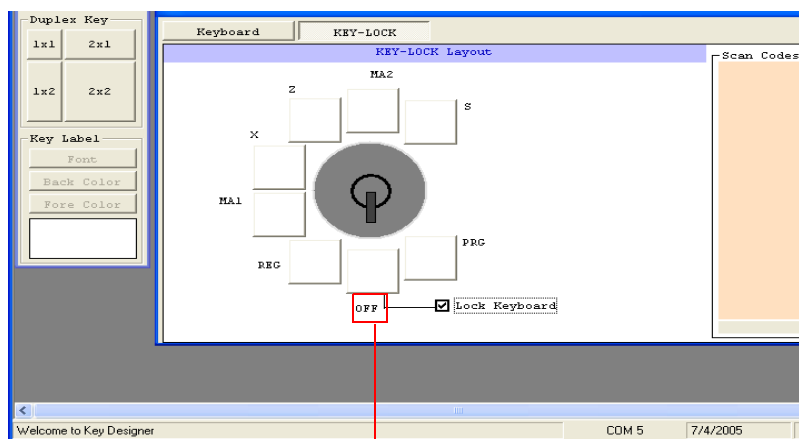
Disable key input

Program into 60-Key POS Keyboard unit controller.

To program the defined data into the 60-Key POS Keyboard unit controller, follow the procedure below.

1. Insert the PRG key in the key lock key and turn it to the PRG position.
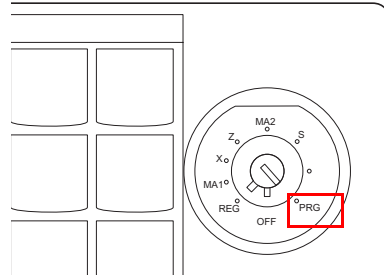
2. Press the **Download to KB** button. Program all the key definitions into the controller. Now that the configured definitions are programmed into the controller, you can input data using the 60-Key POS Keyboard.

Download to KB
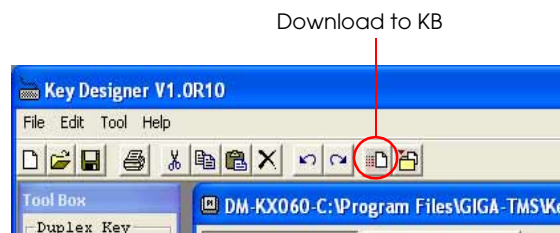
Input data confirmation

1. Start up the memo pad of Windows.

2. Input using the 60-key POS keyboard, and check to see that it is input in the memo pad, as defined data.

Now you can use the 60-key POS keyboard.

Printing key labels

Connecting a printer to the IR-700 and installing its printer driver are required in order to use this function. Refer to the instruction manual of the printer to be connected for the printing settings.

Labels can be printed by installing the 60-key definition utility on another PC and by reading the defined data.

1. Check to see that all labels of the keys are set.

2. Press the **Print** button.
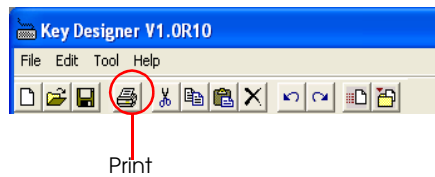
Print

3. The print preview screen will be displayed.

4. If the properties are correct, press the **Print** button.
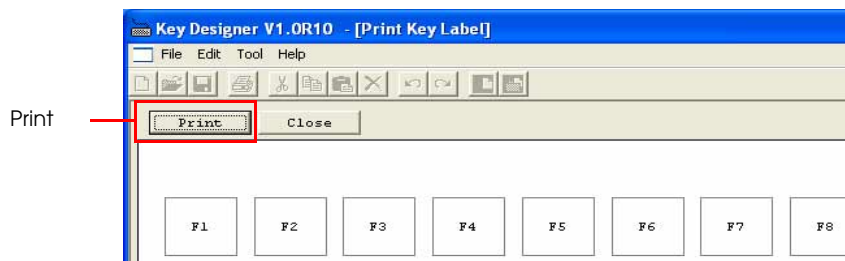
Print

5. Cut out the printouts in the shapes of the key tops.

Installation of key top cover

The key top cover is bundled with the keyboard unit. Install the key top cover on the upper surface of the key tops.

Cut out the printed label using the 60-key definition utility.

Place the key top cover in place, according to the following procedure.

1. Set the key label forms on the appropriate keys.

2. Fit the key top cover on to the key top, as in the figure below. When you do this, be sure to fit the key top cover firmly.

Key top cover ————

Printed label ————
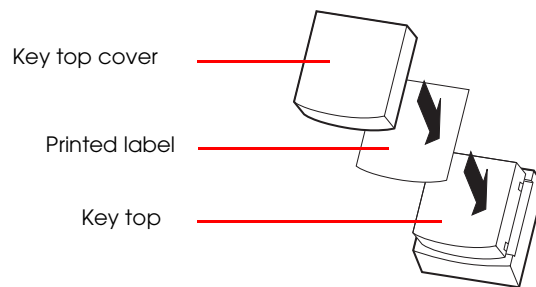
Key top ————

Removal of key top cover

Remove the key top cover according to the following procedure.

1. Remove the key top using the key top remover.

2. Remove the key top cover from the key tops.

Installation of HDD

The IR-700 comes already equipped with one or two 3.5 HDDs. Two HDDs, at the most, can be installed.

If only one HDD is installed, another HDD can be added.

When you connect two HDDs, they can be used for RAID. Refer to Chapter 7 "RAID" for more information.

⚠ CAUTION:

Don't write anything, such as an application to an HDD that is removed from the IR-700.

> *The vibration and impact can cause trouble and the failure of the HDD.*

Be aware of the following items when you handle HDD units, since they are precision instruments.

> *Handle HDDs one by one. Do not handle more than one HDD at the same time.*
> *Do not hit HDDs against other HDDs or equipment.*
> *Do not stack HDDs.*
> *Do not place HDDs upright.*
> *When you carry an HDD, carry it by its sides.*

When you carry an HDD, use the special box.

When you handle an HDD, take static protection measures. Place a cushion beneath an anti-static mat, at the spot where you place an HDD.

Do not touch the signal pins of an HDD.

Do not bring an HDD close to magnets.

Install an HDD according to the following procedure.

(1)Removal of HDDs

1. Remove **rear cover**.(See page 3-3.)

2. Remove screws from the HDD cover. If there is only one HDD, you will find HDD on the right. (Remove the screws on the HDD from the side you wish to remove.)
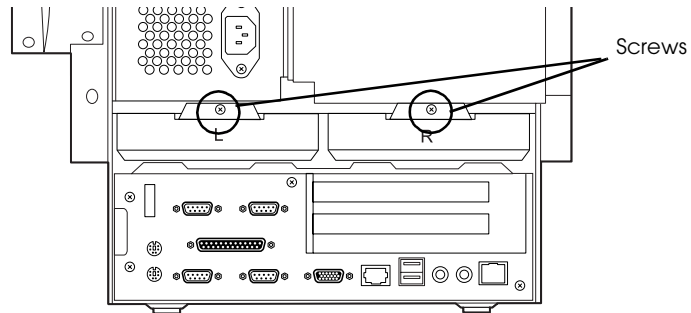
3. Pull out HDD units as follows.
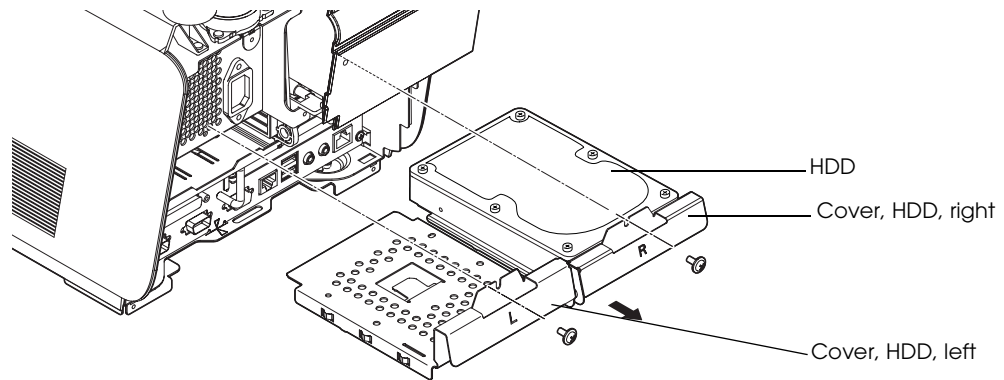
4. Remove the four screws that fix the HDD to the cover HDD.
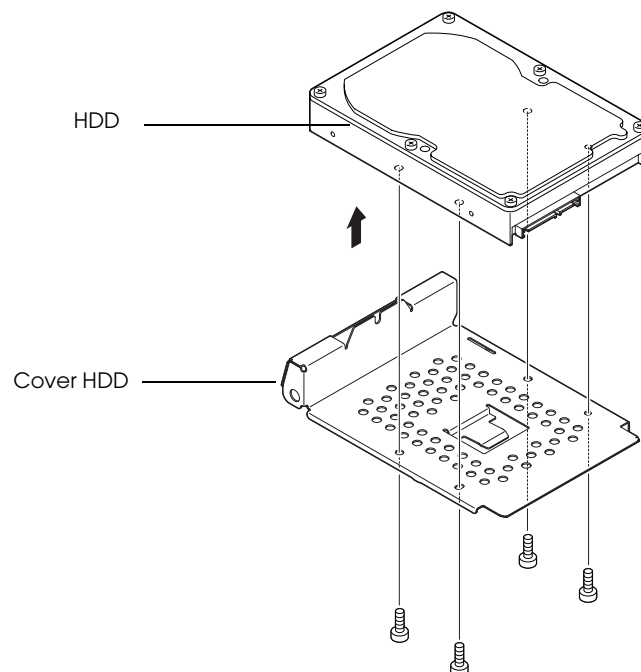
⚠ *CAUTION:*

When you remove screws from the HDD unit, support the HDD with your hands to prevent it from falling.

(2)Installation of an HDD

Fix the HDD to the cover HDD with four screws.

✎ *Note:*

A jumper doesnít need to be installed, since the HDD will be automatically recognized.

(3)Installation of the HDD unit

Install the HDD unit according to the following procedure.

1. Push the HDD unit into the main body slowly.

2. Fix the HDD unit with four screws.

3. Turn IR-700 on, and press <Ctrl>+<T> when a message "Press <Ctl><T> to run EPSON DD" is displayed on the POST startup screen.

4. Conduct the HDD test.

Main board unit

When installing DIMM, PCI card and CF, and setting jumpers on the main board, etc., remove the main board unit.

✎ *Note:*
The main board has five jumpers. When replacing them, match those of the original board.

Jumper block		Default	+5V output	+12V output	CMOS clear
JP 2801	COM1	1 - 2	3 - 4	5 - 6	---
JP 2802	COM2	1 - 2	3 - 4	5 - 6	---
JP 2901	COM6	1 - 2	3 - 4	5 - 6	---
JP 2902	COM5	1 - 2	3 - 4	5 - 6	---
JP 1601	CMOS clear	1 - 2	---	---	2 - 3
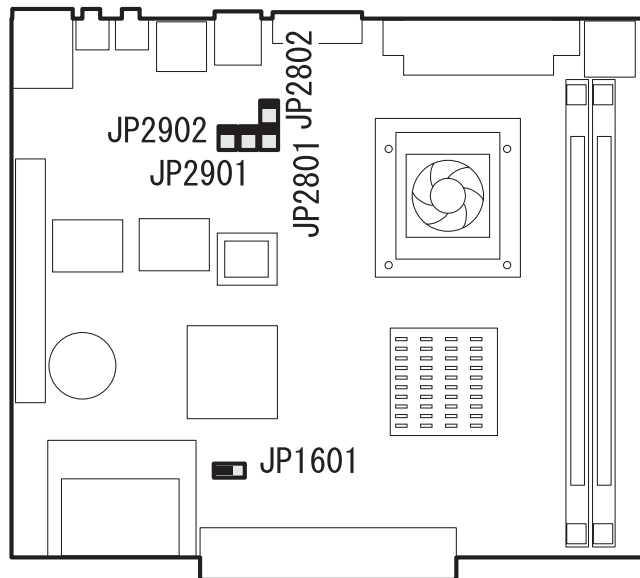
Remove it by following the next procedure.

1. Remove **the rear cover** . (Refer to3-3 pages)

2. Remove cables of equipment periphery of IR-700.

3. Remove four fixed screws from **main board unit**.
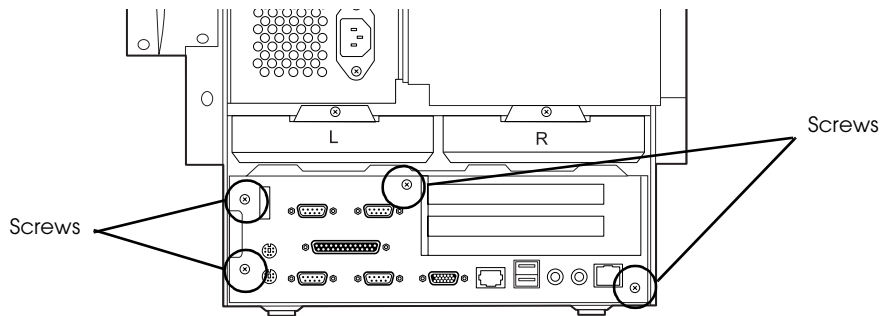
4. Grab **handle**, and remove **main board unit** by pulling it backward.
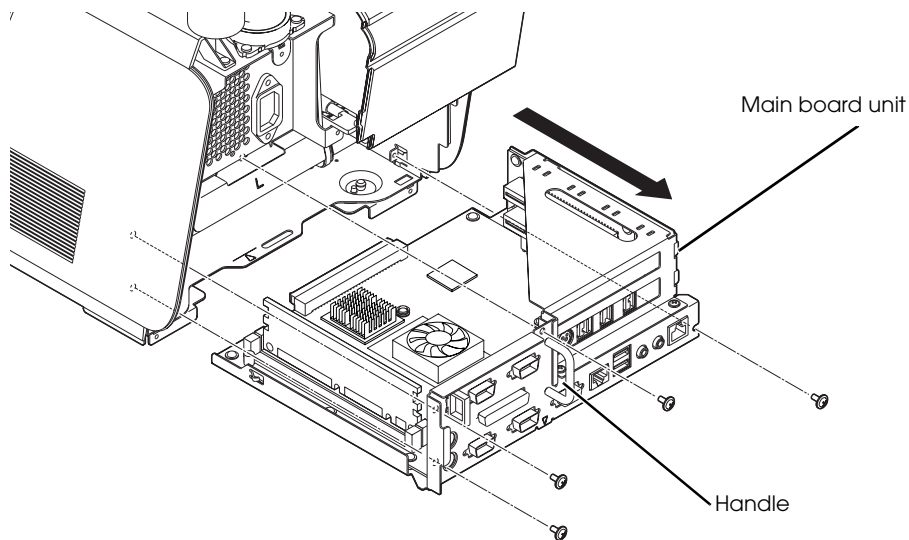
When installing the main board unit, insert it completely.

⚠ CAUTION:

When disassembling and assembling the Main Board Unit, slide it slowly along the base of the frame. If the Main Board Unit is inserted above the base, parts on the board hit the prominent parts of the frame and may cause damage.

When the main board unit is not pushed all the way in there is a risk of poor connection.

DIMM

Remove it by following the next procedure.

1. Remove **the rear cover** .(See page 3-3.)

2. Remove **main board unit** .(See page 3-43.)

3. Open the locks at both edges of the DIMM socket in the direction of the arrow and open them up simultaneously. Pull **DIMM** from the socket, straight up.
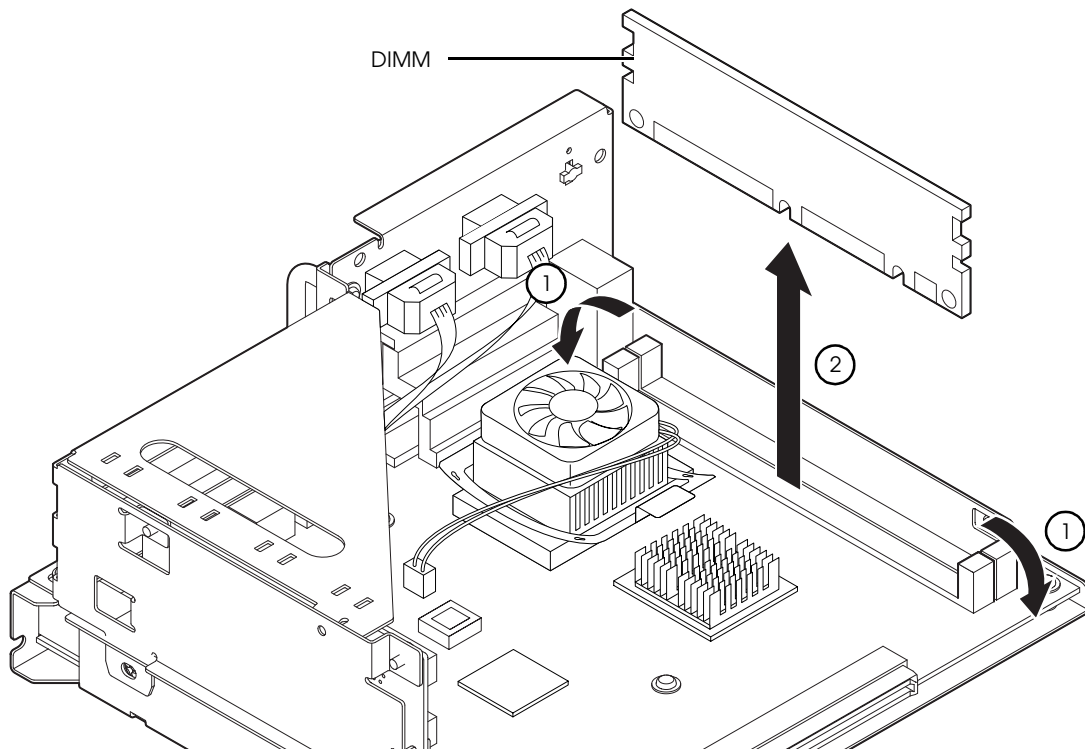
When installing
DIMMs, push **DIMM** in vertically until the lock rise up making a click sound.

⚠ *CAUTION:*

Do not touch the DIMM connector with hands to prevent operation defects caused by smudges and static electricity.

Printer unit

TM-T88IIIX is available as a printer unit for IR-700. The discussion in this chapter proceeds up to the point where TM-T88IIIX can be properly set up. Refer to "Technical Reference Guide for TM-T88III" for details.

COM3 is allocated as a serial port for the printer unit. Cash drawer uses the same port.

Set up method

With the factory default settings, normal use is possible. Be sure to check operation using DIAG.

Set up of the Vertical type

When using the Vertical type of IR-700, open the printer cover and confirm that the stopper is installed in.

Stopper, roll paper
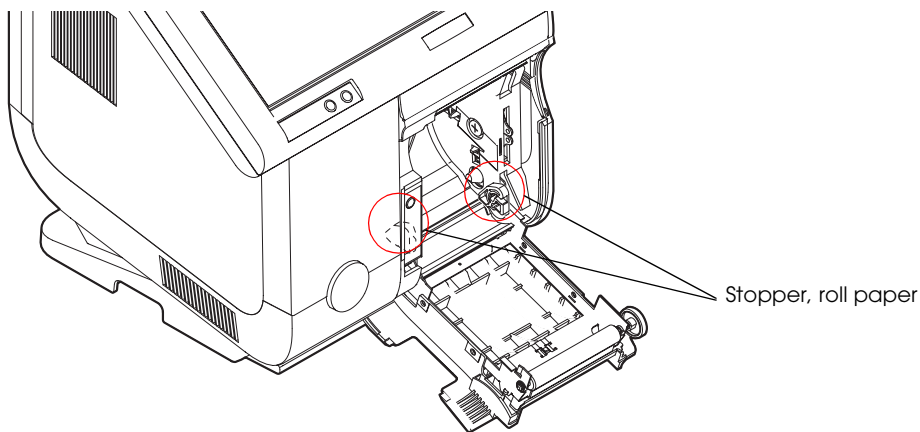
Changing communication conditions

To change the serial communication condition with IR-700, remove the printer from IR-700 and change the setting of the DIP switches at the bottom.

Remove it by the following procedures.

1. Remove **the rear cover** .(See page 3-3.)

2. Remove **printerís power cables** .

3. Remove the two **printer unit** fixing screws (S06) and slide the **printer unit** backwards.

4. Remove the **printer unit** by removing the cables of the **printer unit** from the connector (**HDD 700 board set**: CN2).
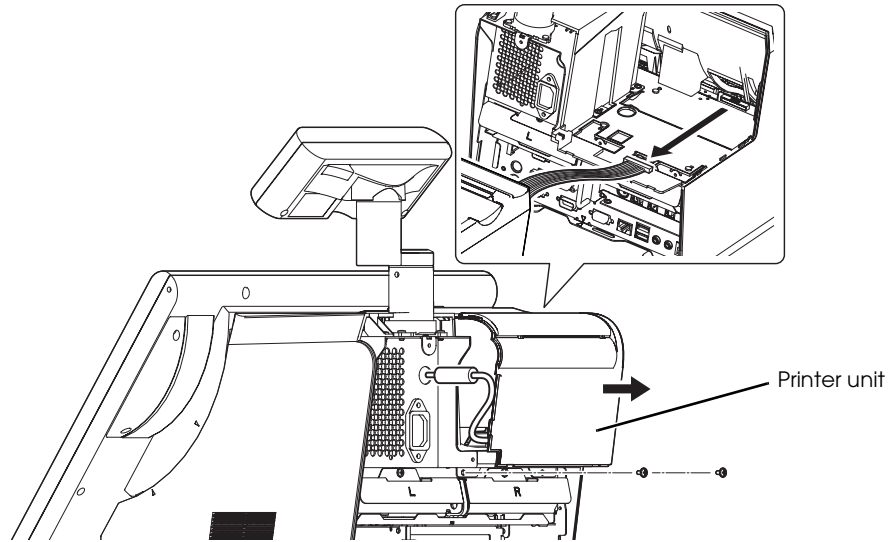
Printer unit

When installing **the printer unit**, insert the ribs of the **printer unit** into notches above the **case**. Furthermore, route the **cables for TM power** as the figure illustrates.

When installing

TM power cables

When installing

Ribs
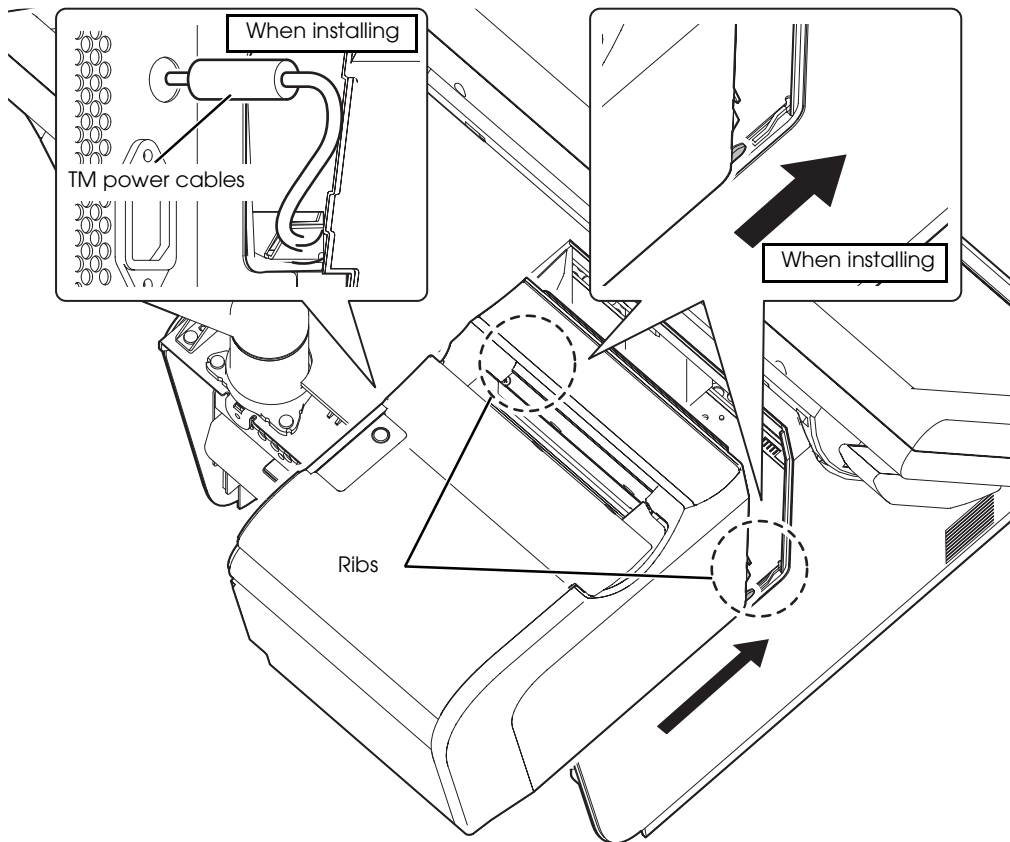
5. Set the DIP switches/jumpers at the bottom of the printer unit.
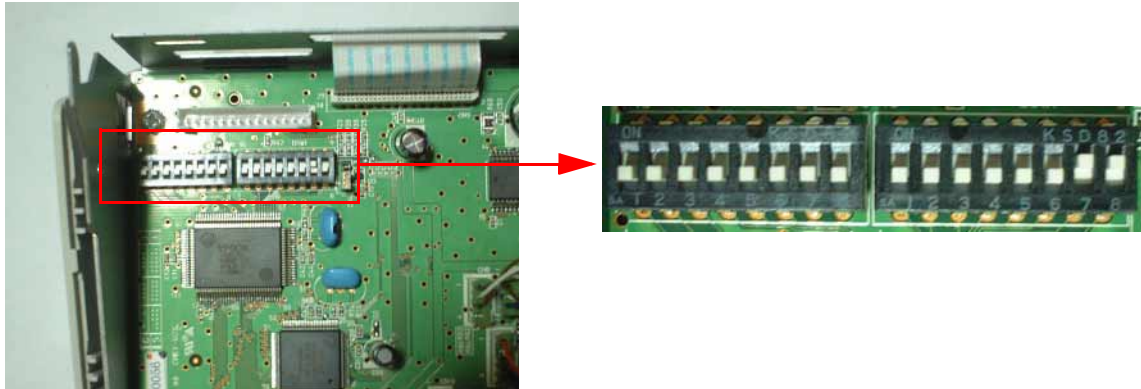
Setting of DIP switch 1

Switch number	Functions	ON	OFF
1	Data reception errors	Ignore	Printing ¡?¡*
2	Receive buffer capacity	45 bytes	4k bytes*
3	Handshake	XON/XOFF	DTR/DSR*
4	Bit length	7 bits	8 bits*
5	Parity check	yes	No*
6	Parity selection	Even	Odd*
7	Transmission Speed(bps)	Refer to the following	
8	Transmission Speed(bps)		

*Factory Setting

Setting of baud rate

Transmission Speed	Switch number	
	7	8
4800	OFF	ON
9600	ON	OFF
19200	OFF	OFF
38400*	ON*	ON*

*Factory Setting

Setting of DIP switch 2

Switch number	Functions	ON	OFF
1	Handshake operation (Conditions that lead to BUSY)	Receive buffer full	Off-line/ receive buffer full*
2	Reserved	-	OFF-fixing*
3,4	Print density selection/power-saving mode	Refer to the following	
5	Condition setting for receive buffer BUSY cancellation (available when the receive buffer capacity is set to be 4K bytes).	Cancel BUSY when 138 bytes are remaining.	Cancel BUSY when 256 bytes are remaining.*
6	Reserved	-	OFF-fixing*
7	#3 pin. reset signal	Apply	Do not apply*
8	#5 pin. reset signal	Apply	Do not apply*

*Factory Setting

✎ *Note:*
When using the Epson Remote Maintenance Sortuare, turn switch 2-1 on.

Print density selection/power-saving mode

Level	Functions	Switch number	
		7	8
Â I	Power-saving mode	ON	ON
1	Printing density regular*	OFF*	OFF*
2	Printing density slightly dark	ON	OFF
3	Print density dark	OFF	ON

*Factory Setting

Setting of jumper CN4

Signal wire	DIP switch	Jumper CN4	Reset condition
#3 pin	DSW2-7 ON	1-2 short*	MARK (High) level input
		2-3 short	SPACE (Low) level input

*Factory Setting

For detailed explanations of DIP switches and jumpers, please refer to TM-T88III Technical Reference Guide.

6. Attach to the printer unit, performing the steps in reverse, from 4 to 1.

Dummy Cover (OI-X02)

When the exclusive printer is not installed on the IR-700, attach the Dummy Cover to this place.

Unpacking

- Dummy Cover   1
- Screw (M3x6)   2

Attachment

Attach the Dummy Cover by the following procedure.

1. Remove **the rear cover** .(See page 3-3.)

2. Remove the printer if it is installed.(See page 3-46.)

3. Attach the Dummy Cover.
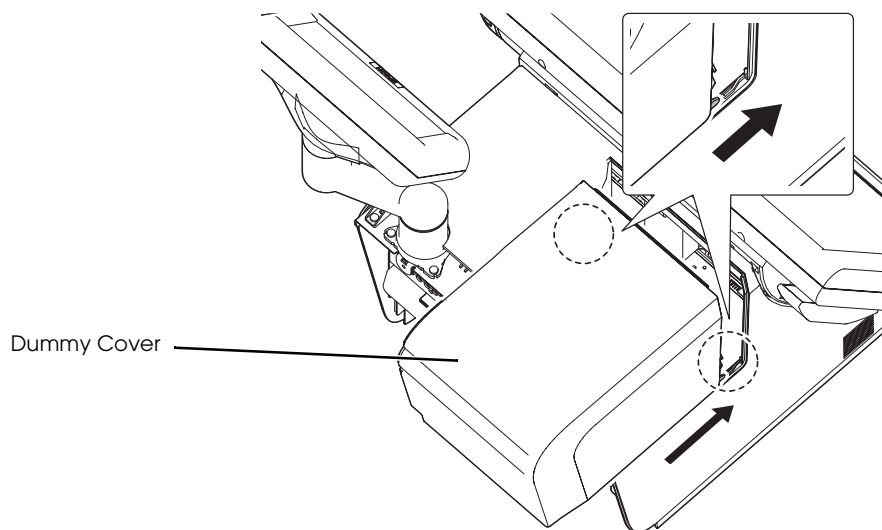
Dummy Cover

4. Fasten the Dummy Cover using two screws (M3x6).

Screws
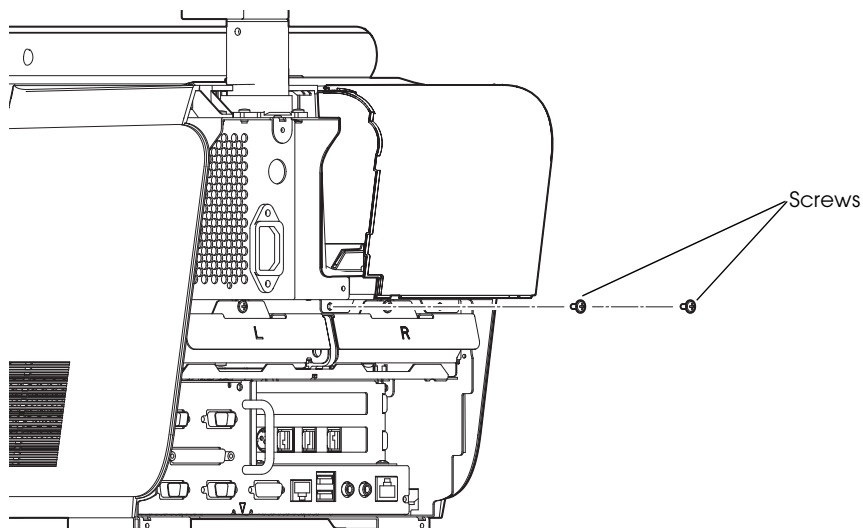
Printer Tray (OI-X01)

When using a TM printer other than the TM-T88IIIX, attach the Printer Tray.

Please your dealer which printers can be put on the Printer Tray.

The Printer Tray cannot be used for the Vertical type IR-700.

Unpacking

- Printer Tray   1
- Printer power cable   1
- Screw (M3x6)   3
- Screw (M3x3)   2

✎ *Note:*
Please get the correct interface cable for your printer.

Attachment

Attach the Printer Tray by the following procedure.

1. Remove **the rear cover** .(See page 3-3.)

2. Remove the printer if it is installed.(See page 3-46.)

3. Attach the Printer Tray.

Printer Tray

---
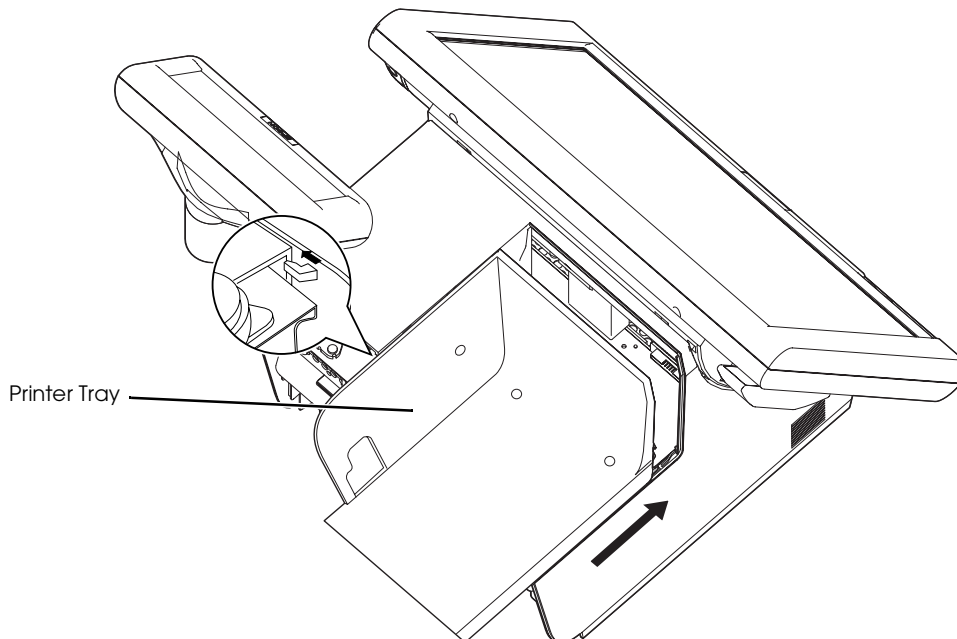
4. Attach two screws (M3x3).
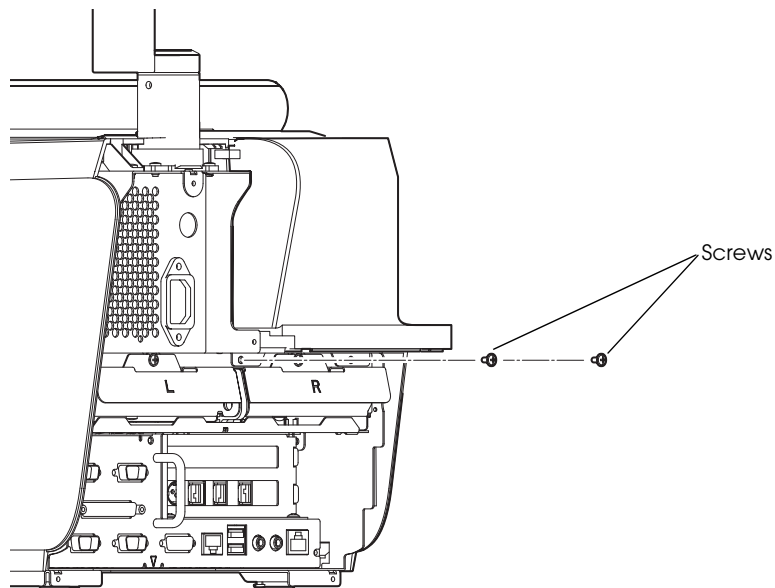
Screws

5. Fasten the Printer Tray using the three screws (M3x6).

Screws

Pass the power cable through the hole

Screws
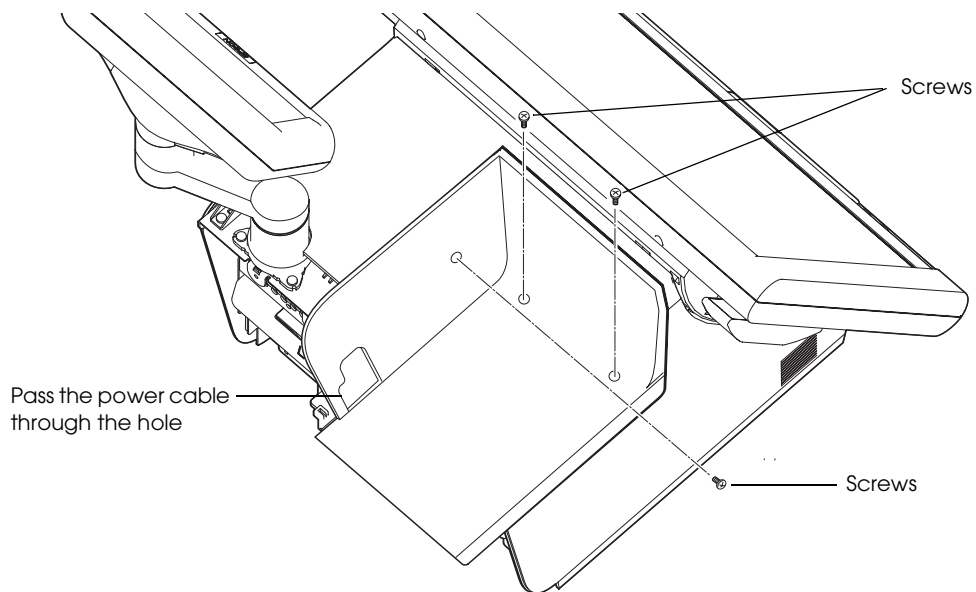
6. Put the printer on the Printer Tray.

7. Pass the power cable through the hole of the Printer Tray and connect the TM PS connector of the IR-700 to the power supply of the printer. Next connect the interface cable of the printer to the IR-700.

Installing the customer display

The following customer display can be connected to IR-700.

Model name	Specification
DM-D120	20 characters x 2 lines Included Pole unit DP506.
DM-D110	20 characters x 2 lines Pole unit DP506 is required.
DM-D210	20 characters x 2 lines Pole unit DP506 is required.
DM-D500	256 X 64 dots (graphic mode) 32 characters x 4 lines (Font A), 42 characters x 8 lines (Font B) Pole unit DP506 is required.

Pole unit DP-506 is bundled with a straight pole and a crank pole.

COM4 is allocated as a serial port for the customer display by default.

Flow of setup

1. Set up the customer display in the IR-700 main unit.

2. Turn IR-700 on to boot the DIAG.

3. Using DIAG, check that the customer display is connected properly and displayed.

4. Enable the use of the customer display.

Set up of customer display

Connect the customer display to the pole unit. Next, connect to the IR-700.

Straight pole

Install it according to the following procedures.

1. Route the customer displayís cable through the side that has no small hole next to the straight pole.

2. Push the customer display into the straight pole.

Crank pole

Install it according to the following procedures.

1. Pull two screws of the crank pole, then remove the plate.

2. Insert the customer display through the crank pole.

3. Push the customer display into the straight pole.

4. With enough length of the cable, fasten the plate using two screws.

Attachment of IR-700

For the vertical type, attach IR-700, referring to 3-55 page. The horizontal type attachment procedure is as follows:

1. Remove **the rear cover** .(See page 3-3.)

2. Pull the two screws fastening the DM cover, then remove the DM cover.

3. Install the DM holder, then fasten it with two screws. When you do this, set the ribs in the direction of the arrow, as shown in the illustration.
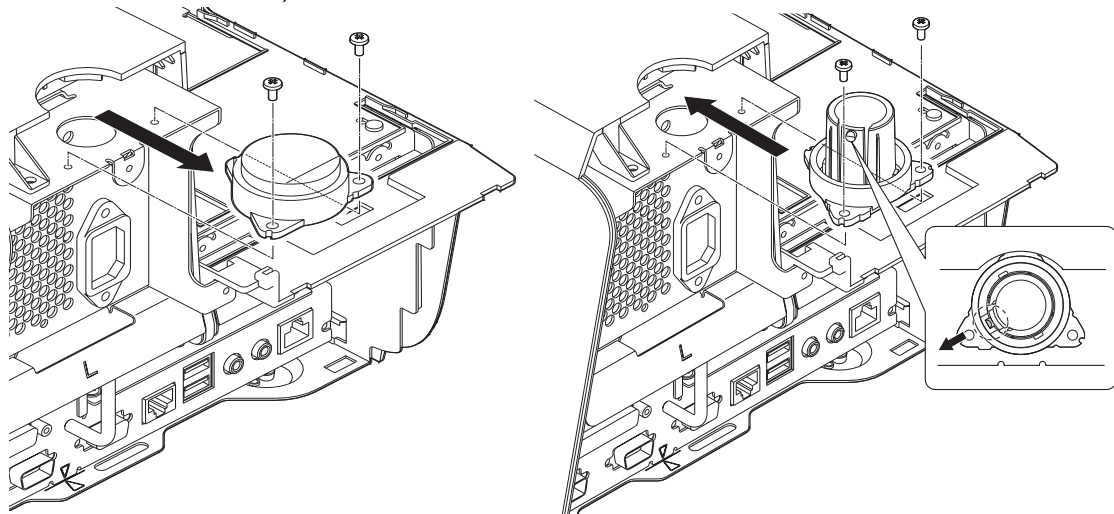
4. Insert the customer display through the crank pole.

5. Insert the customer display's pole into the DM holder. When you do this, the direction needs to be adjusted for the DM holderís ribs to fit in the small holes in the pole.

6. Insert the customer display's cable through the IR-700's clamp.

⚠ CAUTION:

Unless installing the customer displayís cable through the clamp, when installing the rear cover, the cable will be likely cut off.

7. Connect the customer display's cable to the main board DM connector. Gather the extra length of the cable, do not allow them to get in the way of others.

⚠ CAUTION:

Do not insert the customer display's connection cable into other connectorís ports.

Do not connect phone lines, other than those for the customer display, to the connector for the customer display.

8. Be sure to check operation using DIAG.

Installing the Vertical type

The installation of the customer display is different for the Vertical type.

Follow these steps.

1. Remove the two screws that secure the Case, Stand.

Rubber screws
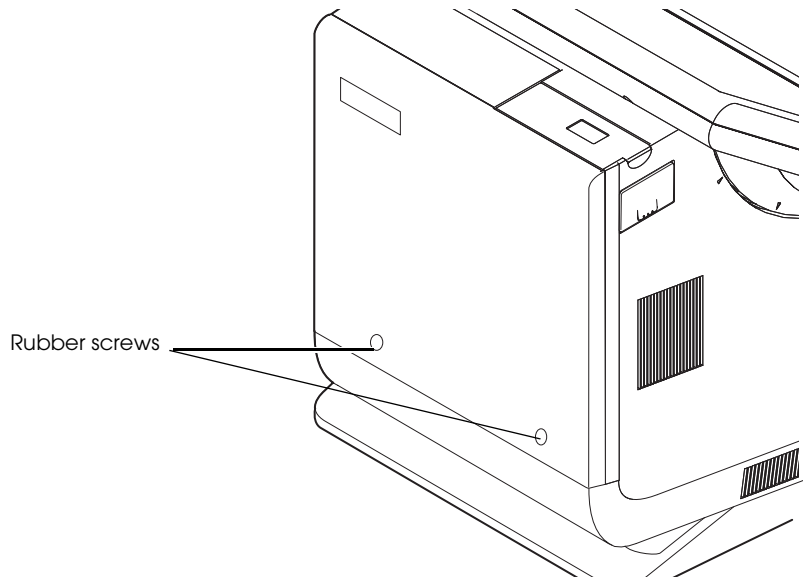
2. Remove two screws and remove the cover, stand.

Cover, stand

Screws
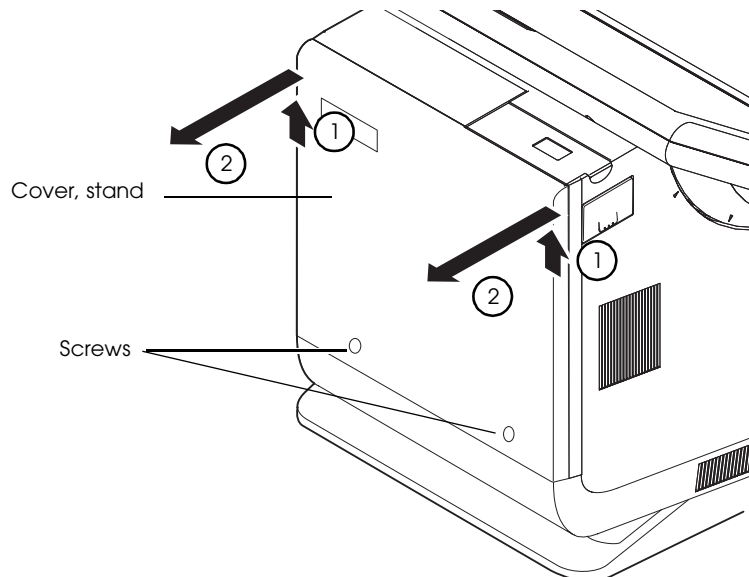
3. Slide the LCD unit upper by grasping the LCD lock lever on the right surface of the LCD unit and the LCD unit.

4. Open the **Cover, front, right** and remove the **Cover, front, left.**

Cover,front,left

Cover,front,right
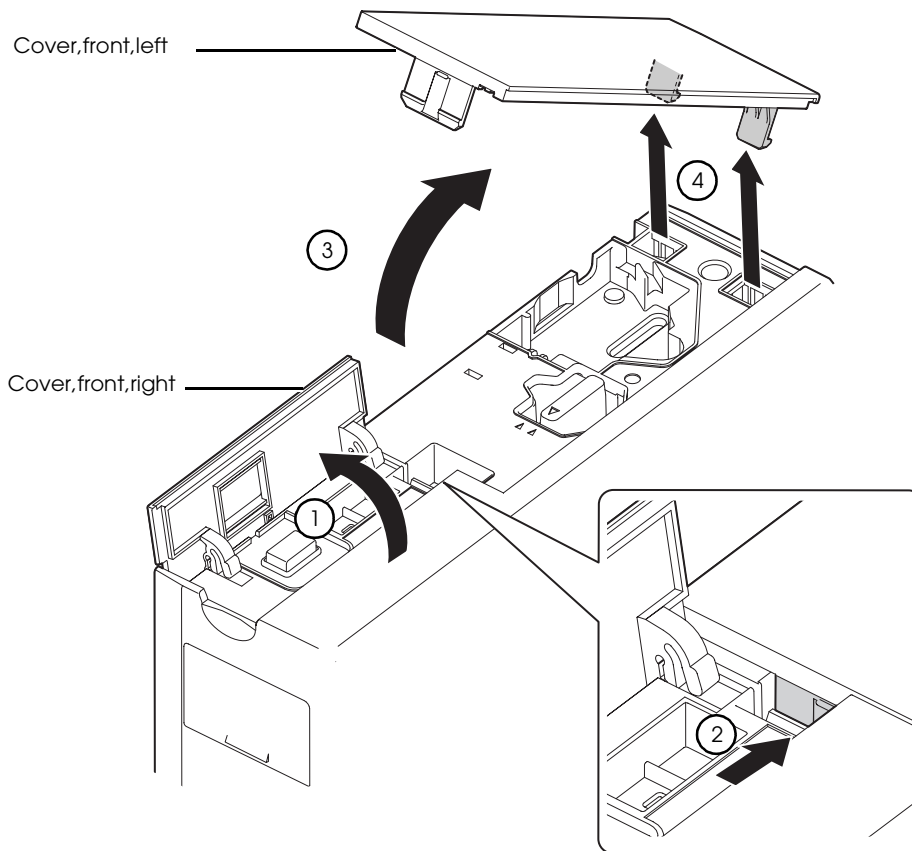
5. Pass the **cover, top** through the cable of the customer display, and then pass the **DM holder**.

Customer display

Cover, top
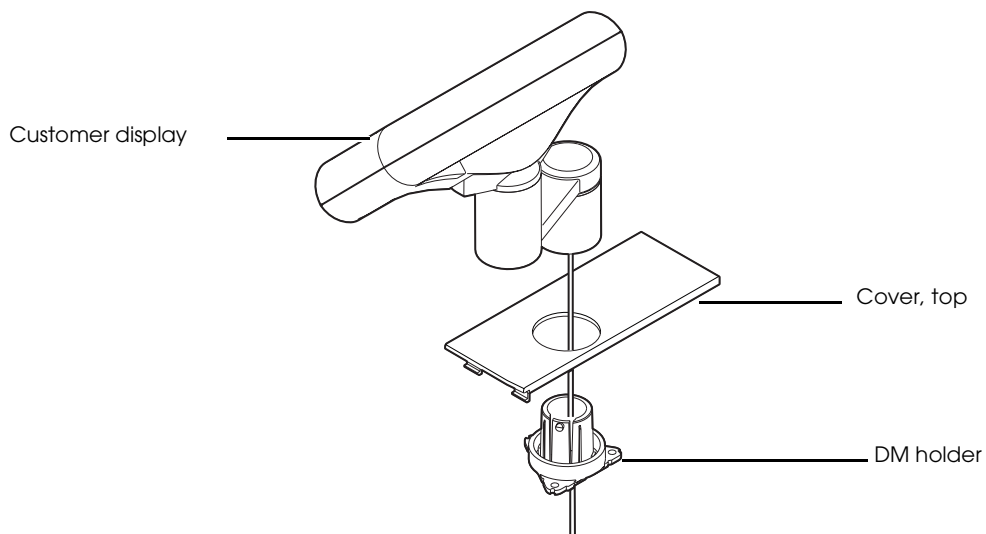
DM holder

6. Before installing the **DM holder**, place the cable of the customer display as follows.

Cables of the customer display
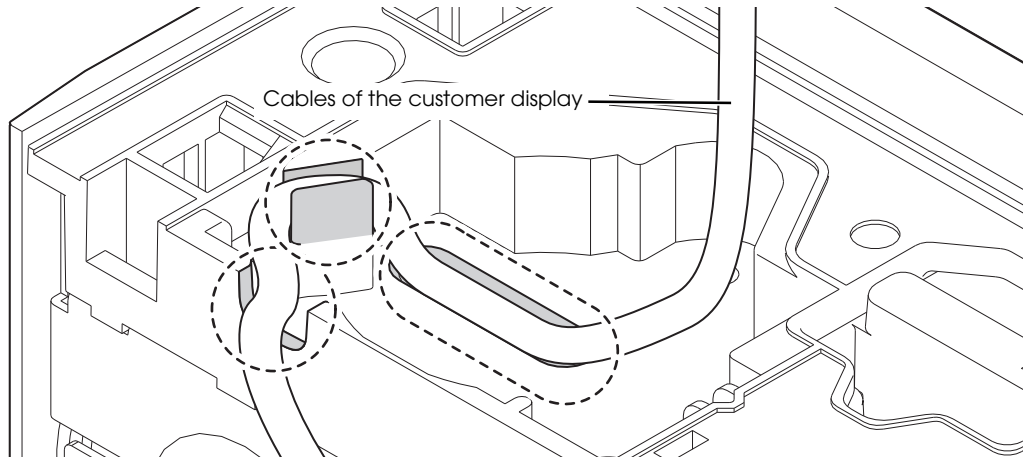
✎ *Note:*
After drawing out the cable of customer display as far as possible, install the DM holder.

7. Set the dowel of the **DM holder** so that it is placed to the direction as shown in the following figure, and attach it using three screws (M3 x 8).

When installing
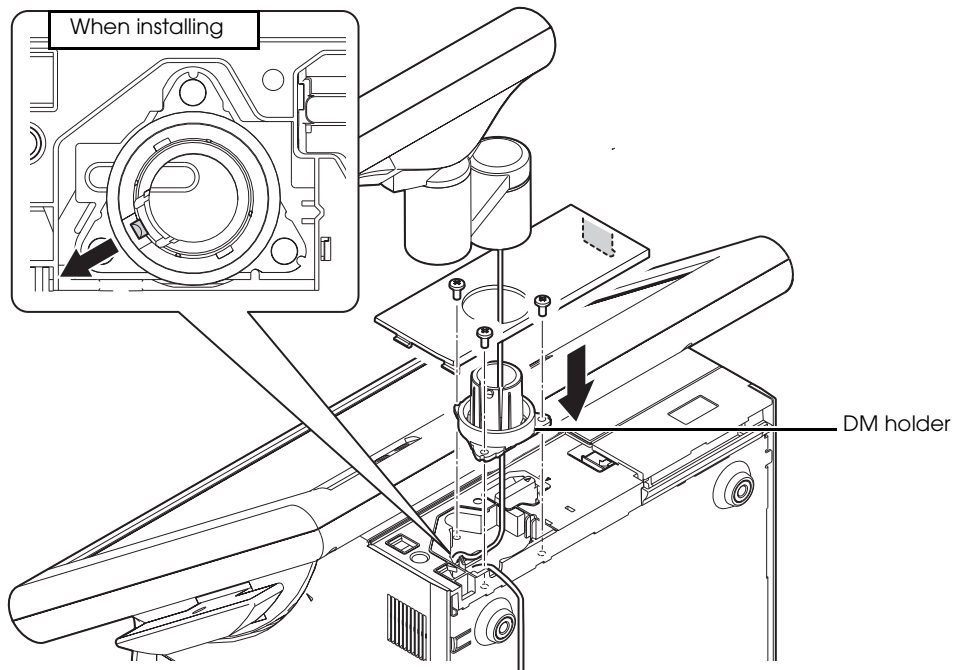
DM holder

8. Attach the **cover, top**.

9. Fit the hole of the customer display to tab of the DM holder, and attach the customer display to the DM holder.

✎ *Note:*
Be careful not to pinch the cable.
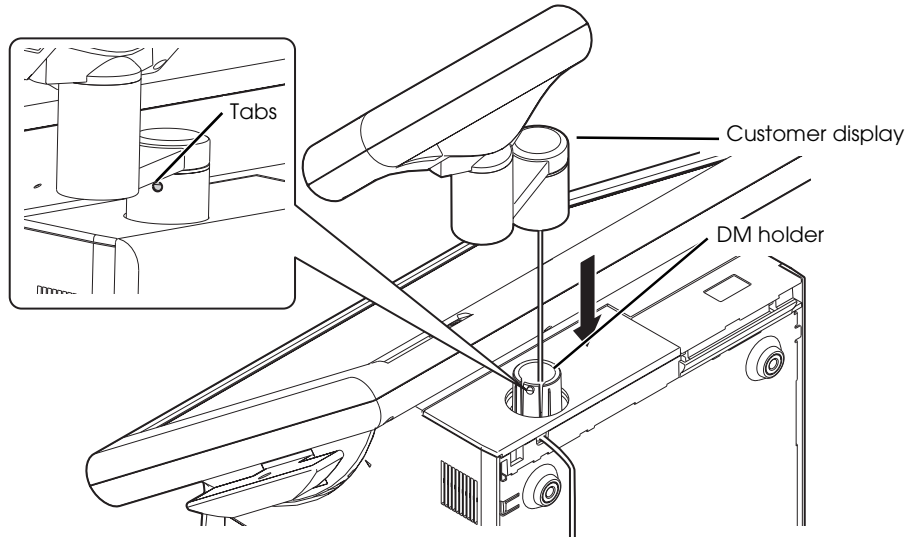
✎ *Note:*
When removing the top cover of the standing type, remove it after raising the LCD unit. If the LCD unit is down, the cover, top cannot be removed.

10. Pass the customer display through the space between the main unit and the case stand.
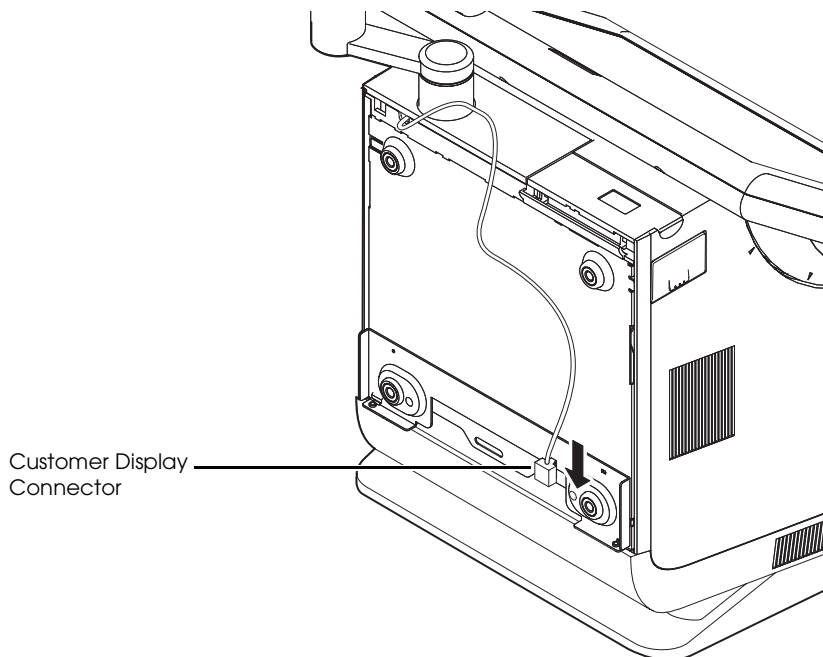
11. Fix the cover, stand using two screws (M3 x 8) paying attention to the boss.
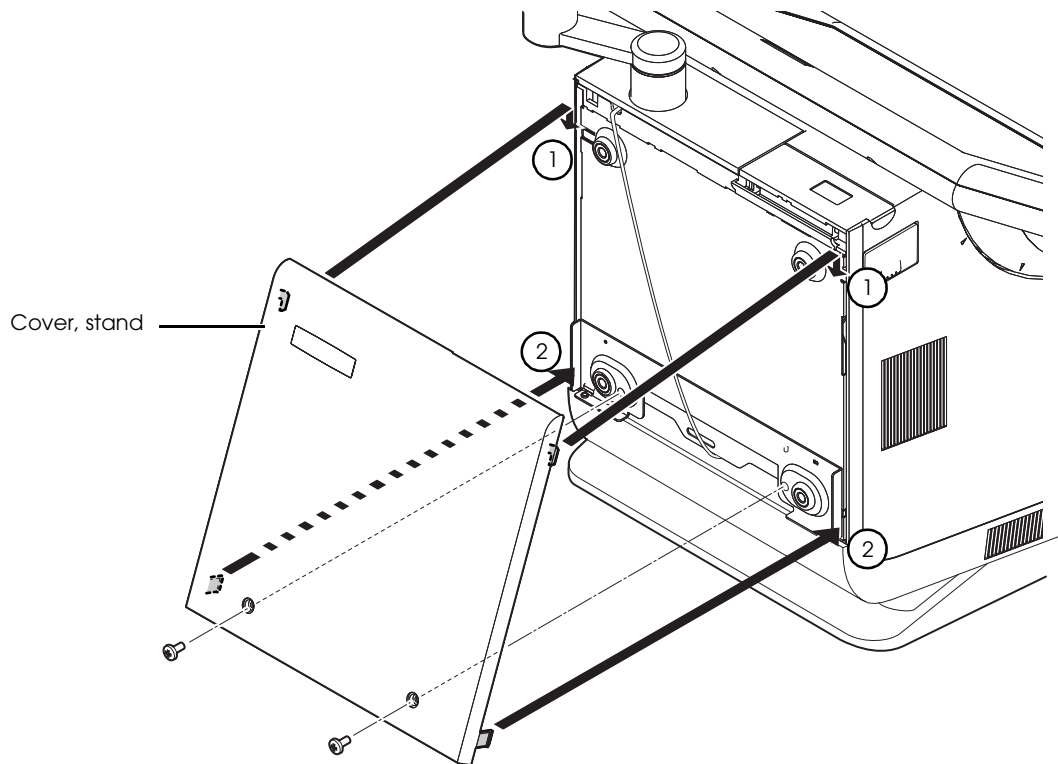
Cover, stand

12. Attach two **rubber screws** on the screws that have been attached.

13. Place a soft cloth on the desk, place it with the cover, stand of the IR-700 down.

⚠ *CAUTION:*

Check that there is nothing such as projection, screws, etc. under the cloth. There is a risk of damaging the cover, stand.

Place it carefully so that the customer display does not support any of the weight of the IR-700 unit. Otherwise, the customer display may be damaged.

14. Remove the screw and remove the plate bottom.
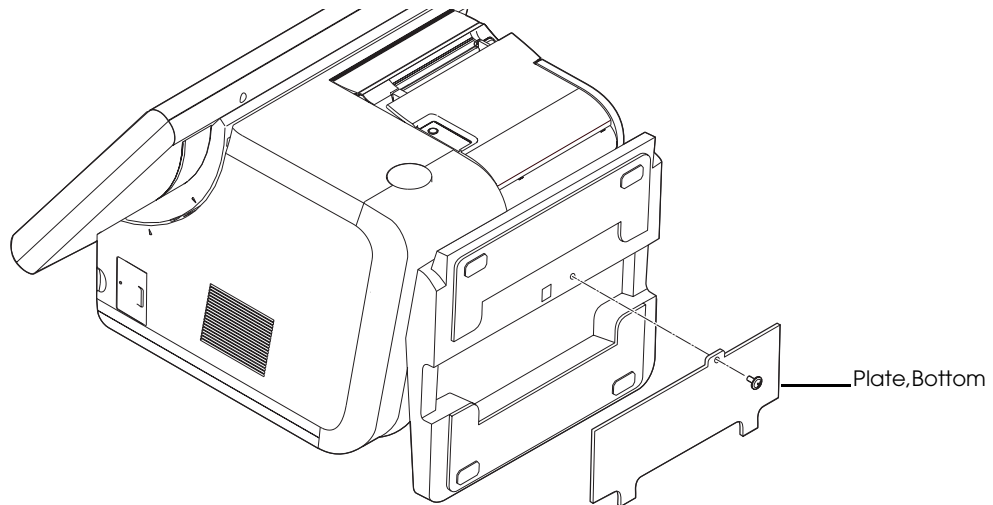
Plate,Bottom

15. Connect the cable of the customer display.
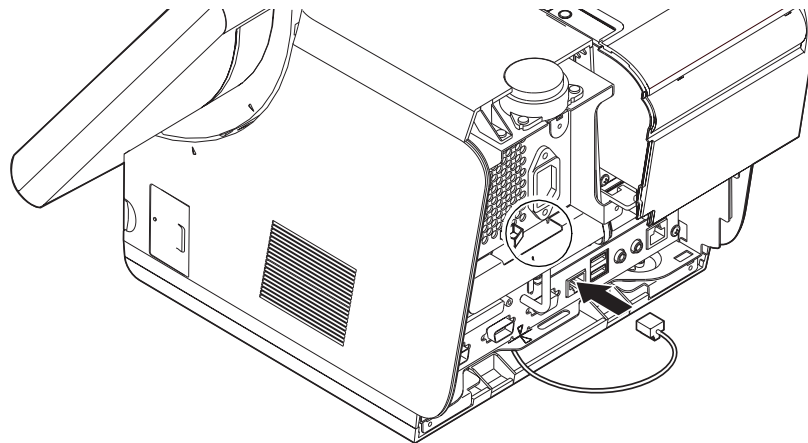
16. After routing the cable, use 1 screw to attach it to the plate and bottom.

17. Place the IR-700 vertically with the case, stand down.

18. When changing the DIP switch setting of the customer display, refer to "Customer display DIP switch settings" (See page 3-61)

Customer display DIP switch settings

Position of DIP switches is as follows: Setting

DM-D120

DM-D110

DM-D210

DM-D500
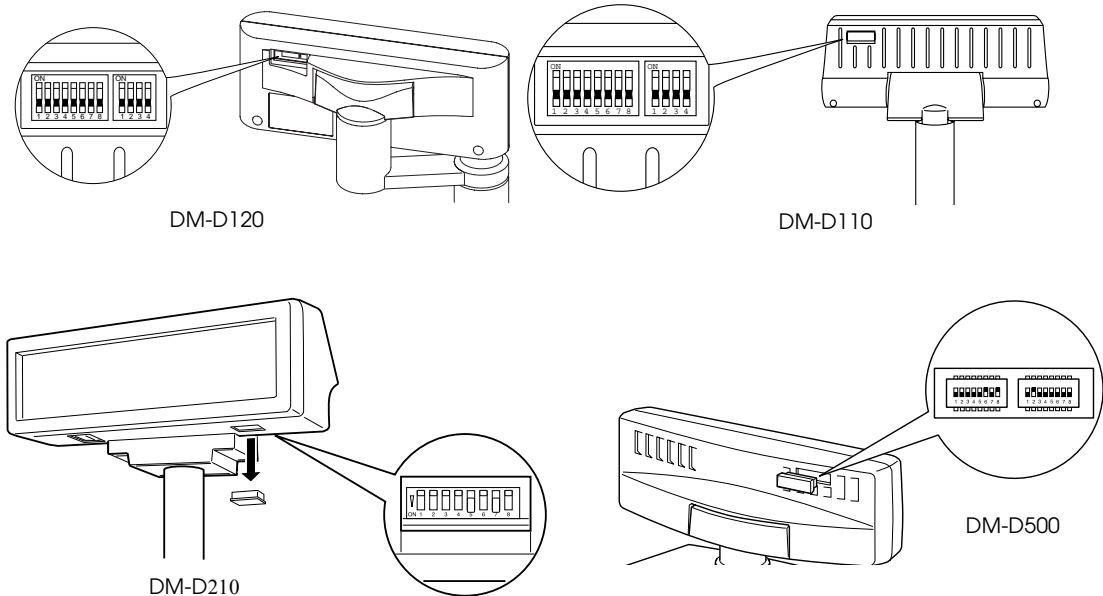
DM-D110/120 and DM-D210 (DSW1)

DSW1 Setting	Function	ON	OFF
1-1	Data receive error	Ignored	Displays "?"*
1-2	Data length	7 bits	8bits*
1-3	Parity on or off	Parity	No parity*
1-4	Parity type	Even	Odd*
1-5	Change Transfer rate Refer to the table below		
1-6			
1-7			
1-8	Self test selection (*1)	Perform self test	Do not perform*

* Foctory setting.
(*1) This function can select whether or not the self test is performed when you turn on the power. See "Self Test"for details.

Transfer rate(bps)

SW1-5	SW1-6	SW1-7	**Transfer rate**(bps)
ON	ON	ON	2400
OFF	ON	ON	4800
ON*	OFF*	ON*	9600*
OFF	OFF	ON	19200
ON	ON	OFF	38400
OFF	ON	OFF	57600
ON	OFF	OFF	115200

* Foctory setting.

DM-D500(DSW1)

DSW1 Setting	Function	ON	OFF
1-1	Data receive error	Ignored	Displays "?"*
1-2	Hand shaking	XON/XOFF (*1)	DTR/DSR*
1-3	Data length	7 bits	8bits*
1-4	Parity on or off	Parity	No parity*
1-5	Parity type	Even	Odd*
1-6	Change Transfer rate Refer to the table below		
1-7			
1-8			

* Foctory setting.
*1 XON/XOFF is valid only at connecting a stand-alone.

Transfer rate(bps)

SW1-6	SW1-7	SW1-8	Transfer rate(bps)
ON	ON	ON	2400
OFF	ON	ON	4800
ON*	OFF*	ON*	9600*
OFF	OFF	ON	19200
ON	ON	OFF	38400
OFF	ON	OFF	57600
ON	OFF	OFF	115200

* Foctory setting.

Operation confirmation by DIAG

The set up customer display is conformed as operating normally by DIAG. Refer to Chapter 6 "Device Diagnostics Utility."

Set up of the Powered USB Board

The Powered USB board is installed in the PCI slot of the IR-700 and adds three Powered USB ports.

Port	Color	Number	Power(MAX)	Specification
24V	Red	1	2.0A	When using the 24V ports, the TM-T88IIIX cannot be used.
12V	Green	1	1.0A	
5V	White	1	1.0A	

24V Jack   24V port   12V port   5V port
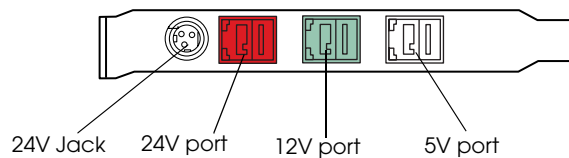
By installing the Powered USB board in the PCI slot, a device that needs more electric power than the regular USB port provides (+5V/500mA) can be connected easily.

The powered USB board can be used as a standard USB port too

Note:
When using the 24V ports, the TM-T88IIIX cannot be used.

Unpacking

The following are packed with the Powered USB board.

❏ Powered USB board

❏ Connecting cable for the Powered USB board

❏ 24 DC cable

❏ User's manual

Part Names

24V Jack

24V port

12V port

5V port

connector
(5V,12Vpower
supply is provided)
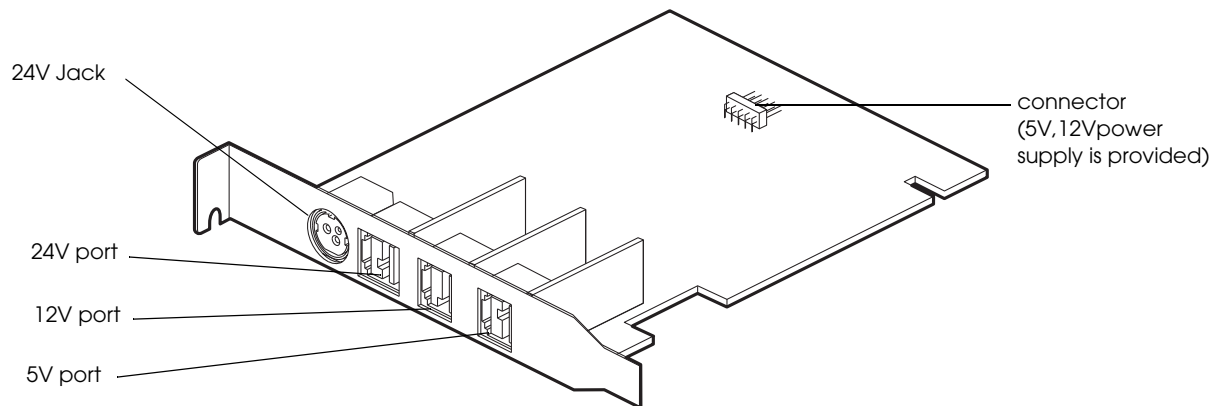
Powered USB board installation

Install the Powered USB board in the PCI slot of the IR-700.

⚠ CAUTION:

❒ **Before installing the Power USB board, discharge static electricity from your body.**

If you do not do so, it may lead to damage. Discharge static electricity by touching a grounded metallic surface or other grounded item.

❒ **Never touch the connector.**

Dirt from your finger may keep the board from operating properly.

❒ **Never attach the connector, cables, or screws by force.**

It damages the connection part and the screw thread.

Install the Powered USB board by following these steps.

1. Remove **the rear cover** .(See page 3-3.)

2. Remove the **main board unit**.(See page 3-43.)

3. Remove the four screws fixing the Frame PCI.

Frame PCI

Screws

Screws

4. Pull the **PCI RISER board set** straight up from the **main board unit**.

Main board unit

Frame PCI
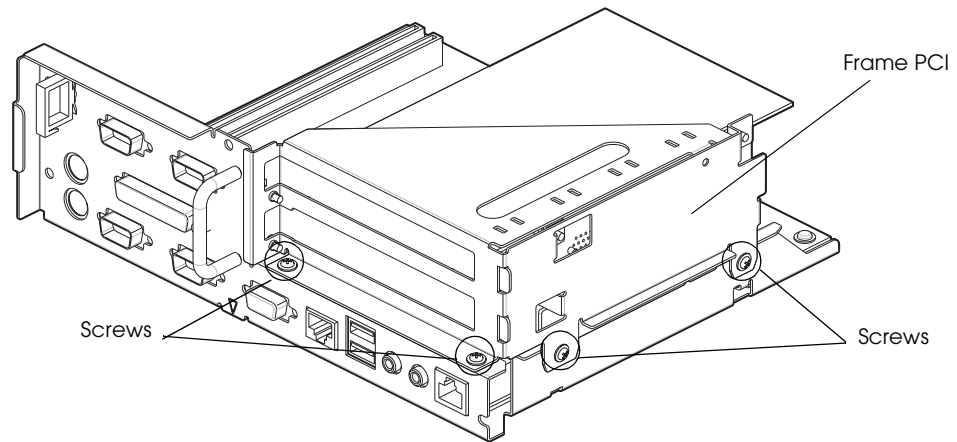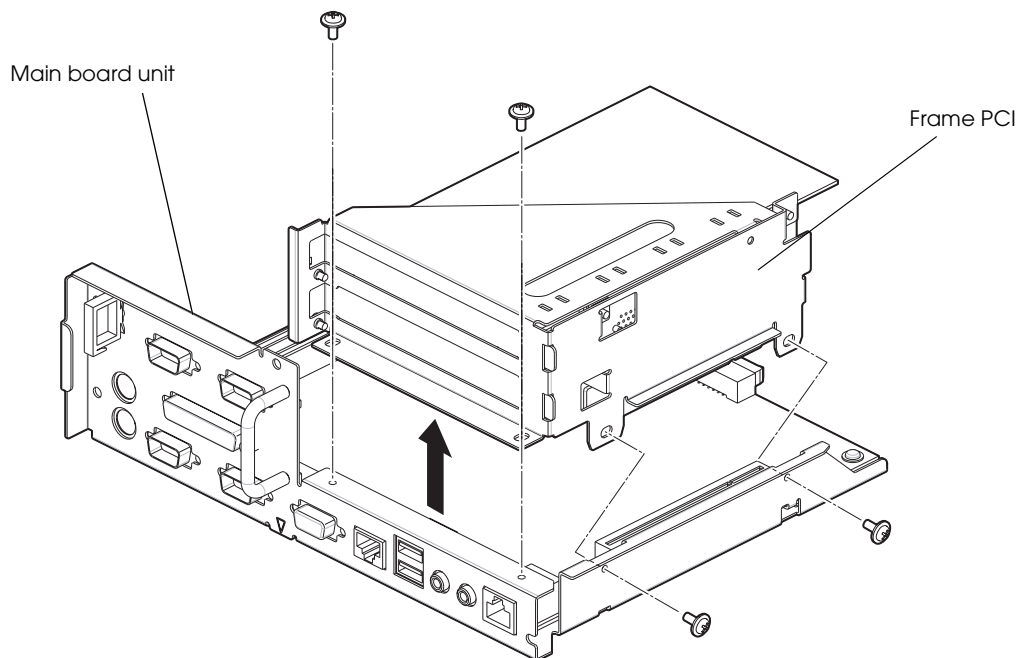
5. Remove the screws fixing the dummy cover. Store the dummy cover.

6. Install the Powered USB board and fasten the Powered USB board with one of the screws that were removed in step 5.

✎ *Note:*
Install the Powered USB board in the lower slot.
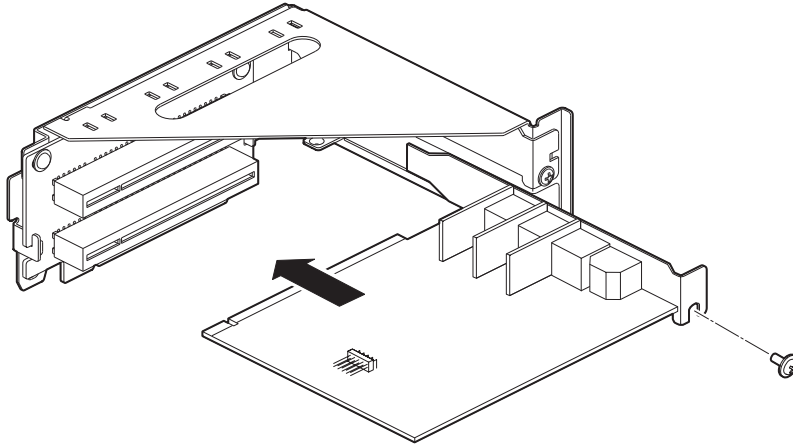
7. Connect the main connecting cable to the connector of the Powered USB board and the connector (CN2201) of the main board.

Powered USB board

main connecting cable
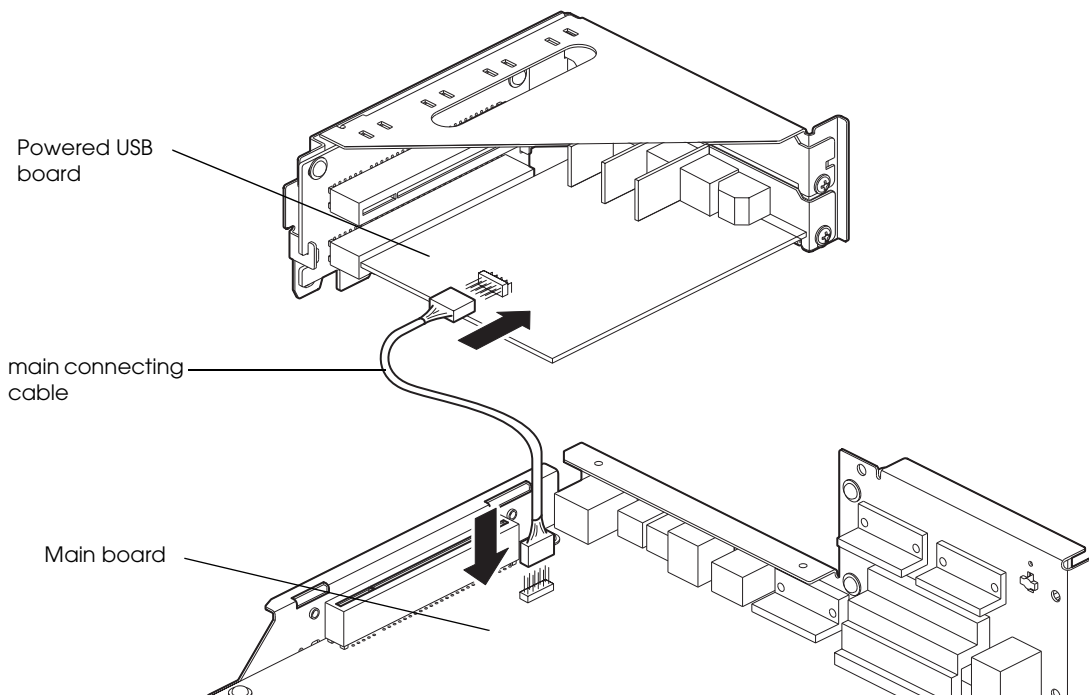
Main board

8. Install the PCI RISER board set on the main board.

    When installing, match the two tabs of the main board sub unit to the notches of the frame, and then insert the PCI RISER board set into the main board unit.

tabs
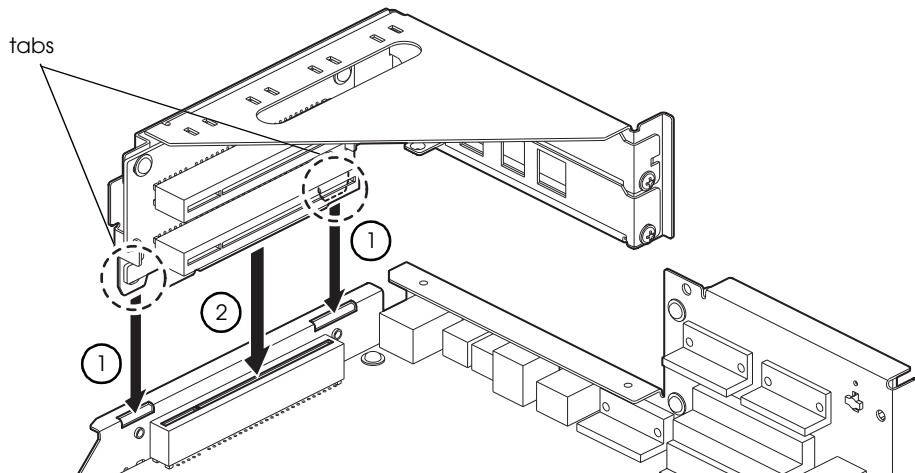
9. Fasten the PCI frame with four screws.

10. Install the main board unit. (See page 3-43.)

11. Connect the 24V Jack of the Powered USB board to the TMPS connector of the IR-700 with the 24V DC cable.

TMPS connector

L   R

24V Jack
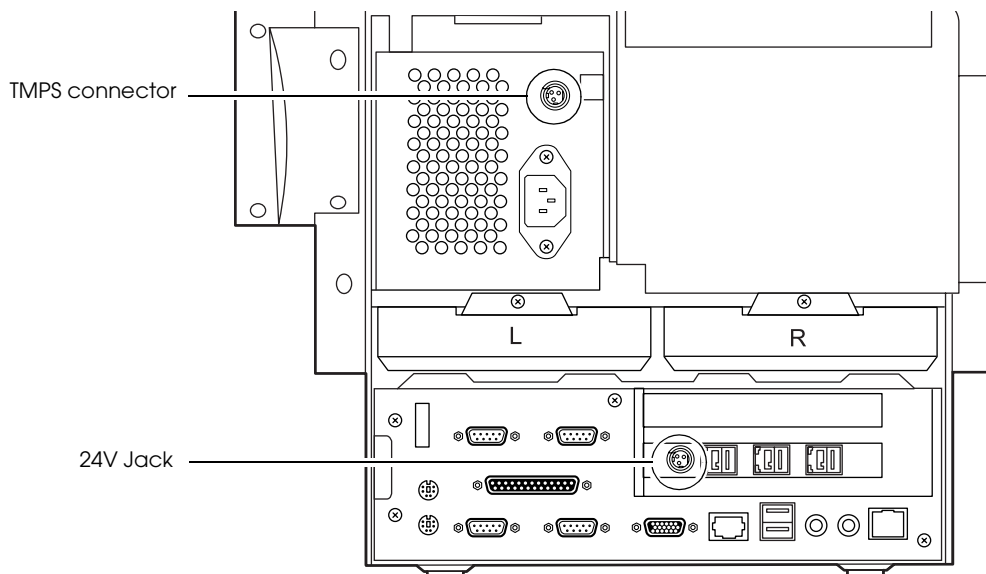
✎ *Note:*
When the 24V port is not used, step 11 is not needed.

12. Attach the rear cover. (See page .)

Installing a PCI Card

The IR-700 has two PCI expansion slots.

The maximum dimensions of the applicable PCI Cards are as follows:

167.64mm{4.8"} or less

106.68mm
{4.18"} or less
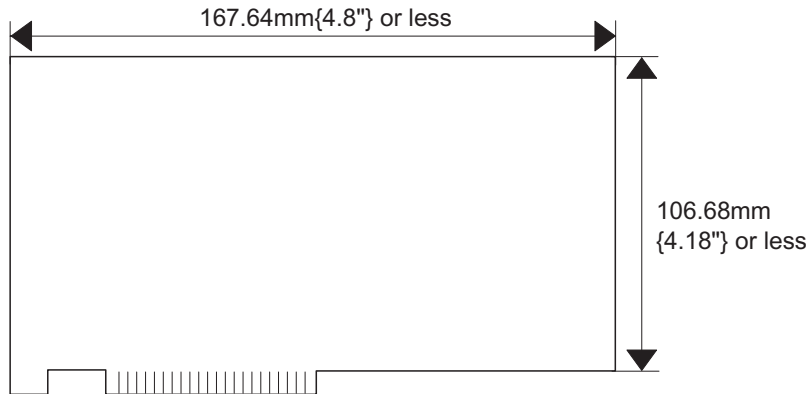
⚠ *CAUTION:*

Before installing the PCI Card, carefully confirm that it operates normally.

Follow the procedure below to install a PCI Card.

⚠ *CAUTION:*

Before setup, discharge static electricity on your body. If you do not discharge static electricity, trouble could result. Touch a grounded metal surface to allow static electricity to discharge.

Do not touch the connectors. Dirt may cause a malfunction.

Do not apply excessive force to connectors, cables, and screws during connection. Excessive force may damage the connection parts or screw threads.

PCI Card Setup

Install the PCI card following the procedure below.

1. Remove the rear cover.(See page 3-3.)

2. Remove the main board unit.(See page 3-43.)

3. Remove four screws that are fixing the frame PCI.

Screws

Screws

4. Pull PCI RISER board set straight up from the main board unit.
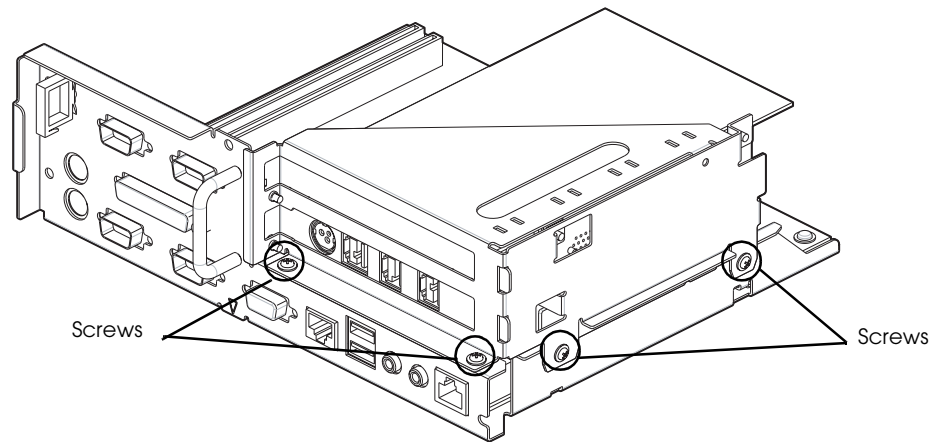
Main board unit
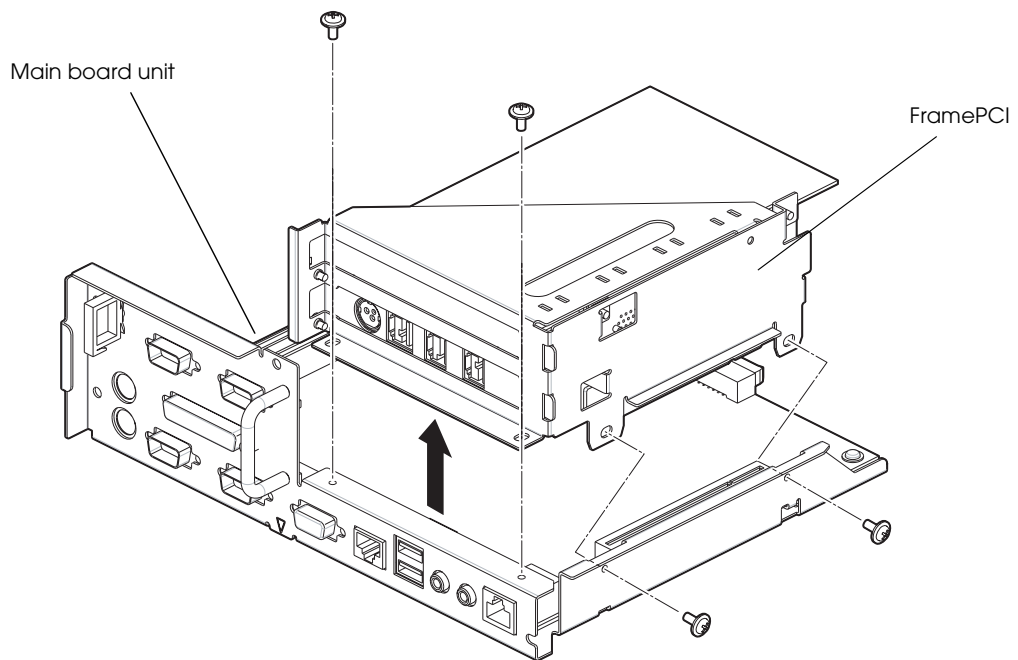
FramePCI

When installing, adjust the (two) ribs of the main board sub unit to the notches of the frame, and then insert the PCI RISER board set to the main board unit.
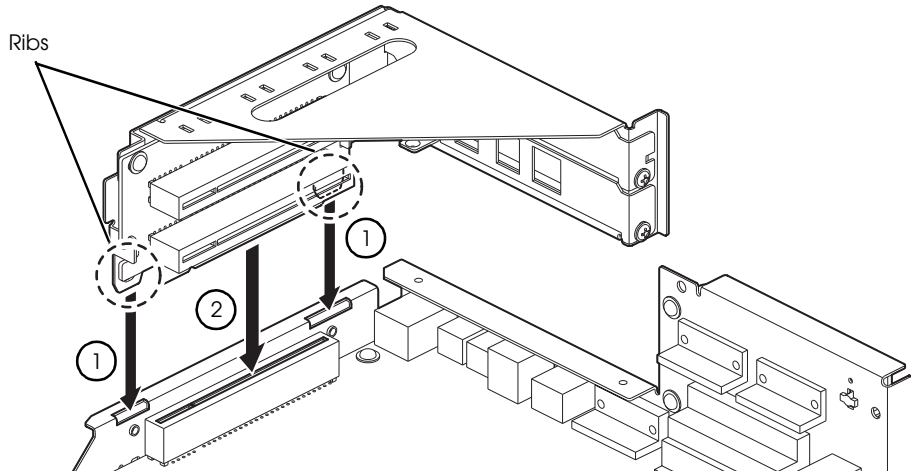
5. Remove the screws that are fixing the dammy cover, and store the dammy cover.

6. Connect the PCI card, and fix the PCI card with one of the screws that were removed according to the step 4.

7. Install the fixed main board unit in reverse order from 5 to 1.

✎ *Note:*
When you removed the PCI card, make sure to put the dammy cover on the PCI slot.

Installing a Cash Drawer

The connector of the cash drawer is on the printer unit, and the control of the drawer is also made through the printer unit. The drawer cannot be connected when the printer unit is not connected.

At default, COM3 is allocated as a serial port for the cash drawer. (this is the same port for the printer unit.)

Flow of setup

1. Remove the rear cover.

2. Connect the drawer to the drawer connector on the printer unit of IR-700.
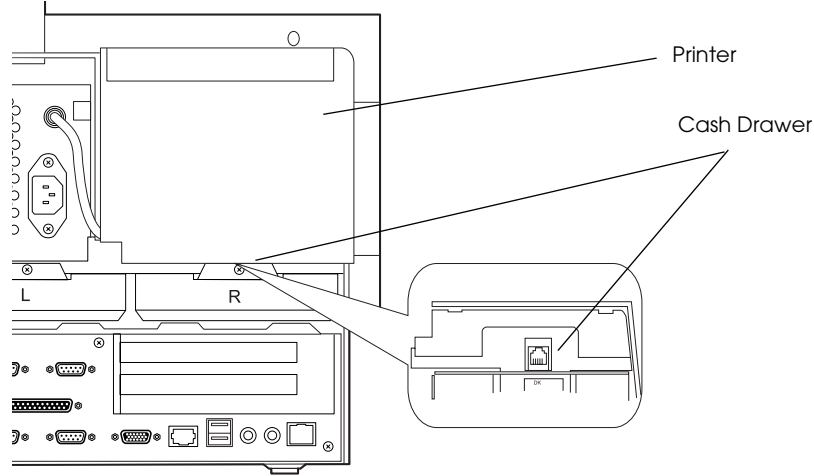
3. When performing the drawer kick test (to open the drawer), turn the IR-700 on to boot the BIOS. Check to see that the supervisor password is set.

    ✎ **Note**:
    Operation check with DIAG cannot be made if the supervisor password has not been set.

4. Turn IR-700 on to boot the DIAG.

5. Test the drawer. When performing the drawer kick test (to open the drawer), the supervisor password of BIOS is required.

    ✎ **Note**:
    At this time, set the key of the cash drawer to an unlocked position.
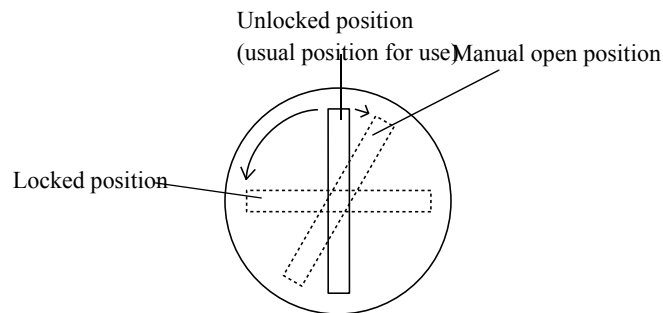
6. This allows you to use the cash drawer.

When using the external printer

When the printer unit is not connected but the external printer is connected, and if it has a drawer connector, connect the cash drawer connector cable to the drawer connector of the external printer. In this case, you cannot perform operation check with DIAG.

⚠ CAUTION:

Do not connect a telephone line to the DK connector.

Attaching a Power Cable

For the power cable to be attached to IR-700, make sure to use the specified power cable.

⚠ *WARNING:*

❑*Never insert or disconnect the power plug with wet hands. This may result in severe shock.*

❑*Do not place multiple loads on the power outlet (wall outlet). Overloading the outlet may lead to fire.*

❑*Do not plug in the power cable if the power plug is contaminated with dust or other foreign matter. Doing so may cause a fire.*

❑*Insert the power plug fully. Failure to do so causes the power plug to heat up and may cause a fire.*

❑*Regularly remove the power plug from the outlet and clean the base of the prongs and between the prongs. If you leave the power plug in the outlet for a long time, dust may collect on the base of the prongs, causing a short and fire.*

Setup procedure

Attach the power cable following the procedures as below.

1. Remove the rear cover.(See page 3-3.)

2. Pull the cable out from the bottom of the rear cover, and connect the power cable to the AC inlet.

3. Attach the rear cover.

4. Insert the power plug to the power receptacle.

Routing of the peripheral connections and cables.

Install it using the following procedure.

1. Place a soft cloth on the desk, place it with the cover, stand of the IR-700 down.

⚠ *CAUTION:*

Check that there is nothing such as projection, screws, etc. under the cloth. There is a risk of damaging the cover, stand.

2. Connect the necessary peripheral cables through the hole beneath the case, stand. (mouse, keyboard, etc)

3. After routing the cable, use 1 screw to attach it to the plate and bottom.
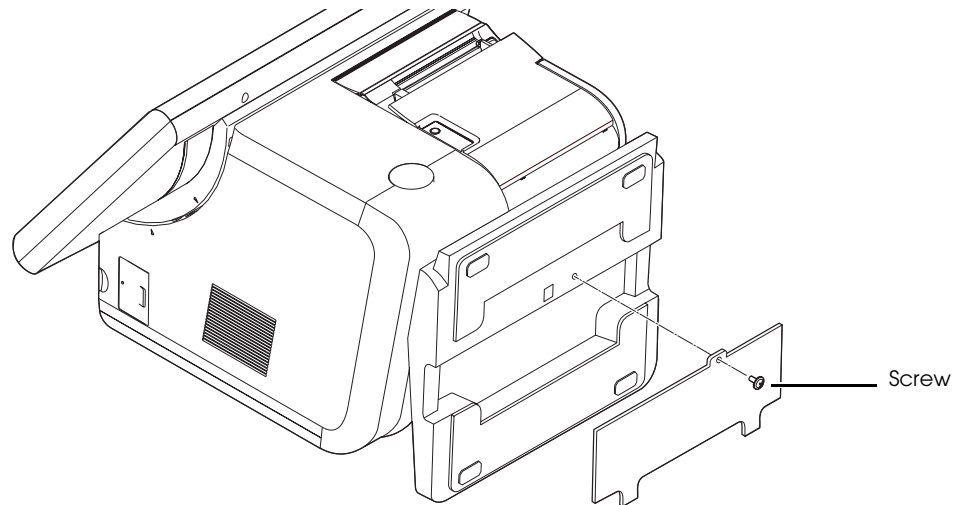
4. Route the cable from the slots on both sides of the case, stand, left and right.

5. Place the IR-700 vertically with the case, stand down.

Operation check

Turn on the IR-700, start DIAG, and test the device.For more information about starting and operating DIAG, please see Chapter [ ] DIAG.

Attaching the velcro and preventing from falling

Attach the velcro to the installation location, and fix the IR-700 so as to prevent it from falling. Attach the velcro to a location that is not visible, such as the bottom or rear surface.

Installing Peripheral Devices to the COM Port

The IR-700 has four serial ports. (COM1, COM2, COM5, COM6). Also it can output +5V or +12V at the 1st pin by the jumper setting (JP2801,2802,2901,2902) on the main board.

COM5 and COM6 can be used in the default setting. Change the BIOS setting and assign COM5 and COM6 to the IRQ not being used.

✎ *Note:*
COM3 (for the dedicated printer unit) and COM4 (for the customer display) cannot be used because they are set for the dedicated the IR-700.

Setup

Setting a Jumper

By setting the jumpers (JP2801 to JP2902) on the main board, +5V or +12V power output is possible at pin 1 of the serial connector. The default settings are such that the DCD signal is output, and power is not output.

⚠ CAUTION:

Making a mistake in setting the jumpers can damage the device or cause it to heat up and possibly cause a fire. Confirm that the jumper setting is correct before connecting the unit.

Jumper block		Default	+5V output	+12V output	CMOS clear
JP 2801	COM1	1 - 2	3 - 4	5 - 6	---
JP 2802	COM2	1 - 2	3 - 4	5 - 6	---
JP 2901	COM6	1 - 2	3 - 4	5 - 6	---
JP 2902	COM5	1 - 2	3 - 4	5 - 6	---
JP 1601	CMOS clear	1 - 2	---	---	2 - 3
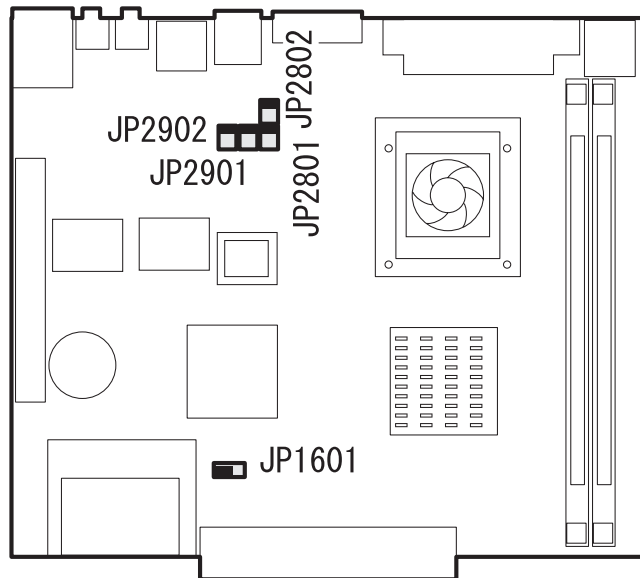
COM5, COM6 Setting

COM5 and COM6 cannot used as the default. To use, The BIOS setting must be changed by using the following procedure.To change the BIOS settings, please refer to Chapter 5 [BIOS functions].

✎ *Note:*

When setting the BIOS, always connect the PS/2 keyboard. It cannot be operated from the touchpanel.

Chapter 4

Utility

This chapter explains about the POS controller unit of the IR-700, relative utilities, other utilities, and the development software.

Refer to Chapter 7 RAID for RAID setting, RAID BIOS and GUI utilities.

For the Epson Remote Maintenance Software, Please see "Epson Remote Maintenance Software Technical Reference Guide".

Kinds of Utilities

IR-700 utilities and development software include the following.

28-key keyboard (DM-KX028) utility

The utility which defines 28-key POS keyboard unit, writes in the POS controller, and creates the definition file.

Utility	Utility name	OS	Reference page
28-key definition utility	28KEYCFG.EXE	Windows 2000/XP/WEPOS	page 4-4

MSR(DM-MX123) utility

The utility that set the functions of MSR, and writes in the POS controller.

Utility	Utility name	OS	Reference page
MSR setting utility	MSRCFG.EXE	Windows 2000/XP/WEPOS	page 4-15

Other relative utility

The utility that writes the definition file in the POS controller.

Utility	Utility name	OS	Reference page
Definition data automatic setting utility	PKM_LOADER.exe	Windows 2000/XP/WEPOS	page 4-18

60-key keyboard (DM-KX060) utility

The utility that defines60-keyPOSkeyboard unit, writes in the POScontroller, and to creates the definition file.

Utility	Utility name	OS	Reference page
60-key Definition Utility	KeyDesigner.EXE	Windows 2000/XP/WEPOS	page 4-20

Logon keyboard

The utility to log on to the OS without connecting the keyboard and mouse.

Utility	Utility name	OS	Reference page
Logon tool	Actinkey/Logonkey	Windows 2000/XP/WEPOS	page 4-35

Touch panel driver

Carry out the calibration and the operation setting of the touch panel.

Utility	Utility name	OS	Reference page
Touch panel driver	Touch Panel Configuration Tool	Windows 2000/XP/WEPOS	page 4-37

Obtaining Method of Each Utility

The procedure for obtaining each utility is as follows: For more information about the installation procedure of each utility, refer to the item describing each utility.

Utility	Obtaining method
MSR setting utility	It is preinstalled in the BACKUP\POSDVCFG\TOOL folder. It will be available after executing the setup.
28-key definition utility	
Definition data automatic setting utility	
60-key definition utility	It is preinstalled in the BACKUP\60KEYCFG\TOOL folder. It will be available after executing the setup.
Logon tool	It is preinstalled in the BACKUP\ folder. It will be available after executing the setup.
Touch panel driver	It is automatically installed during the OS installation.

28-key Definition Utility

The 28-key definition utility is a utility of Windows, and has the following functions for the 28-key POS keyboard unit connected to the IR-700.

❑ Key label setting (font, font size, color)

❑ Background color setting of the label

❑ Definition of the key function

❑ Definition of the layer key function

❑ Write defined data in the POS controller

❑ Saves defined data in the definition file

❑ Read from the definition file data

❑ Write data from the POS controller

It can also define same contents to several IR-700 using the definition file, and can rewrite with batch processing using the automatic setting utility.

Refer to [Table 4-1 Definable Keys] (page 9) for definable keys.

✎ *Note*
Please note the following when you use this utility.

❑ **Shift**, **Ctrl**, *and* **Alt** *key can not be registered independently. Register them by combining with other keys.*

❑ **Windows** *key,* **Menu** *key, and* **Print Screen** *key cannot be registered independently because they are treated exceptionally in the system.*

❑ *Simultaneous pressing of* **Ctrl**+**Esc**, **Alt**+**Esc**, *and* **Alt**+**Tab** *cannot be defined.*

❑ *Simultaneous pressing of* **Ctrl**+**Alt**+**Del** *can be registered with Preset Codesspecial key definition.*

❑ *Programming cannot simultaneously be carried out with the MSR setting utility.*

❑ *Do not operate the touch panel, etc. during execution of this utility program (during writing of the definition data).*

Start

28-key definition utility (28KEYCFG.EXE) is registered in the directory specified during the installation. It is registered in the following directory by default.

```
C:\Program Files\EPSON\POS Device Utilities
```

This utility can be started by the any of the following methods.

❏ Select 28KEYCFG.EXE with Explorer to execute.

❏ Select [**SRART**]-[**All Programfiles**]-[**EPSON POS Device Utilities**]-[**28 Keyboard Definition Tool**].

The following starting screen is displayed after starting the program.
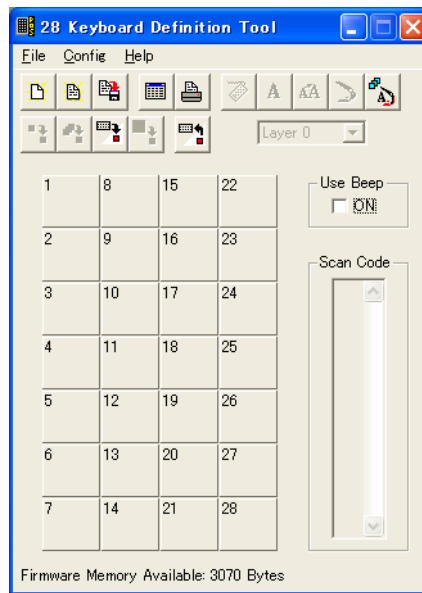
Button

15 buttons are displayed under the title bar of the 28-key definition utility. The function which you want to execute can quickly be called by pressing these buttons.

New	Clears the definition of the key to create a new document.
Load	Reads the saved definition file.
Save As	Saves the current definition information in the file.
View	Opens the Key View window, and displays the key label.
Print	Displays the Print dialog
Code	Defines a key.
Label	Defines the key label displayed on the screen.
Font	Defines the font and color of the label.
Color	Defines the background color of the label.
Set All Keys	Defines font, displaying position of characters, color, and background color of the same label for all keys.
Prog Key	When this button is pressed when key is selected, only the definition contents corresponding to the selected key is written in the POS controller.
Prog Layer	The definition contents of all keys of the selected layer number is written in the POS controller.
Prog All	The definition contents of all keys are written in the POS controller.
Prog Layer Chang Keys	Only the definition contents of the layer key is written in the POS controller.
Read POS	Read the definition contents currently written in the POS controller.
Layer Num	Select the layer number which is to be defined.

Setting the Key Input Sound

Able to set the beep sound as "on" or "off" in the key input of the 28-key POS keyboard unit.

When the check box in the Use Beep is checked, the sound is set to be "on".
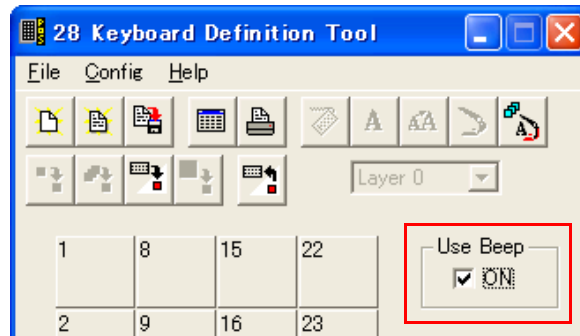
Definition of Key Label

Define the key label which is displayed on the key according to the following procedures.

1. Select the key which you want to define the key label.

2. Press the **Label** button, and the Label dialog opens.
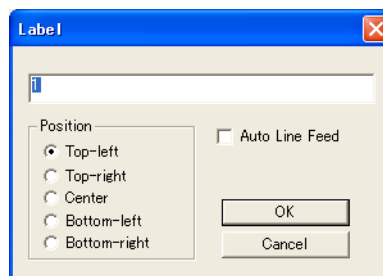
3. Input characters which are to be defined.
   Up to 20 characters can be input. "|" is referred as a new line.
   The display position of input characters can be set by selecting an option button of [Position] items.They are displayed with word wrap when the
   [Auto Line Feed]check box is checked.

4. Press the **OK** button, and the characters input are displayed on the key, and the Label dialog is closed.**If you press the Cancel** button, the characters input are canceled.

5. If you want To create a large key by linking the keys, link two keys by selecting the key on the right or directly below with pressing the **Shift** key while selecting the key.

6. To cancel the link of keys, right click to execute [Disjoin Keys].
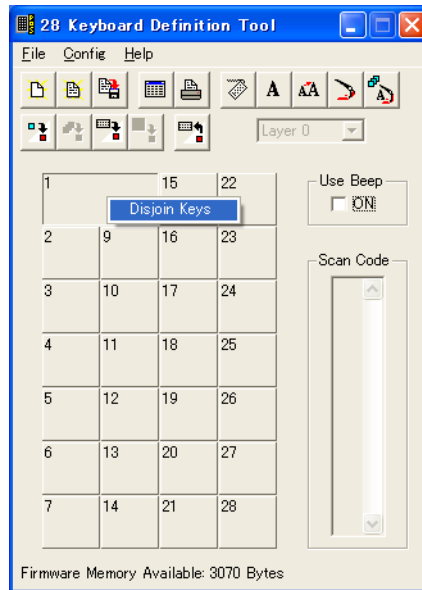
Definition of Key Code

1. Select the key of which you want to define the code. Press it again to clear the selection.

2. Press the **Code** button, and the Scan Code Dialog opens.
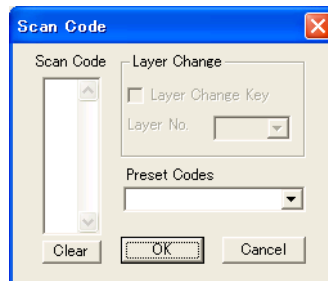
3. Input the code which is defined in the selected key from the keyboard. The code can input up to 63 bytes.

   When the [Layer Change Key] check box is checked, the selected key will be the layer change key, and select the layer number with the [Layer No.] combo box. Also, the items [Scan Code] and [Preset Codes] cannot be defined.

✎ *Note*
Refer to page 4-11 for the layer.

   *[Preset Codes] combo box can be selected and defined**Ctrl**+**Atl**+**Del**as a special key.*

4. Press the **OK** button, and the input scan code is defined to the key, and the Scan Code dialog is closed. The input scan code is displayed on the scan code area.
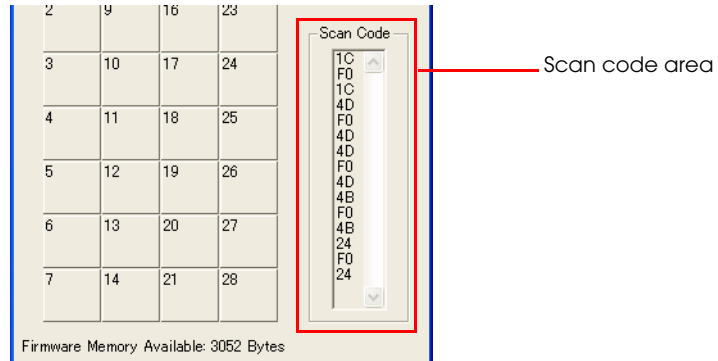
Setting the font of the label

It is able to print a label and display on a key top. Set the font of the label according to the following procedure.

1. Select the key which you want to set and make it a selective state.

2. Press the **Font** button, and the font dialog is displayed.
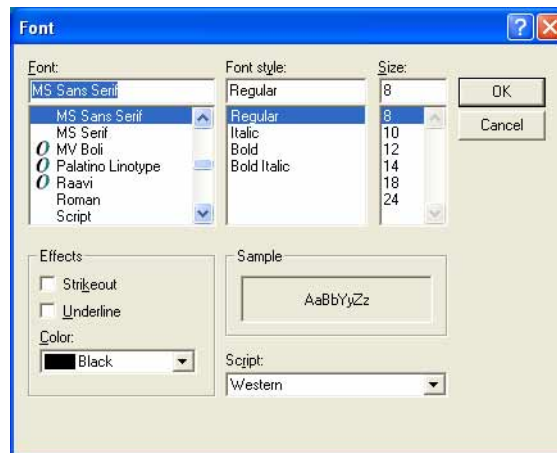
3. Set the font of the label. The following can be set.

    Font type, style, size, color, underline, etc.

4. Press the **OK** button, and the key is redrawn with the defined font, and the font dialog is closed. **Press the Cancel** button, and the defined font is canceled.

Setting the Background Color of the Label

Set up the background color of the label according to the following procedure.

1. Select the key you want to set the background color of the label and make it a selective state.

---

2. Press the **Color** button, and the Color dialog is displayed.
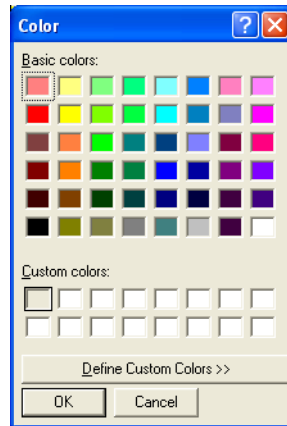
3. Set the background color of the label. Select the color you want to set from the color pallet

4. When setting the color other than the basic color as the background color of the label, press the [Define Costum Colors] button. Select the color from the color slider or input the value and press the[Add to Costum Colors] button. AmThe created color is additionally displayed on the [Costum Colors] color pallet, so select the created color and press the [OK] button.
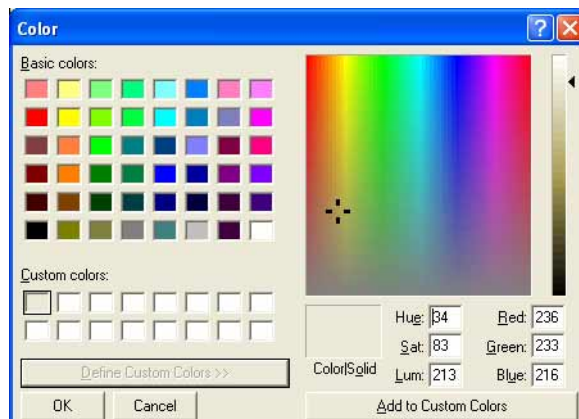
5. Press the **OK** button, and the key is redrawn with the defined color, and the font dialog is closed.**If you press the Cancel** button, the selected color is canceled.

Layer Function

layer function is a function which enables multiple layer definition and key definitions of (28 keys x layers) by bundling the key definition of the 28 keys of the 28-key keyboard unit. It can switch several layers with the layer change key, and it enables more than 28 keys to be input.

Layer Switching Method by Using the Layer Change Key

Defines the layer change key which specifies each layer in 28 keys. Press the key to change to the specified layer. Release the layer change key to return to layer 0.
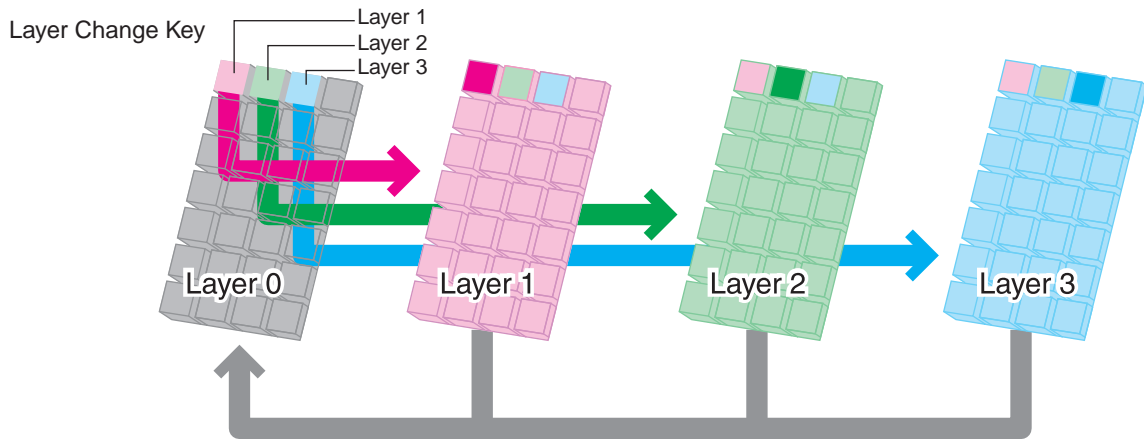
Using the Layer Function

The layer function is disabled in the initial state. To use the layer function, change the setting to ON in the [Config] - [Layer Mode].For the layer, select the layer number which is to be defined from the part of the Layer Num.
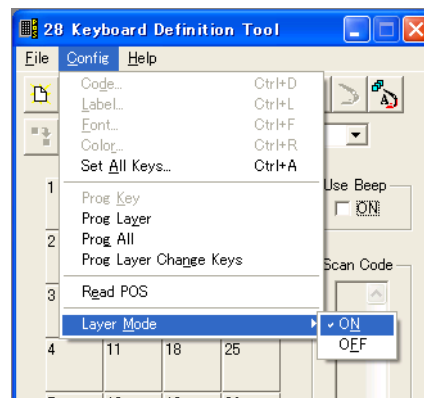
Programming of the Key

To program the definition contents in the POS controller, carry out any one of the following methods.

- Press the **Prog Key** button while selecting the key. Only the definition content of the selected key is written in the POS controller.

- Press the **Prog Layer** button. All definition contents of the key of the selected layer are written in the POS controller.

- **Press the** Prog All button. All definition contents of the key of the layer are written in the POS controller.

If an error occurs, the error message is displayed.

In order to only write the layer change key in the POS controller, carry out the following method.

- Press the **Prog Layer Change Keys** button. Only the layer change key is written in the POS controller.

To read the definition contents written in the POS controller, carry out the following method.

- Press the **Read POS** button. All definition contents of the key written in the POS controller are read.

Saving the Definition File

Current definition data can be saved as a definition file. Save the definition file according to the following procedure.

1. Press the **Save As** button, and the [Save] dialog is displayed.

2. Input the file name and press the [Save] button, so it is saved in the definition file. ".X28" is specified as the extension of the file.

Reading of Definition File

To read the saved definition file, carry out the following procedures.

1. Press the **Load** button, and the [Open] is displayed.

2. Select the file name and press the [Open] button, and the selected definition file is read.

✎ *Note*

It is able to read the definition data of the definition file IR-320/310 (extension .k28), however, there is no data of the key label. The key label is set by the customer.

Creating a New Document

Clear previous definitions to newly define, and press the **New** button. Clear all the settings of the key and the key label.

Printing the Key Label

Press the **View** button, and the View window is opened, and you can check the label and the background color of the key. To close the window, press the [x] button located on the very right of the title bar.
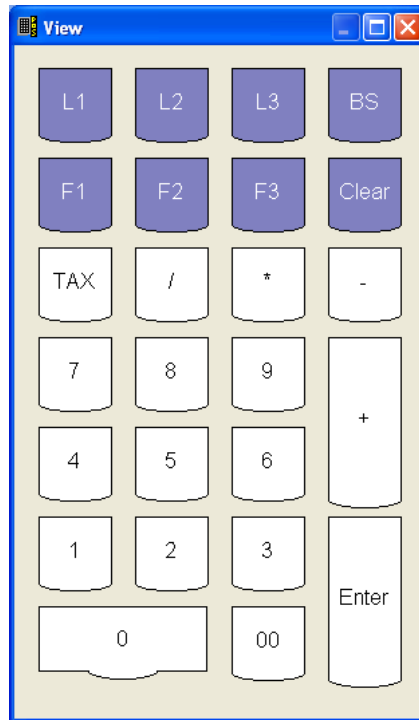
Close the View window and press the **Print** button, and the key label is printed with the image of the View window.

It can be cut and pasted on the keyboard.

Exit

To exit the 28-key definition utility, press the [Þ] button on the upper right or select [File] - [Exit].

List of definable keys

A list of the definable keys is shown. "Yes" means definable, "No" means not definable, and "-" means not applicable(same as the independent key).

Table 4-1 Definable Keys

Utility	28KEYCFG.EXE				
Not definable keys due to OS dependence, etc.	Print Screen, Scroll Lock, Pause, Num Lock, Caps Lock, Windows, Shift, Alt, Ctrl, Menu, Alt+Esc, Alt+Tab, Ctrl+Esc				
Combination key	**Single**	**Shift**	**Ctrl**	**Alt**	**Num Lock**
Esc	Yes	Yes	No	No	-
Fn (function key)	Yes	Yes	Yes	Yes	-
1 3 4 5 7 8 9 0	Yes	Yes	Yes	Yes	-
2 6	Yes	Yes	Yes	Yes	-
a - z	Yes	Yes	Yes	Yes	-
Tab	Yes	Yes	Yes	No	-
BS	Yes	Yes	Yes	Yes	-
Space	Yes	Yes	Yes	Yes	-
Enter	Yes	Yes	Yes	Yes	-
- ( ) \	Yes	Yes	Yes	Yes	-
= ; ë í , . /	Yes	Yes	Yes	Yes	-
Ins	Yes	Yes	Yes	Yes	Yes
Del	Yes	Yes	Yes	Yes	Yes
Home	Yes	Yes	Yes	Yes	Yes
End	Yes	Yes	Yes	Yes	Yes
PageUp	Yes	Yes	Yes	Yes	Yes
PageDown	Yes	Yes	Yes	Yes	Yes
↑	Yes	Yes	Yes	Yes	Yes
↓	Yes	Yes	Yes	Yes	Yes
→	Yes	Yes	Yes	Yes	Yes
←	Yes	Yes	Yes	Yes	Yes
/ * (ten-key)	Yes	Yes	Yes	Yes	-
- + (ten-key)	Yes	Yes	Yes	Yes	-
Enter (ten-key)	Yes	Yes	Yes	Yes	-
0 . 1 2 3 4 5 6 7 8 9 (ten-key)	Yes	-	Yes	Yes	-

MSR Setting Utility

The MSR setting utility is a utility to set the following items of the MSR on Windows and to write them in the POS controller.

❑ Readable track

❑ Sound when reading

❑ Corresponding language

❑ Characters added before and after the card reading data

Workflow

1. Start this utility.

2. Carry out the settings, etc. of MSR.

3. Complete this utility in order to write the current setting contents in the POS controller in the LCD .

Start

MSR setting utility (MSRCFG.EXE) is registered in the directory specified at installation. It is registered in the following directory by default.

    C:\Program Files\EPSON\POS Device Utilities

This utility can be started by the any of the following methods.

❑ Select MSRCFG.EXE in Explorer and execute.

❑ [Select START]-[All Programs]-[EPSON POS Device Utilities]-[MSR Setting Tool].

The following initial screen is displayed after starting the program.

With or without beep

Specification of readable tracks

Specification of the country

Specification of SS/ES in every track

❏ Set the track which is to be read.

Check the check box on the track with MSR Tracks Recognition. You can also do multiple simultaneous specification.When the DM-MX123 is installed at startup, Track 1, Track 2, and Track 3 are selected. When nothing is installed, Track 1, Track 2,and Track 3 are selected. In that case, select the DM-MX123 from [Config] - [MSR Type] in the MENU.

❏ Beeping when reading the card

Check the check box of the Use MSR Beep.

❏ Selecting the language

Select the language in accordance with the language setting of Window which uses MSR Code Type. "English" is selected for the Japanese setting. For other languages, either "Japanese", "French", "German", or "Spanish" is selected.

❏ Add the start and encode to the MSR reading data.

By adding characters before and after the data in the MSR reading, it allows the application to identify that it is the MSR reading data. Specification can be made to every card and track.Describe the characters which are to be added to
MSR Start/End Sentinels. When characters are not added, leave it blank. The default setting is as follows.

Track 1 Start: "%"   ;Track 1 End: "?"

Track 2 Start: ";"   ;Track 2 End: "?"

Track 3 Start: "+"   ;Track 3 End: "?"

Special characters can be set as follows.

Line feed: "\R" or "\r"

Tab: "\T" or "\t"

"\":   "\\"

Other: "\xx" is two digits of hexadecimal, and directly specifies the character code with hexadecimal (do not set over 7F with hexadecimal)

❏ Conversion of the control character

When the Check is done to the Control Mode, while the code 01H - 1AH is in the data read from the card, the control character of 01H~1AH is converted to the scan code corresponding to Ctrl + A~Ctrl + Z. Thereby, it can identify even if the control characters which cannot obtain the application is included in the data.

Button

The button consists of 5 buttons displayed under the title bar of the MSR setting utility. The function which you want to execute can quickly be called by pressing these buttons.
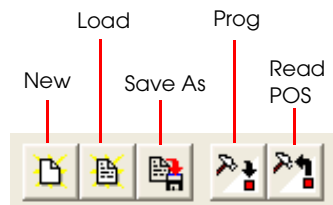
New	Clears the setting and creates a new document.
Load	Reads the saved definition file.
Save As	Saves the current settings to the definition file.
Prog POS Config	The setting contents are written in the POS controller.
Read POS Config	Reads the setting contents currently written in the POS controller.

Reading of Setting Value of POS Controller

Press the **Read POS Config** button. The setting contents written in the POScontroller is read in theMSRsetting utility.

Saving the Definition File

The current setting can be saved as a definition file. Save the definition file according to the following procedure.

1. Press the **Save As** button, and the [Save As] dialog is displayed.

2. Input the file name and press the [Save] button, so that it is saved in the definition file. ì.xmsî is specified as the extension of the file.

Reading of Definition File

To read from the saved definition file, carry out the following procedures.

1. Press the **Load** button, and the [Open] is displayed.

2. Select the file name and press the [Open] button, and the selected definition file is read.

Creating a New Document

To clear the previous setting to make a new setting, press the **New** button. The default value is set to SS/ES.

Definition Data Automatic Setting Utility (for Windows 2000/XP)

Function

The definition file created with the 28key definition utility and the MSR setting utility is written in the POScontroller of the LCDunit.
It can automatically execute reading by batch processing and writing in the POS controller of each setting file.

It can also read the definition file of the 28-key key board of IR-310/320 and of the MSR.

Workflow

1. Carry out creating the definition file with the 28-key definition utility (page 4-4), or creating the definition file with theMSRsetting utility (page 4-15).

2. Start the Command Promt.

3. Start this utility from the Command Promt.

4. It is automatically executed, and the definition files of the 28 -key and the MSR are written in the POS controller. This utility is completed.

Start of the Command Prompt

To execute the automatic setting utility, Command Promt has to be started.
Start the Command Promt in the following order.[START]-[All Programs]-[Accessories]-[Command Promt]

Execution of Definition Data Automatic Setting Utility
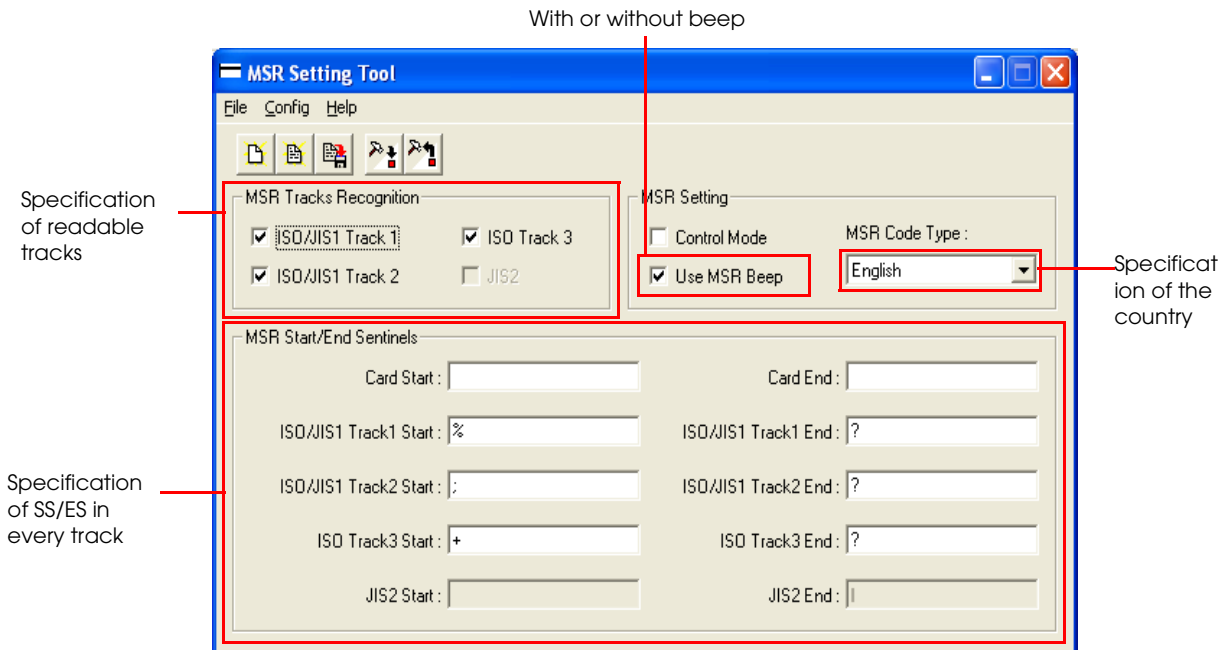
The definition data automatic setting utility (PKM_LOADER.exe) is registered in the directory specified during the installation. It is registered in the following directory by default.

C:\Program Files\EPSON\POS Device Utilities

This utility can be executed by the following method.

❑ Input in the Command Promt as follows.

>[path] PKM_LOADER /fn file name 1 file name 2 /n
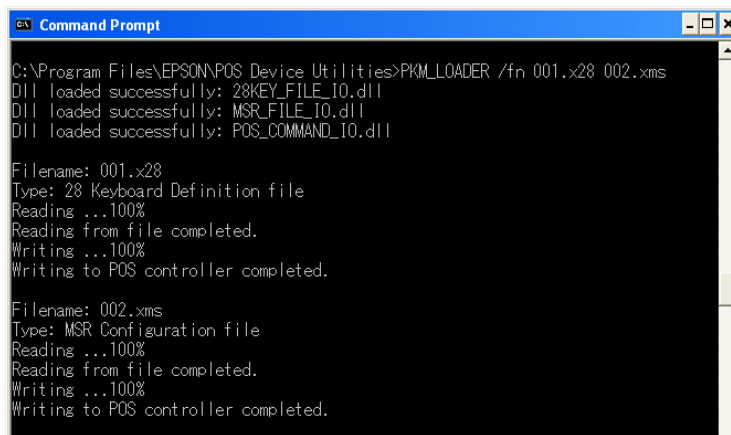
File name: The path name of the definition file

When the option /Fn is specified, the message cannot be displayed on the screen.

In this utility, the following files can be written.

- MSR definition file   (.xms)   IR-700 MSR definition data
                                                        (.pkl)   IR-310/320 MSR definition data

- 28-key definition file   (.X28)   IR-700 28-key definition data
                                                      (.k28)   IR-310/320 28-key definition data
                                                      (l28)   IR-310/320 28-key layer definition data

The message showing the situation is displayed during data writing.

✎ *Note*

❑ *This utility is only an English message version.*

❑ *This utility cannot be used during the programming of the key setting utility such as 28keyCfg.*

❑ *Avoid operations as much as possible such as tapping the touch panel which causes interruption during reading and writing the settings .*

60-key Definition Utility

The 60-key definition utility is a Windows utility, and has the following functions for the 60-key POS keyboard unit connected to the IR-700.

❏ Key label setting (font, font size, color)

❏ Background color setting of the label

❏ Definition of the key function

❏ Writes defined data in the controller

❏ Saves defined data in the definition file

❏ Reads data from the definition file

❏ Reads data from the controller

It can define the same contents to several 60-key POS keyboard units using the definition file.

✎ *Note*

Please note the following when you use this utility.

❏ *Programming cannot be carried out with other key definition utilities simultaneously.*

Start

60-key definition utility (POS KeyDesigner) is registered in the directory specified during the installation. It is registered in the following directory by default.

    C:\Program Files\GIGA-TMS\KeyDesigner

This utility can be started by the any of the following methods.

❏ Select KeyDesigner.EXE with Explorer to execute.

❏ Select [START] - [All Programs] - [GIGA-TMS] - [KeyDesigner].

1. When the program is executed, the following screen is displayed after searching the USB keyboard which is currently connected.
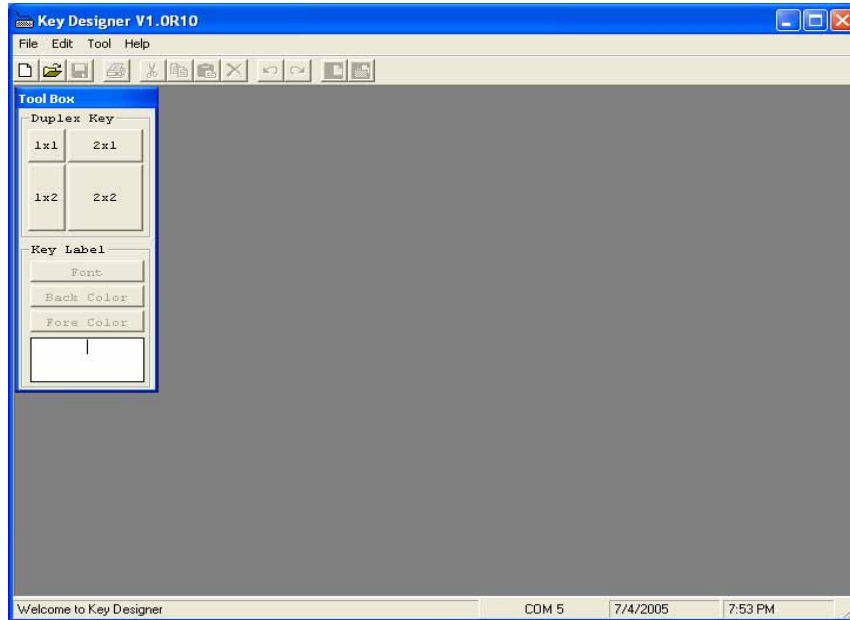
2. Press the **New** button.

New
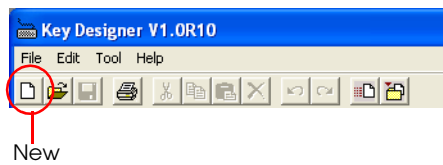
3. [New Keyboard Select] screen is displayed.Select DM-KX060 and press [Create].
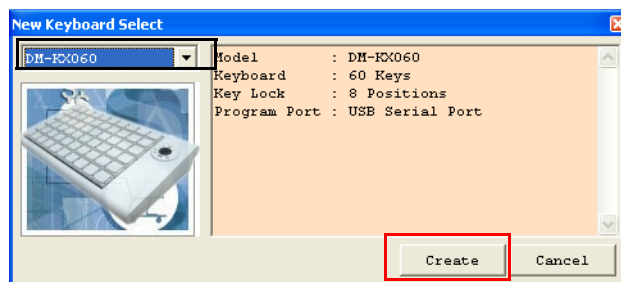
4. The following screen will appear.
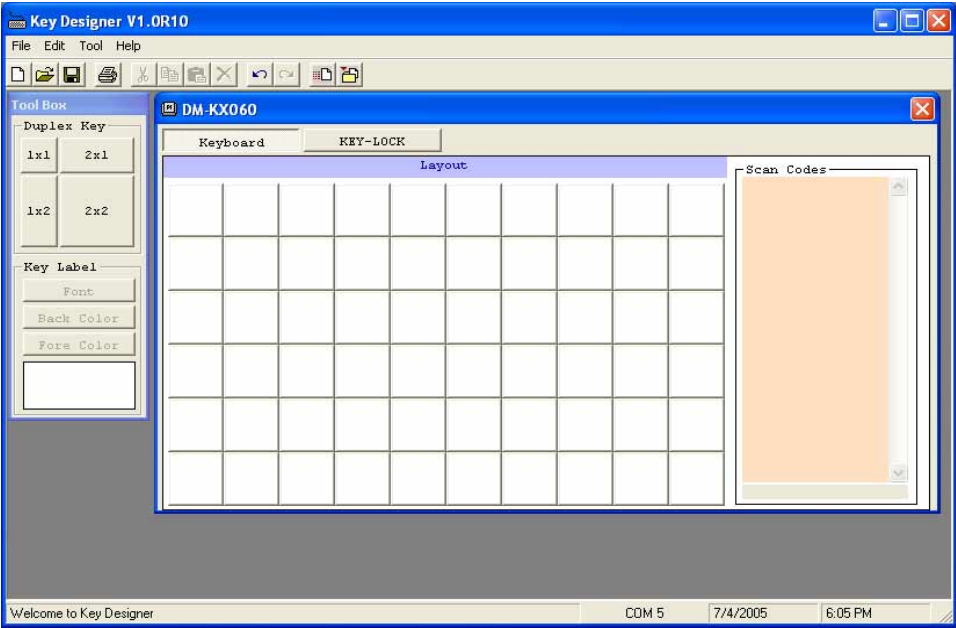
Button

12 buttons are displayed under the title bar of the 60-key definition utility. The function which you want to execute can quickly be called by pressing these buttons.
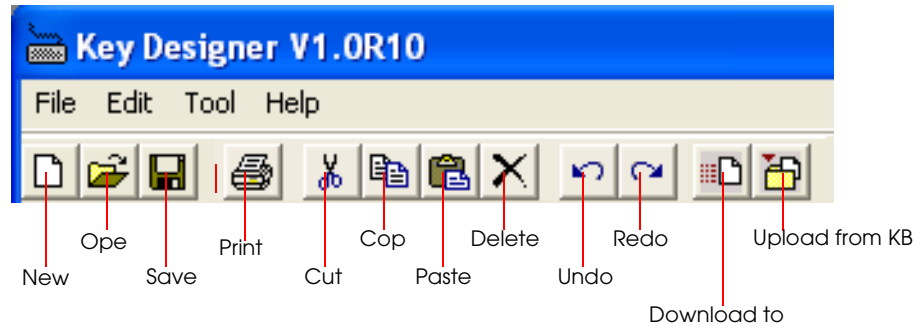
New	Clears the definition of the key to create a new document.
Open	Reads data from the definition file.
Save	Saves the current definition data to the definition file.
Print	Displays the print preview and prints.
Cut	Cuts the definition data.
Copy	Copies the definition data.
Paste	Pastes the cut or copied key definition data.
Delete	Deletes the definition data of the selected key.
Undo	Undone to the previous state.
Redo	Redoes the undone operation.
Download to KB	Programs all the definition contents of the buttons to the controller.
Upload from KB	Reads the definition contents programmed in the controller.

Key Definition

Define the key according to the following procedure.

1.   Select the key which you want to define.

2.   Input characters which are to be defined. Apple is input here, and the scan code of the input data is input in the scan code and apple is input in the key label.
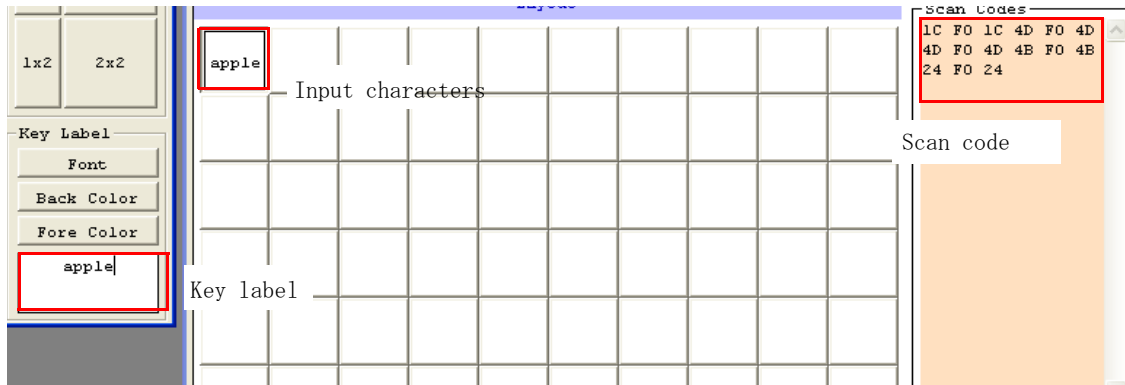
The data input from the keyboard is defined, and displayed as a key label.
To cancel the definition, select the key and press the Delete button.
The key label can be input up to 16 characters per key in half the size, and the scan code can be input up to 255byte.

✎ *Note*

To delete the input data, press the Delete button.The Delete key and Backspace key are not available. It cannot be deleted because its key code is input.

All the keys on the keyboard can be defined. However, since the Ctrl + Alt + Delete key cannot be defined, Select from Special Keys. If you know the scan code, the scan code can be input directly. To input the key label of Kanji, input from the key label area.

Setting of Double Key and Quad Key

drag the key size you want to the definition of the key board in the toolbox .
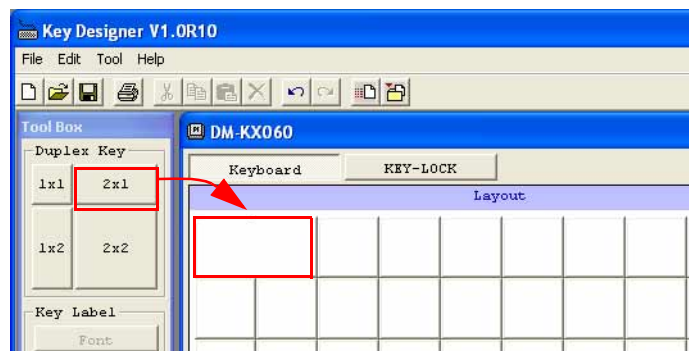
Cancellation of the Double Key and Quad Key

Drag the 1x1 key from the toolbox to the defined double key or quad key when canceling the double key and quad key

Setting the Label Exclusively

If you want to set only the label, following procedure should be taken.

1. Select the key of which you want to change the label.

2. The label can be set in the key label area in the tool box.
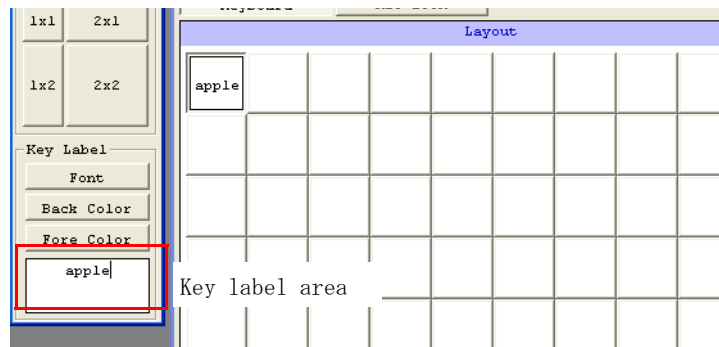
It only changes the key label without changing the scan code.
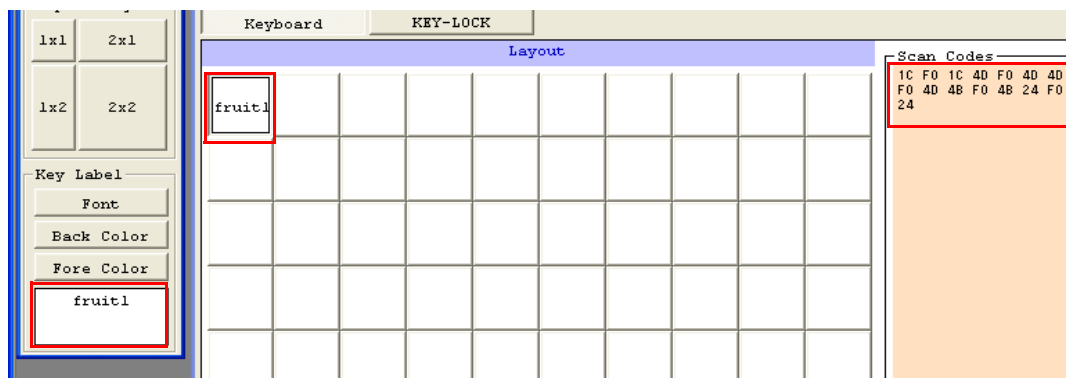
Setting the Scan Code Exclusively

If you want to set only the label, following procedure should be taken.

1. Select the key of which you want to change the label.

2. Left click the code which you want to change in the scan code area, and input a new code.
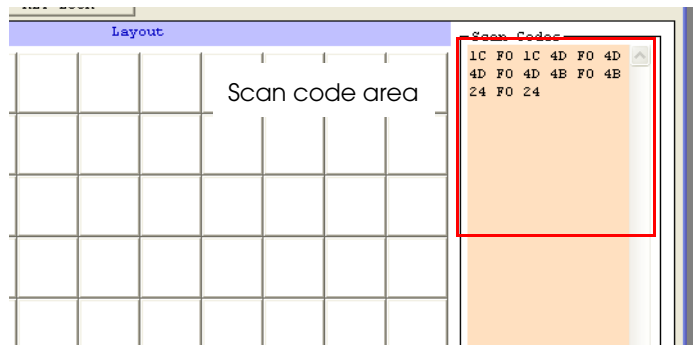
It only changes the scan code without changing the label.
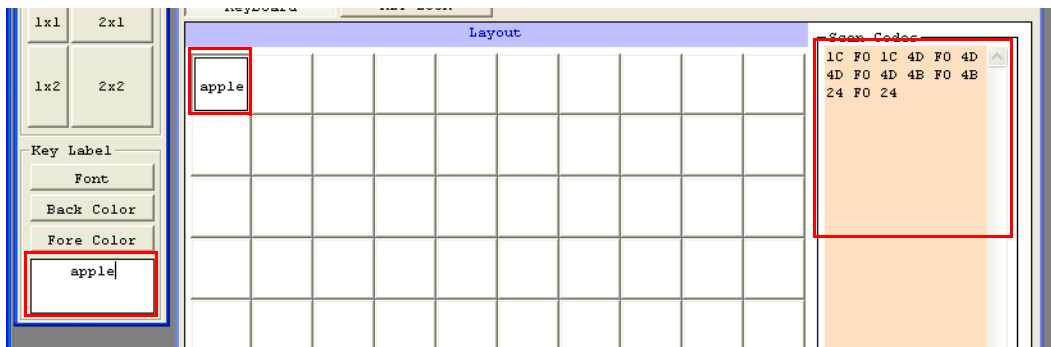
Setting the font of the label

Set the font of the label according to the following procedure.

1. Select the key which you want to set and make it a selective state.

2. Press the **Font** button, and the **font dialog** is displayed.

Fontbutton
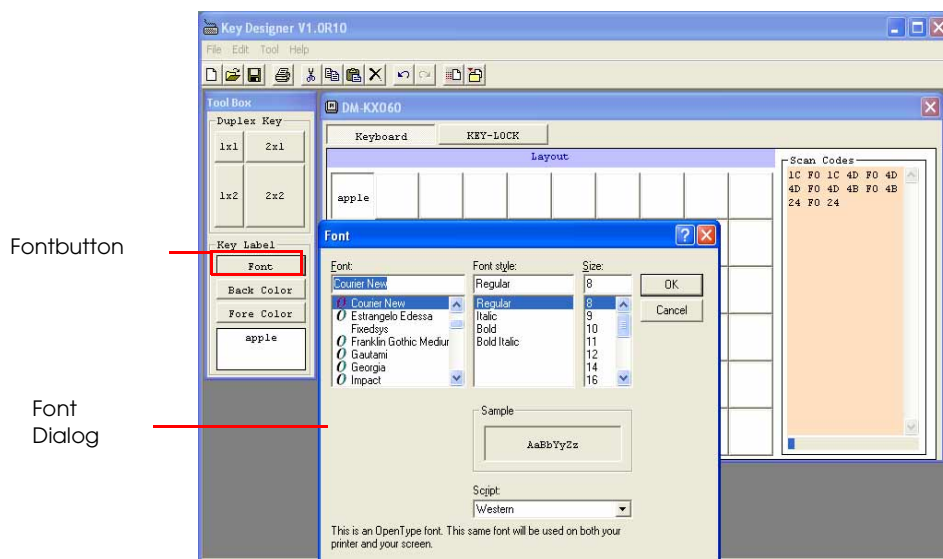
Font Dialog

3.   Set the font of the label. The following can be set.

Font type, style, and size.

4.   Press the **OK** button, and the key is redrawn with the defined font, and the font dialog is closed.**Press the** Cancel button, and the defined font is canceled.

Character color Setup of the label

Set up the character color of the label according to the following procedure.

1.   Select the key which you want to set up to the character color of the label and create a selective state.

2.   Press the `Fore Color` button, so the "Color Select" screen is displayed.Click the Fore Color which you want to set up from the Color Select screen.
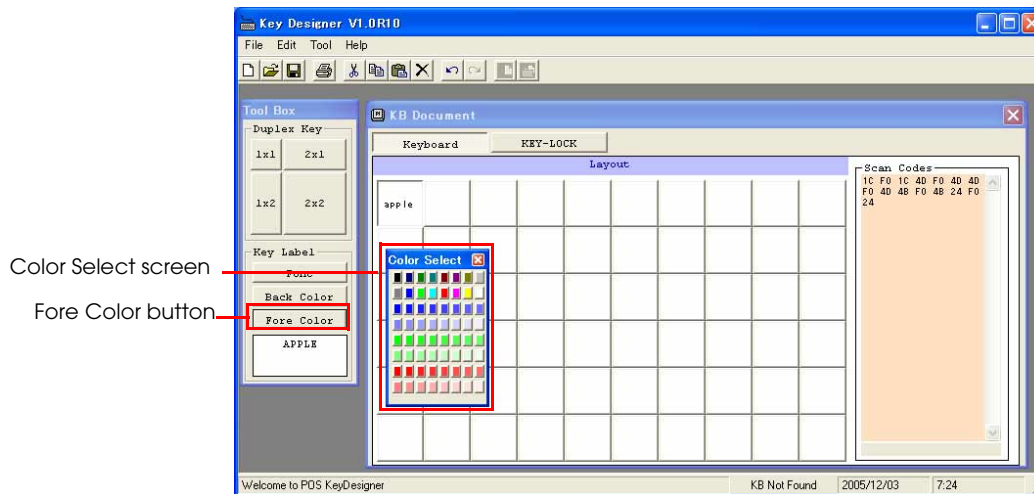
3.   The clicked color is reflected, and the Fore Color is changed.

Setting the Background Color of the Label

Set up the background color of the label according to the following procedure.

1.   Select the key which you want the background color to be and select the Back Color of the label to create a selective state.

2. Press the **Back Color** button, and the "Color Select" screen is displayed.Click the Back Color which you want to set up from the Color Select screen.

Color Select screen

Back Color button
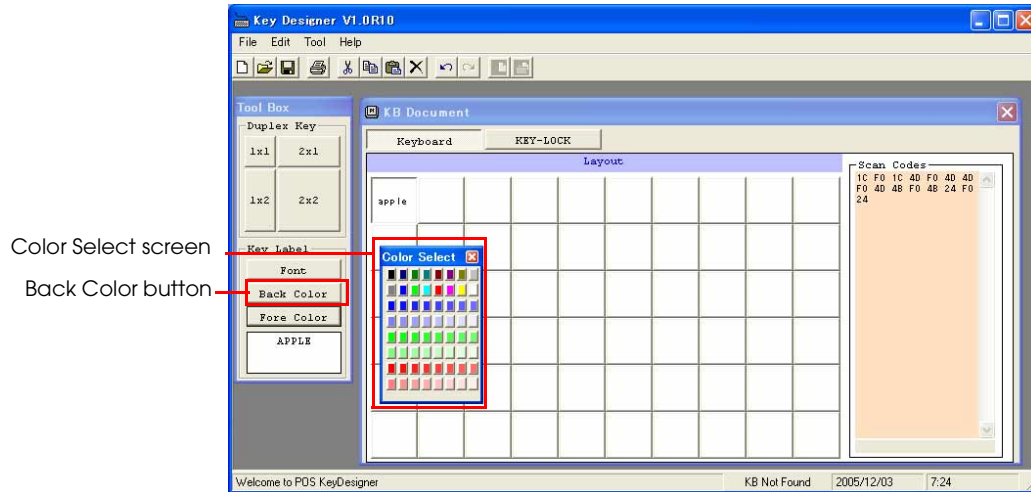
3. The clicked color is reflected, and Back Color is changed.

60 key definition utility includes Special Keys to set up special keys that cannot be defined by the keyboard.How to use the Spesial Keys is as follows.

1. Select [Menu] - [Tool] - [Special Keys], and the following Spesial Keys is displayed.

- Right click the key which you want to program, and select **Download Single Key to KB** from the menu. Only definition contents of the selected key is written in the controller.

If an error occurs, the error message is displayed.
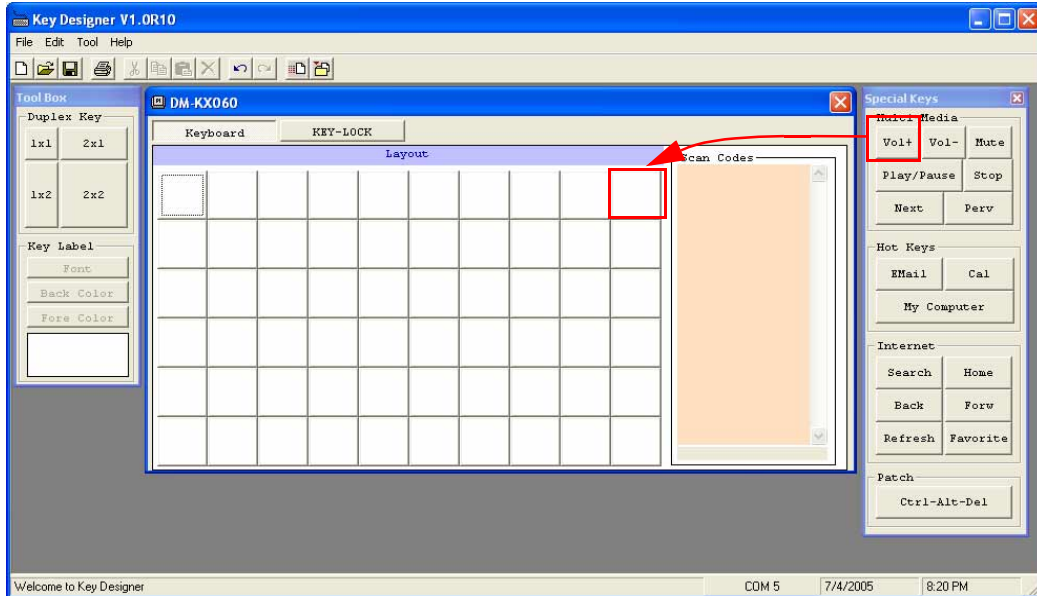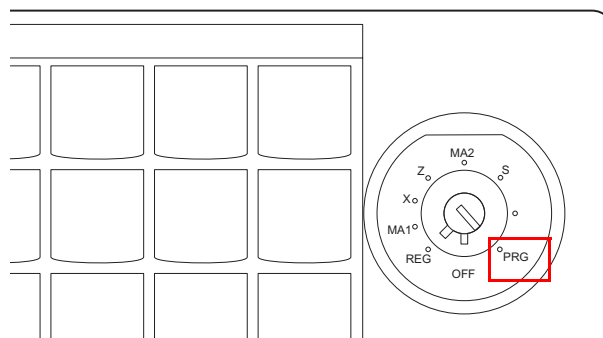
To read the definition contents written in the controller, carry out the following method.

- Press the **Upload from KB** button. All definition contents of the key written in the controller are read.

- Right click the key which you want to read, and select **Upload Single Key from KB** from the menu. Only the definition contents of the selected key is read.

Saving the Definition File

Current definition data can be saved as a definition file. Save the definition file according to the following procedure.

1. Press the **Save As** button, and the [Save As] Dialog is displayed.

2. Input the file name and press the [Save] button, so it is saved in the definition file. "tab" is specified as the extension of the file.

In the case of programming the same data in another 60-key POS keyboard

1. Unplug the connected 60 -key POS keyboard.

2. Connect a new 60 -key POS keyboard to the same USB port.

3. The keyboard is automatically detected.

4. Press the **Upload from KB** button of the keyboard.

Reading of Definition File

To read the definition file, carry out the following procedure.

1. Press the **Open** button, and the [Open] dialog is displayed.

2. Select the file name and press the [Open] button, and the selected definition file is read.

Creating a New Document

In the case of a new definition, carry out the following procedure.

1. Press the **New** button.

Ne
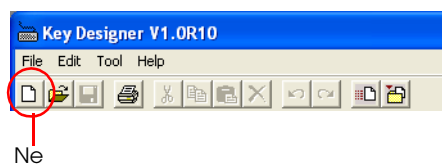
2. "New Keyboard Select" screen is displayed. Select the keyboard and press [Create].
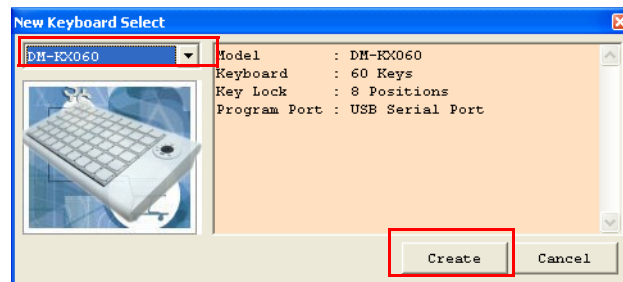
Printing the Key Label

To print the key label using a printer, carry out the following procedure.

3. Press the **Print** button.
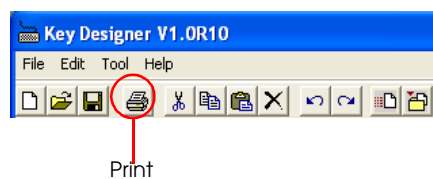
Print

4. The print preview screen is displayed.
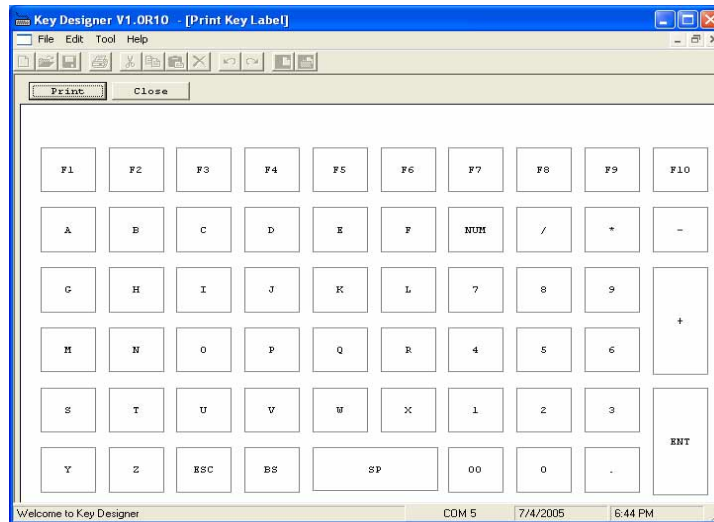
5. Press the **Print** button when the set up contents are correct.

6. Cut the printed document to the shape of the key top.

It can be cut and pasted on the keyboard.

Definition of the Key Lock

It is able to define the Scan Code of the key lock. The definition method is as follows.

✎ *Note*

Do not change the scan code with the default setting when it is used in OPOS. If it is changed, the key position cannot be obtained with OPOS.

If it was changed, define the following scan code again.

Display of keyboard	Position	Scan code
PRG	2	08 F0 08
OFF	8	40 F0 40
REG	1	10 F0 10
MA1	4	18 F0 18
X	5	20 F0 20
Z	6	28 F0 28
MA2	7	30 F0 30
S	3	38 F0 38

1. Press the KEY-LOCK button, and the following screen is displayed.

KEY-LOCK button
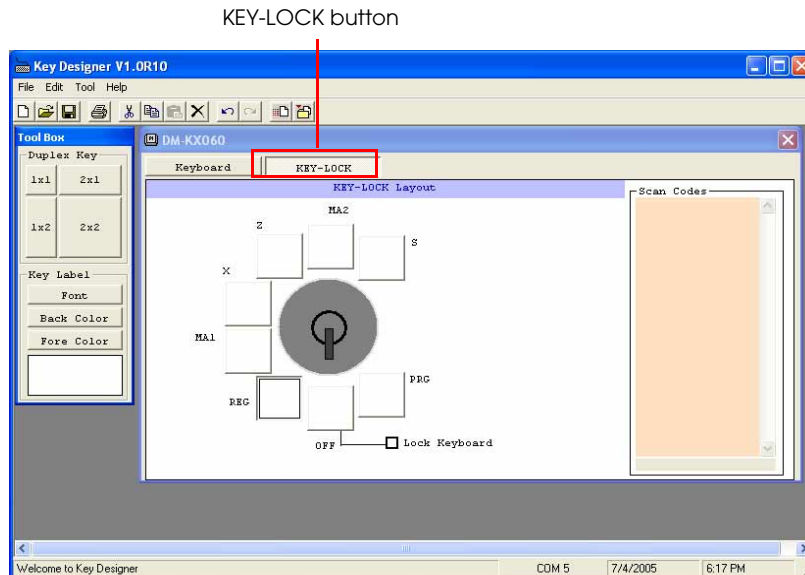
2. It is able to select the position which you want to define and define it similarly to that of a keyboard.

The key label of the key lock definition can not be printed.

Set up of Disabling the Key Input

If you check the box to disable Key input, you can set not to be able to perform key input when the key lock is at OFF position.
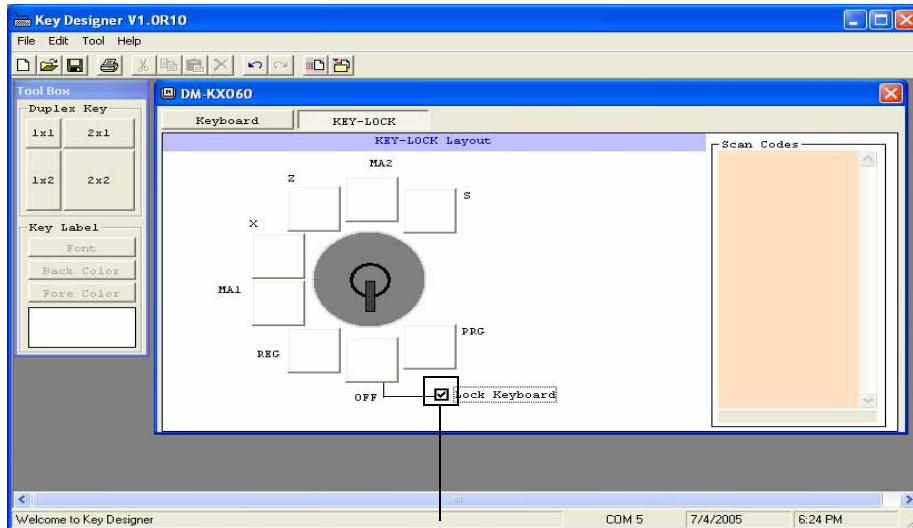
Disabling the key

Language Selection

The 60-key keyboard setting utility can change the language. Change the language according to the following procedure.

1. Start the 60-key POS keyboard set up utility.

2. Select [Menu]-[Tool]-[Language], and the following screen is displayed.
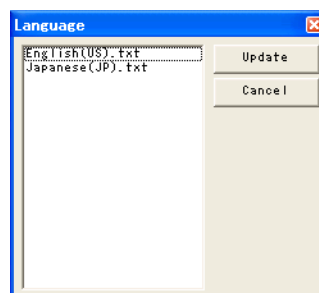
3. Select the language which you want to use, then press the **Update** button. If the change is not necessary, press the **Cancel** button.

Exit

Press the [x] button on the right. By pressing the button, you can exit the 60-key setting utility.

Logon Tool (for Windows 2000)

This is a utility which enables the key input from the touch panel even if the keyboard is not connected.

Data can be input in the windows in execution by clicking with the mouse the specific keys of the software keyboard displayed on the screen The software keyboard can be moved by dragging its upper part.

Restrictions for Windows 2000

When using the logon tool with Windows 2000, execute the Windows 2000 Service Pack2, and then execute the registry setting file " headless.reg" using the following procedure to change the registry. The registry setting file is in the "C:\Backup\Logon" directory.

1. Double-click the headless.reg. The setting is applied.

2. When the system is restarted, the setting is valid.

Installation

The instructions on the installation of this software are found in the Readme file in the C:\Backup\Logon directory. For installation, use the following procedure:

1. Execute C:\backup\logon\Setup.exe. The Welcome dialog box is displayed. Click **Next**.

2. Specify the destination of the installation directory (C:\Program Files\EPSON\SEGina\ directory is the default). When **Next** is clicked, installation starts.

3. When installation is complete, the Setup Complete dialog box is displayed. Select Yes, and click **Finish** to reboot the system.

⚠ CAUTION:

After installation of the SEGina in Windows 2000, be sure to reboot the system. If the Actinkey is executed without rebooting the system, trouble may occur. If trouble occurs, reinstall the SEGina.

How to Use

The following three modules are installed:

SEGina	;Controls logon with its main module
Logonkey	;Software keyboard displayed at the time of logon
Actinkey	;Software keyboard displayed after logon

To use the software keyboard after the logon, select Actinkey from the Start menu. The Actinkey menu is displayed.
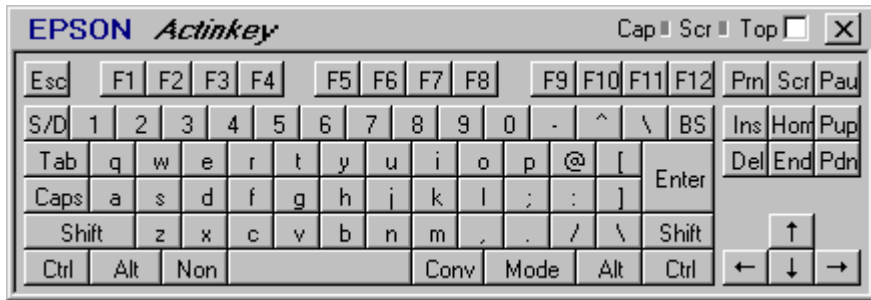
When the check box at the top right is checked, the software keyboard is always displayed in the upper part.

To exit Actinkey, click the upper right **X**.

Do not use this tool for the hardware keyboard or it may respond with the wrong keyboard status. The tool is applicable to the 101/102/106-key keyboards; however, the operation cannot be guaranteed when the OS is not in Japanese or English.

Set up of the Touch Panel Driver, Install and Uninstall

Touch Panel Calibration

Touch panel calibration means the set up operation which conforms the physical position when an operator presses the touch panel, and the position of the software that the computer recognizes.

The touch panel calibration is executed when the system is installed and the position of the touch point is misaligned.

The touch panel calibration is executed by the following procedure.

1. Start Windows

2. Select in order of [START] - [All Programs] - [EPSON Touch Panel Tool] - [Touch Panel Configuration Tool] .

3. [EPSON Touch Panel Configuration Tool] is started. Press [Calibration] tab.
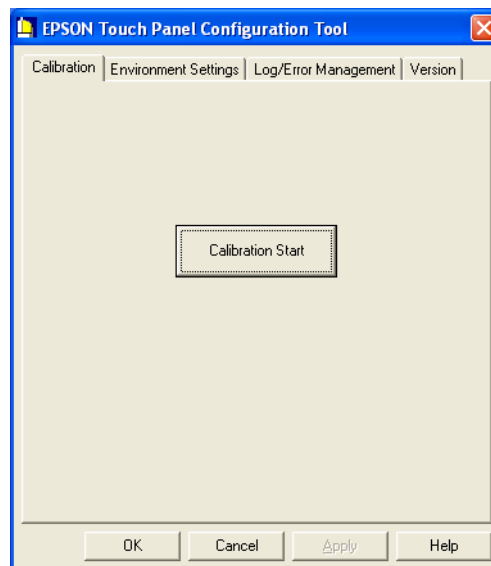
4. Press the [Calibration Start] button. The calibration screen is displayed, and the [+] mark is displayed at the upper left of the screen.

Please touch the cross point in the screen!!!

Cancel
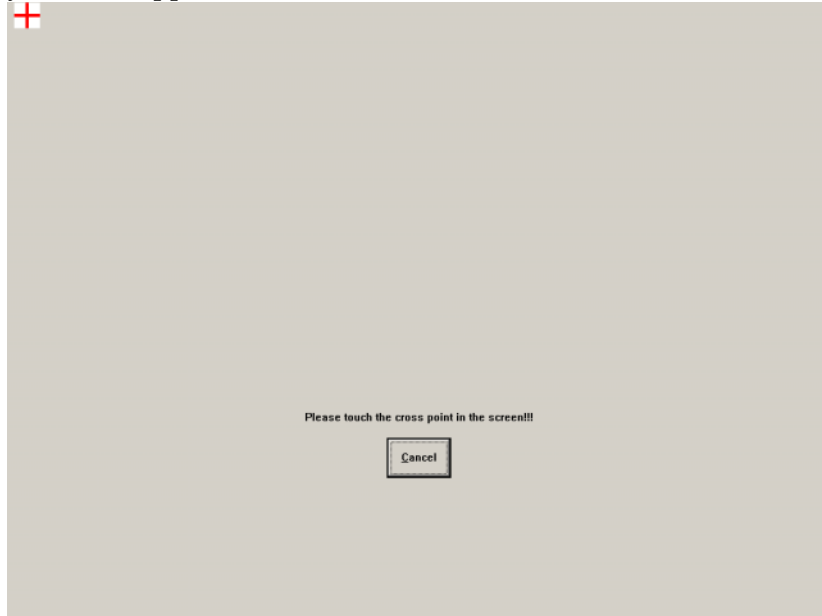
5. Press the intersection of the [+] mark on the screen. The [+] mark will move to the top center of the screen.

6. Hereafter, press the intersection of the [+] mark in the same way. The [+] mark will be displayed, at 9 position, in the order of upper left, upper center, upper right, center left, center, center right, lower left, center bottom, and lower right.
   To cancel the calibration, press the [Cancel] button.

7. When all the 9 intersections are pressed, the calibration is completed. Press the [OK] button to exit the [EPSON Touch Panel Configuration Tool].

Touch Panel Environment Set Up Tool

The touch panel environment set up tool can set up the detailed items related to the operation of the touch panel. It has the following 5 functions.

❏ Calibration function

❏ Operation set up function

❏ Log management function

❏ Version displaying function

❏ Double-click tolerance set up function

✎ *Note*
The calibration function and the operation set up function are available only for a user having administrative rights. If a general user attempts to use this, each item is displayed in gray, and it cannot set up.

Start of the Touch Panel Environment Set Up Tool

Start the touch panel environment set up tool according to the following procedure.

1. Start Windows

2. Select in order of [START] - [All Programs] - [EPSON Touch Panel Tool] - [Touch Panel Configuration Tool] .

3. [EPSON Touch Panel Configuration Tool] is started.
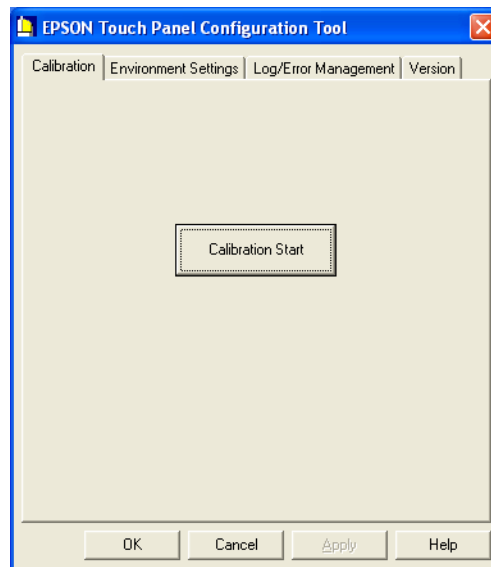
Calibration Function

Press the [Calibration] tab, and the following screen is displayed.
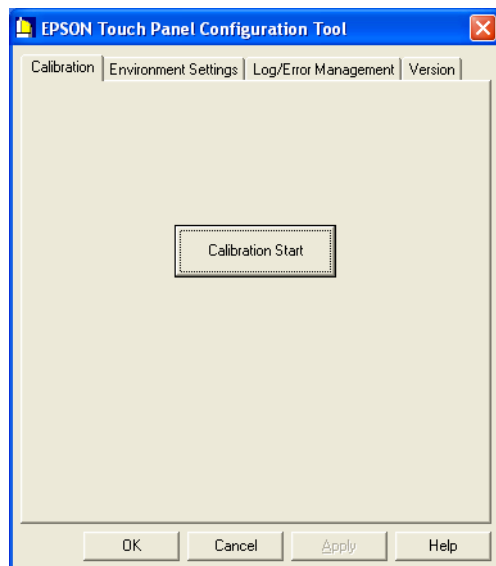
✎ *Note*

The calibration function is available only for a user having administrative rights. If a general user attempts to use this, each item is displayed in gray, and it cannot set up.

Press the [Calibration] button, and the calibration is started. Refer to the previous [Touch panel calibration] for more information and the procedures of the calibration.

Operation Set up Function

Press the [Environment Settings] tab, and the following screen is displayed.
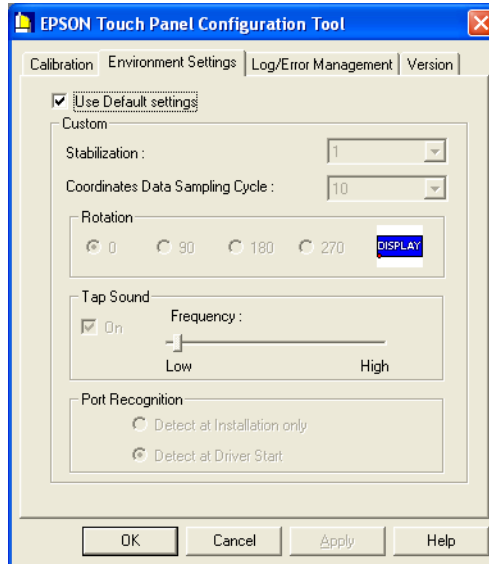
✎ *Note*
The operation set up function is available only for a user having administrative rights. If a general user attempts to use this, each item is displayed in gray, and it cannot set up.

[[Use Default settings]

              Check when the setting value is set to the default value.When the [Use Default settings] is checked, each setting item in the [Custom] is displayed in gray, and cannot be changed.
To change the setting, remove the check of the [Use Default settings], and set up each item.[Remove the check of the [Use Default settings], and the following dialog is displayed.
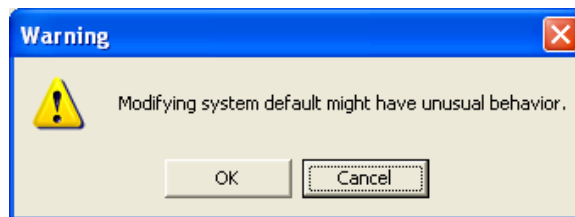
If you press the [OK] button, each item can be set as follows.
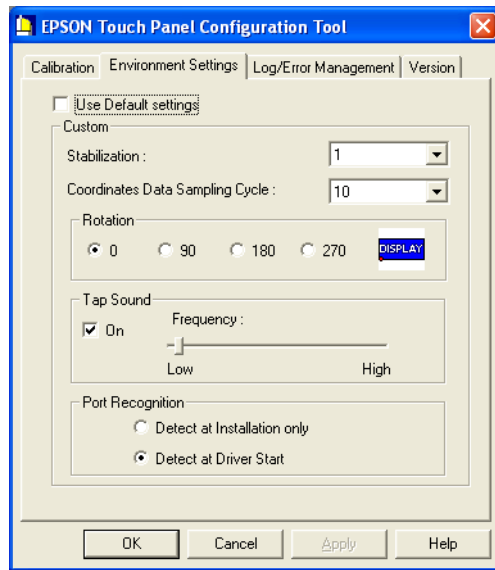
[Stabilization]   Set the jitter correction value within 1~20.
                     The default setting is 1.
                     The jitter correction is to coordinate the data of the touch panel device
                     which has been obtained more than once and to carry out the equation by
                     calculating the average for stabilizing the touch position. In [Stabilization],
                     the number of the times the coordinate data is obtained is set up.

[Coordinates Data Sampling Cycle]
                     Set up the interval of the coordinate data sampling within 10~155 ms.
                     The default setting is 10. For the interval of the coordinate data sampling,
                     set the time to send the coordinate data from the touch panel device to the
                     system.

Since the tap position is not conformed to the position of the mouse cursor when it is ordered to
                     move by the system and rotated by the display setting of cursor when it
                     [Rotation] Windows, setting is 0.Windows, set to change and follow the
                     setting at the start. The default setting is 0.

[On]   Set up the ON/OFF of the beep. When it is checked, the beep is heard. The
                     default setting is ON.

[Frequency]   Set the frequency of the beep within 37~16383 Hz. The setting value can be
                     changed by moving the slider to the right and left. The default setting is
                     600 Hz.

[[Port Recognition]

> Set the connecting destination of the touch panel to the port which is set up during the installation or to the port which the touch panel controller can recognize at the start of the driver. The setting contents are as follows. The default setting is Detect at Driver Start.

> • Detect at Installation only --- Connect to the port which is set up during the installation.

> • Detect at Driver Start ---Connect to the port which is automatically recognized in the starting of the driver.

Log Management Function

This sets the functions to promote efficiency of maintenance by logging the operation of touch panel in the case of trouble.

Press the [Log/Error Management] tab, and the following screen is displayed.
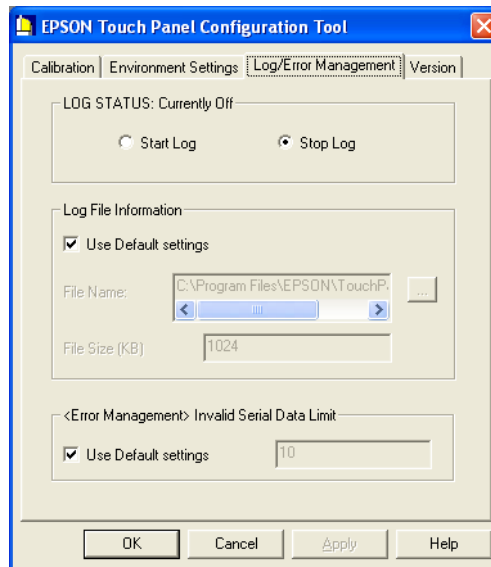
[[LOG STATUS]   Display the status of the log function.Select
                        [Start Log], and the log function is started.If you select
                        [Stop Log], the log function is stopped.

[Log File Information] Specify the folder where the log is stored.
                        The default setting is the installation destination of the touch panel
                        driver.In
                        [File Size (KB)], specify the maximum size of the log file.

[<Error Management> Invalid Serial Data Limit]
                        If a communication error occurs and the number of the communication
                        error exceeds this value, an error information is sent to the event log.

Version Displaying Function

Press the [Version] tab, and the following screen is displayed.

It displays each version information of the [Driver], [Configuration Tool], [Right Button Emulator].

Double-click Tolerance Setting Function

The double-click tolerance setting function sets the tolerance that Windows recognizes as the double-click.

There is a case that it cannot be recognized as a double-click because the default setting of Windows has narrow tolerance and the first tap position of the double-click and that of the second are misaligned.

This function facilitates the recognition of the double-click by broadening the tolerance that is recognized.

Set the double-click tolerance to the following procedure.

Method

[Execute START]-[All Programs]-[EPSON Touch Panel Tool]-[Right Button Emulator], and press the [OK] button of the Dialog. (Other operations are not required.)Åj

✎ *Note*
When Windows 2000 or Windows XP is setup and a new user is created, set the double-click tolerance setting again for each user because the contents of the double-click tolerance setting is set up to the default.

Touch Panel Right Button Emulator

The touch panel right button emulator is a tool that it switches the right button/left button for tapping operation in order to operate the right button of the mouse with the touch panel.

The touch panel right button emulator is always displayed in forefront, and the right button/left button is always switchable.

Start of Touch Panel Right Button Emulator

Start the touch panel right button emulator according to the following procedure.

1. Start Windows

2. Select in order of [START] - [All Programs] - [EPSON Touch Panel Tool] - [Right Button Emulator] .

3. The touch panel right button emulator is started, and the dialog is displayed.

Operating Procedure

*1.*Mode Setting

The touch panel right button emulator has the following two modes.
(1) 1 Tap Mode
Only one tap is recognized as a right-click after specifying this mode.
The default setting is this mode.

(2) Right Fix Mode
It is recognized as a right-click after specifying this mode.

To switch the mode, use the menu in the right button emulator. Tap the title bar, the menu is displayed, and select the mode you want. The mode set up is displayed under the mouse icon.
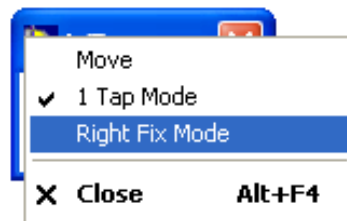
2.Switching of the Right button/Left button

The right button/left button can be switched by tapping the mouse icon. Since the color of the right button/left button in the mouse icon is switched in every tapping, you are able to confirm which button is being selected.

<The right button operation>

The coordinate data of the touch panel is sent to the system as the right button data of the mouse.

1 tap mode   Right fix mode

<The left button operation (normal operation)>

The coordinate data of the touch panel is sent to the system as the left button data of the mouse.
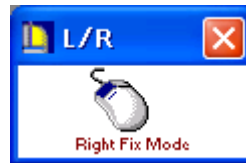
1 tap mode   Right fix mode

Installation and Uninstallation

Installation of the touch panel driver is executed in the setup of the OS, but if installing it manually, carry out the following procedure.

Installation

Installation is carried out using a specialized installation program.

(1)Execute C:\backup\touch\EPSTPWDM.exe.

(2) [EPSON Touch Panel Driver Setup] is started, and [Welcome] screen is displayed.Press the [Next] button.

(3)[Choose Destination] screen is displayed. Select the folder of installation destination, and press the [Next] button. The default setting is "C:\Program Files\EPSON\TouchPanel".

(4)Installation is completed, [Setup Complete] Dialog is displayed.Select [Yes,I want to restart my computer now.] , and press the [Finish] button to reboot the system.

(5) Execute the touch panel calibration. Refer to the [Touch panel calibration] for the procedures of the calibration.

Uninstallation

Uninstallation of the touch panel driver is executed by the following procedures.

Open (1) Control Panel, and select [Add and Remove Programs].

(2) [Add and Remove Programs] Dialog is displayed.Press the [Change or Remove Programs] button, and the list of currently installed programs is displayed. Select [EPSON Touch Panel Driver], and the [Change/Remove] button is displayed.Press the [Change/Remove] button.

(3) [Confirm File Deletion] Dialog is displayed.Press the [Yes] button.

(4) [Remove Programs From Your Computer] Dialog is displayed. Uninstallation is started.

(5) When uninstallation is completed, [EPSON TouchPanel Driver Uninstaller] Dialog is displayed. Press the [OK] button.

(6) Return to [Remove Programs From Your Computer] Dialog. Press the [OK] button.

(7) Select [START]-[Turn Off], and press [Restart] to reboot the system.

EPSON OPOS ADK

OLE (Object Linkage and Embedding) is component software that runs on the OS of Win 32-bit style, such as Microsoft Windows 2000. Depending on how the software components have been created, the software may be reusable or reversely compatible.

The objective of the OLE POS ("OPOS") is to use the OLE to standardize the control system (API) for the peripheral units of the POS. By this standardization, the application and peripheral unit control software become open and generic. The OPOS standardizes the interface between the POS application and the device control object, which depends on the device or the manufacturer. The OPOS also facilitates the transplant of the application and the reconfiguration of the peripheral devices.

Because of standardization of the peripheral devices, a large part of the work required for the development of software can be eliminated, and the system can become fully open. As a result, comparatively small-sized shops that plan to introduce the POS can easily configure an intelligent, flexible POS system.

OPOS makes it easy to build POS applications that take advantage of the functionality that Windows has to offer, such as graphics, video, and sound; a user-friendly GUI; and multitasking.

For information on the installation procedure for the OPOS ADK, see the userﾕs guide registered in the \C:\Backup\Oposadk directory.

Creating the Component Software

The POS device needs a control program. The device control object once existed as a part of monolithic POS application software. Because of this monolithic structure, POS system designers had to replace or change the entire POS application software to change the device control object alone when a peripheral device was replaced. This work claimed a lot of time and money. POS application software developers had to become experts about each manufacturer's devices, including functions and command systems, to create a device control object.

With the advent of the PC-POS, however, any external device is now connectable to a PC as long as the interface (serial, parallel, or whatever) is supported. While the problem with the compatibility of the hardware was solved in this way, a problem with the software still existed. The software was not applicable, and the POS application software itself had to be replaced. For this reason, it was impossible to make the PC-POS fully open in terms of both the hardware and software.

To solve this problem, the device control object was modularized and made to be independent of the POS application software. Because only the device control object needs replacement at this time, the work to replace the POS application software itself when the device was replaced is simplified. Also, because the original device control object is supplied, the POS application software developers no longer need the detailed expertise of each manufacturer's device or the standardization of the entire system and the hardware as well as the software. This reduces the load of developing work.

Software Standardization

When a device control object is created, it is necessary to choose the interface (API) between the POS application software and the device control module. EPSON has joined an industrywide and worldwide effort to standardize and spread the use of APIs. The standardized software uses an OCX driver, which is modularized software divided into two levels: the Control Object (CO) and the Service Object (SO). the Control Object (CO) and the Service Object (SO).

A separate CO exists for each class of device, while a separate SO exists for each individual device; for example, software that uses a TM-U950 needs a general POS printer CO and a specific TM-U950 SO. If the TM-U950 printer were replaced by a TM-U375 printer, the TM-U950 SO would have to be replaced by a TM-U375 SO, but the rest of the software, including the POS printer CO, would remain the same. In other words, a switch from one printer to another requires only a change in the SO.

EPSON Software

The software products (OCX drivers) that EPSON offers to enable such an OPOS system are called the EPSON OPOS ADK. The EPSON OPOS ADK provides the OCX driver and much more. EPSON also provides custom tools to support the construction and development of an OPOS application software development environment.

Chapter 5

BIOS Functions

The system ROM stores the following BIOS related utilities. This Chapter explains the BIOS setup

❑   BIOS Setup

❑   Power ON Self Test (POST)

❑   Device diagnostic utility (See Chapter 6)

BIOS Setup

The BIOS setup utility is used to configure the systemís operating environment. When setting up this product for the first time, be sure to run this program. If you change the operating environment, run this program again.

Operating Procedures

How to use setup

Executing BIOS setup requires a PS/2-compatible keyboard. BIOS setup cannot be run from the touch panel alone.

Start the BIOS setup utility according to the following procedures:

1. Connect the PS/2 keyboard to the keyboard connector. A USB keyboard can also be used except when USB Legacy Support is Disabled and USB Controller is Disabled.

2. Turn the power button of the system on to boot.

3. Press Del during the POST process, and the BIOS setup utility will boot.

⚠ CAUTION

Do not change the settings of any items other than those specified in this manual. Do not change the settings of any items for which "Do not change" is specified in this manual.If an incorrect setting is made, the system may not operate.

How to exit

Enable the Configuration

Follow the steps below to enable the new configuration and exit the BIOS setup utility:

1. Press the F10 key. Or select "Save Changes and Exit" in the Exit menu.

2. "Save configuration changes and exit setup?" is displayed.Select OK and press the Enter key. The BIOS setup finishes, and the system reboots with the new configuration enabled.

Disable the Configuration

Follow the steps below to discard the new configuration and exit the BIOS setup utility:

1. Press the Esc key. Or select "Discard Changes and Exit" in the Exit menu.

2. Discard Changes and Exit Setup? Setup?"is displayed. Select OK and press the Enter key. The BIOS setup finishes, and the system reboots with the new configuration discarded.

Troubleshooting

After the BIOS Setup utility has been used, the computer may be not able to be started up normally because of changes made.

When the BIOS Setup utility can be started up, execute the L oad Optimal Defaults from the BIOS setup utility, save & exit, and then restart the system.

When the BIOS Setup utility cannot be started up, clear the CMOS with the jumper. Clear the CMOS by shorting 2-3 of JP1601 on the main board.

Changing settings

To choose an item, first move the cursor onto a desired field with the arrow keys. Next, select a value in the field with the + key or - key. Last, execute "Save Changes and Exit" in the Exit menu. Now, all of the setting values of the menu are saved.

Screen Configuration of BIOS Setup Utility

The screen of the BIOS setup utility is as follows.

Main menu bar		
Menu area	Setting area	Help message
		Operating Procedures
BIOS version copyright		
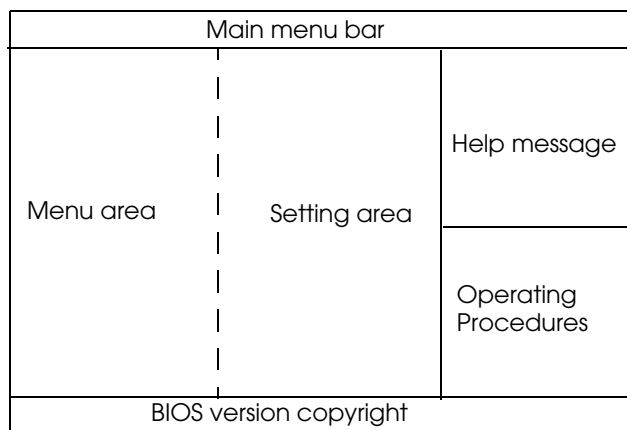
Saving settings

The BIOS setting can be saved on a floppy disk. It can also be read with other IR-700. Refer to page 5-23 for details.

✎ *Note*
   It is limited to the same version of the BIOS.

Boot Device Setting

To set the boot device, use the Boot Device Priority in the Boot menu.

To change the boot device temporarily, press the F11 key during POST processing. The boot device can be changed with the BBS(BIOS Boot Specification)Boot. By selecting the device to be booted and pressing the Enter key, it can be booted from the specified device.

BIOS Setup Main Menu

From the BIOS setup main menu, you can select the following items:

Table 5-1 BIOS main menu

Item	Details	
Main	The time and date are set.	See (page 5-5)
Advanced	Extended BIOS setup menu	See (page 5-6)
PCIPnP	The settings related to system resources on Plug and Play are set. By executing (Load Optimal Defaults), settings will be optimized. Normally, do not change the settings.	See (page 5-15)
Chipset	The video controller, USB, and LAN are set.	See (page 5-16)
Power	The settings related to power management are executed.	See (page 5-18)
Boot	Booting sequence of the device, etc. are set.	See (page 5-20)
Security	The Supervisor Password and User Password are set.	See (page 5-22)
Exit	The BIOS setup utility is exited. Also, saves and reads the settings on and from a floppy disk or FD emulation USB memory.	See (page 5-23)

Main menu

The system clock and the calendar are set. Also, the system overview can be confirmed.

Table 5-2 Main menu

Item		Details
System Overview	UUID	UUID (Universally Unique Identifier) is displayed.
	On Chip MAC Address	The MAC Address of the main board is displayed.
AMI BIOS	Build Date	The build date of the BIOS is set.
	ID/Version	The version of the BIOS is displayed.
Processor	Type	The type of CPU is displayed.
	Speed	The speed of CPU is displayed.
System Memory	Size	The memory capacity is displayed. Displays the value when VRAM capacity is subtracted from the installed memory capacity.
System Time		The date is set. (BIOS automatically determines the day of the week.) Press the Tab or Tab + Shift key to move to the desired field (date, month, year).+Press + or - to incrementally move the setting, or type the desired value into the field.
System Date		The time is set. Press the Tab or Tab + Shift key to move to the desired field.+Press + or - to incrementally move the setting, or type the desired value into the field.

Advanced menu

The BIOS extension items such as CPU, IDE devices, serial/parallel, hardware monitors, ACPI, and USB are set.

Table 5-3 Advanced menu

Item			Details
CPU Configuration			
	Ratio Status		Item displayed automatically by the BIOS.
	Ratio Actual Value		Item displayed automatically by the BIOS.
	Intel(R) SpeedStep(TM) Tech		Enabled / Disabled of Intel SpeedStep Tech is set. The default setting is "Auto". Auto: Intel SpeedStep Techis enabled. This is the normal setting. Disabled Intel SpeedStep Tech,is disabled. Reference: 1)When the CPU is Pentium-M, this item is displayed and `Intel SpeedStep Tech` is performed. This function automatically switches to High speed when the CPU has a heavy load, and decreases the speed when the CPU has a light load. 2) If the CPU is Celeron-M, this item is not displayed. 3Åj For example, the speed of the CPU is switched as follows: **CPU type** **CPU load** **CPU speed (clock)** Pentium-M 1.8GHz High 1,794MHz Not high 598MHz Celeron-M 1.3GHz High 1,295MHz Not high 1,295MHz
IDE Configuration			It is displayed only for Primary IDE Master.
	Primary IDE Master	Device	Displays the device connected to the Primary IDE Master. When the CF is not connected, Not Detected is displayed.
		Type	Set the detection method for the connection device. The default setting is "Auto". Auto: Auto detection is executed. The information held by the device is automatically applied. This is the normal setting. Disabled The connection detection is not executed. It is treated as disconnected software Reference: The Primary Master of this system is only CF(Compact Flash).
		LBA/Large Mode	Auto/disable of the LBA (Logical Block Addressing) mode is set. The default setting is "Auto". Auto: BIOSsets the optimum access method. This is the normal setting. Disabled It is not set as LBA mode, but CHS mode. Reference: The BIOS of this system supports 48-bit LBA mode to access data of more than 137GB.
		Block (Multi-sector Transfer)	Enabled / Disabled of Multi-sector Transfer mode of `data` is set. The default setting is "Auto". Auto: BIOSsets the optimum access method. This is the normal setting. Disabled Multi-sector Transfer mode is disabled. (It is set to single-sector transfer mode.) Reference: If the connected CF does not support the Multi-sector Transfer mode, this function cannot be used.

Table 5-3 Advanced menu

Item		Details
Primary IDE Master	PIO Mode	PIO mode is set. The default setting is "Auto". Auto:　　BIOSsets the optimum PIO mode. 　　　　This is the normal setting. 0:　PIOmode0(Transfer speed3.3MB/sec) 1:　PIOmode1(Transfer speed5.2MB/sec) 2:　PIOmode2(Transfer speed8.3MB/sec) 3:　PIOmode3(Transfer speed11.1MB/sec) 4:　PIOmode4(Transfer speed16.6MB/sec)
	DMA Mode	DMA mode is set. The setting is always "Auto" because the only device involved in this setting is CF (Compact Flash).
	SMART Monitoring	SMART(Self-Monitoring, Analysis and Reporting Technology) function is set. The default setting is "Auto". Auto:　　The BIOS determines Enabled / Disabled from the 　　　　information of the connected device. Enabled:　SMART function is enabled. Disabled:　SMART function is disabled.
	32Bit Data Transfer	Enabled / Disabled of the 32Bit Data Transfer is set. The default setting is "Auto". Enabled:　32Bit Data Transfer is enabled. 　　　　This is the normal setting. Disabled: 32Bit Data Transfer is disabled.
IDE Detect Time Out (Sec)		The standby time for detecting IDE devices is set. The default setting is "35". 0:　0second 5:　5seconds 10: 10seconds 15: 15seconds 20: 20seconds 25: 25seconds 30: 30seconds 35: 35seconds

Table 5-3 Advanced menu

Item		Details
Super IO Configuration		
	Parallel Port Address	The address of the parallel port is set. The default setting is "378". Disabled: Parallel port is disabled. 378: The address is set to 378h. 278: The address is set to 278h. The address is set to 3BCh. Reference: 1ÅjDo not set to "3BC" in EPP mode. 2) When this setting is Disabled, items of Parallel Port Mode,Bi-Directional, EPP Version, EPP Version, DMA Channel in ECP Mode, and Parallel Port IRQ are not displayed.
	Parallel Port Mode	The parallel port mode is set. The default setting is "Normal". There are 4 options, the "Normal" setting, the "Bi-Directional" setting, the "EPP" setting, and the "ECP+EPP" setting. Make the necessary changes in accordance with the system configuration. Note that since an 8-byte continuous I/O space is needed when using the "EPP" setting and "ECP+EPP" setting, the "3BC/IRQ7" setting cannot be used. In addition, a DMA channel number is required for DMA transfer when using the "ECP" setting and "ECP+EPP" setting. Normal: Also called the SPP (Standard Parallel Port), this mode is for one direction only. Bi-Directional: Bi-Directional mode is set. EPP: EPP stands for Enhanced Parallel Port and is an improvement of the Normal mode I/O throughput. EPP allows for faster data transfer than Normal mode. ECP: ECP stands for Extended Capabilities Port, and it is a mode that supports DMA transfer and Run Length Enhanced. ECP allows for faster data transfer than EPP mode.
	EPP Version	EPP mode is set. The default setting is "EPP1.9". There are 2 options, the "EPP1.7" setting and the "EPP1.9 " setting. Make the necessary changes in accordance with the system configuration. Reference: If the Parallel Port Address setting is "Disabled" or the Parallel Port Mode setting is not "EPP", this item is not displayed.
	ECP Mode DMA Channel	DMA channel in ECP mode is set. The default setting is "DMA3". There are 3 options, the "DMA0" setting, the "DMA1" setting, and the "DMA3 " setting. Reference: If the Parallel Port Address setting is "Disabled" or the Parallel Port Mode setting is not "EPP", this item is not displayed.
	Parallel Port IRQ	The Parallel Port IRQ is set. The default setting is "IRQ7". There are 2 options, the "IRQ5" setting and the "IRQ7" setting. Reference: If the Parallel Port Address setting is "Disabled", this item is not displayed.

Table 5-3 Advanced menu

	Item	Details
	Serial Port1 Address	The I/O Base address of Serial Port 1 and IRQ number are set. The default setting is "3F8/IRQ4". Setting I/O Base address IRQ number 3F8/IRQ4: 3F8 IRQ4 2F8/IRQ3: 2F8 IRQ3 3E8/IRQ4: 3E8 IRQ4 2E8/IRQ3: 2E8 IRQ3 3F8/IRQ11: 3F8 IRQ11 2F8/IRQ10: 2F8 IRQ10 3E8/IRQ11: 3E8 IRQ11 2E8/IRQ10: 2E8 IRQ10 338/IRQ11: 338 IRQ11 238/IRQ10: 238 IRQ10 Disabled: Serial Port 1 is disabled.
	Serial Port2 Address	The I/O Base address of Serial Port 2 and IRQ number are set. The default setting is "2F8/IRQ3". Setting I/O Base address IRQ number 3F8/IRQ4: 3F8 IRQ4 2F8/IRQ3: 2F8 IRQ3 3E8/IRQ4: 3E8 IRQ4 2E8/IRQ3: 2E8 IRQ3 3F8/IRQ11: 3F8 IRQ11 2F8/IRQ10: 2F8 IRQ10 3E8/IRQ11: 3E8 IRQ11 2E8/IRQ10: 2E8 IRQ10 338/IRQ11: 338 IRQ11 238/IRQ10: 238 IRQ10 Disabled: Serial Port 2 is disabled.
	Serial Port3 Address	The I/O Base address of Serial Port 3 is set. The default setting is "3E8". Setting I/O Base address 3F8: 3F8h 2F8: 2F8h 3E8: 3E8h 2E8: 2E8h 338: 338h 238: 238h Disabled: Serial Port 3 is disabled. Reference: Serial Port 3 is only used for the printer unit.

Table 5-3 Advanced menu

Item	Details
Serial Port3 IRQ	The IRQ number of Serial Port 3 is set. The default setting is "IRQ11". IRQ3: 3 IRQ4: 4 IRQ5: 5 IRQ7: 7 IRQ10: 10 IRQ11: 11 Reference: If the Serial Port3 Address setting is "Disabled", this item is not displayed.
Serial Port4 Address	The I/O Base address of Serial Port 4 is set. The default setting is "3E8". 3F8: 3F8h 2F8: 2F8h 3E8: 3E8h 2E8: 2E8h 338: 338h 238: 238h Disabled: Serial Port 4 is disabled. Reference: Serial Port 4 is only used for the DM-D (Customer display).
Serial Port4 IRQ	The IRQ number of Serial Port 4 is set. The default setting is "IRQ10". IRQ3: 3 IRQ4: 4 IRQ5: 5 IRQ7: 7 IRQ10: 10 IRQ11: 11 Reference: If the Serial Port4 Address setting is "Disabled", this item is not displayed.
Serial Port5 Address	The I/O Base address of Serial Port 5 is set. The default setting is "Disabled". 3F8: 3F8h 2F8: 2F8h 3E8: 3E8h 2E8: 2E8h 338: 338h 238: 238h Disabled: Serial Port 5 is disabled.
Serial Port5 IRQ	The IRQ number of Serial Port 5 is set. The default setting is "IRQ7". IRQ3: 3 IRQ4: 4 IRQ5: 5 IRQ7: 7 IRQ10: 10 IRQ11: 11 Reference: If the Serial Port5 Address setting is "Disabled", this item is not displayed.

Table 5-3 Advanced menu

	Item		Details
	Serial Port6 Address		The I/O Base address of Serial Port 6 is set. The default setting is "Disabled". 3F8: 3F8h 2F8: 2F8h 3E8: 3E8h 2E8: 2E8h 338: 338h 238: 238h Disabled: Serial Port 6 is disabled.
	Serial Port6 IRQ		The IRQ number of Serial Port 6 is set. The default setting is "IRQ5". IRQ3: 3 IRQ4: 4 IRQ5: 5 IRQ7: 7 IRQ10: 10 IRQ11: 11 Reference: If the Serial Port6 Address setting is ìDisabledî, this item is not displayed.
Hardware Health Configuration			
	Hardware Health Event Monitoring	CPU Fan Speed	The current CPU fan speed is displayed. The fan speed is displayed in RPM.
		CPU Temperature	The current CPU temperature is displayed.
		System Temperature	The current main board temperature is displayed.
		Vcore	The current Vcore voltage is displayed.
		AVCC	The current AVCC voltage is displayed.
		+5VSB	The current +5VSB voltage is displayed.
		VBAT	The current VBAT voltage is displayed.
		+3.3V	The current +3.3V voltage is displayed.
		VCCP	The current VCCP voltage is displayed.
		+12V	The current +12V voltage is displayed.
	Hardware Health Function		Disabled / Enabled of the Hardware Health Function is set. The default setting is "Enabled". Enabled: Hardware Health Function is enabled. This is the normal setting. Disabled: Hardware Health Function is disabled. Reference: When the Hardware Health Function is "Disabled", the items of "Hardware Health Event Monitoring", "CPU Fan Control", "CPU Temperature Alarm", and "System Temperature Alarm" are not displayed.

Table 5-3 Advanced menu

Item	Details

CPU Fan Control	CPU Fan Control is set.
	The default setting is "Enabled".
	Enabled: CPU Fan Control is enabled.
	                This is the normal setting.
	Disabled: CPU Fan Control is disabled. In this case, the CPU Fan
	                will be at Full Speed.
	
	Reference:
	1) hardware monitoring chip has SmartFan Control function. The revolution of the fan is automatically controlled according to changes in the temperature.
	2) If the Hardware Health Function is Disabled, this item is not displayed and is not performed.

CPU Temperature Alarm	CPU Temperature Alarm is set. If the CPU exceeds the set temperature, an alarm notification is executed. The default setting is "Disabled". Disabled: This function is disabled. 70° / 158° F 75° / 167° F 80° / 176° F 85° / 185° F 90° / 194° F 95° / 203° F 100° / 212° F Reference: 1) If the CPU Fan Control setting is Disabled, this item is not displayed and is not performed. 2) If the Hardware Health Function is Disabled, this item is not displayed and is not performed.
System Temperature Alarm	System Temperature Alarm is set. If the CPU exceeds the set temperature, an alarm notification is executed. The default setting is "Disabled". Disabled: This function is disabled. 45° / 113°F 50° / 122°F 55° / 131°F 60° / 140°F 65° / 149°F Reference: 1) If the Hardware Health Function setting is Disabled, this item is not displayed and is not performed.

Table 5-3 Advanced menu

	Item	Details
ACPI Configuration		
	ACPI Aware O/S	The type of OS (Operating System) is set. The default setting is "Yes". Yes: It is set when the OS is PMOS(Windows 2000 Windows XP, WEPOS). No: It is set when the OS is non-PMOS.
	ACPI 2.0 Features	ACPI 2.0 function is set. The default setting is "Yes". Yes: ACPI 2.0 function is enabled. This is the normal setting. No: ACPI 2.0 function is disabled. Reference: The ACPI 2.0 function means the RSPD pointer for the fixed 64 bit System Description Tables.
	ACPI Power Recovery	Operations after recovering from the cutting of AC power is set. The default setting is "Power Off". Power Off: After recovery, turn the power off. Power On: After recovery, turn the power on. Last State: Return to the last state.

Table 5-3 Advanced menu

	Item		Details
USB Configuration			
	Legacy USB Support		Enabled / Disabled of Legacy USB Support of USB devices such as the keyboard and mouse is set. (Enabled / Disabled of the emulation function) The default setting is "Auto". Auto: BIOS sets the optimum setting. Enabled:⠀⠀⠀Legacy USB Support is enabled. Enabled:⠀⠀⠀Legacy USB Support is disabled.
	USB 2.0 Controller Mode		USB 2.0 Controller Mode is set. The default setting is "FullSpeed". HiSpeed:⠀⠀⠀Set it to Hi Speed mode. FullSpeed:⠀⠀⠀Set it to Full Speed mode.
	USB Beep Message		Enabled / Disabled of beep in emulation of the USB device is set. The default setting is "Disabled". Enabled:⠀⠀⠀Beep is on. Disabled:⠀⠀⠀Beep is off.
	USB Mass Storage Device Configuration	It is displayed only when a device such as USB memory is connected.	
		USB Mass Storage Reset Delay	The waiting time after Start Unit Command is set. The default setting is "20sec". To be determined is the normal setting. 10sec:⠀⠀⠀The waiting time is set at 10 seconds. 20sec:⠀⠀⠀The waiting time is set at 20 seconds. 30sec:⠀⠀⠀The waiting time is set at 30 seconds. 40sec:⠀⠀⠀The waiting time is set at 40 seconds.
		Emulation Type	The Emulation function of the USB mass storage device is set. This item is only displayed to the number of connected bootable USB devices. The default setting is "Auto". Auto:⠀⠀⠀BIOS automatically sets the optimum Emulation function. Floppy:⠀⠀⠀The Emulation function is fixed as floppy disk.. Forced FDD:⠀The Emulation function is set as either hard disk or floppy disk by the BIOS. Hard Disk:⠀⠀The Emulation function is fixed as hard disk. CDROM:⠀⠀⠀The Emulation function is fixed as CD-ROM (El Trito Format). Reference: When the connected device type is CBI and HDD boot type, the setting of this item should be ìHard Diskî.

PnP/PCI Configurations Menu

Table 5-4 PnP/PCI Configurations menu

Item	Details
Plug & Play O/S	Installed OS is selected. Yes: This is selected when the installed OS is the PnP OS such as Windows 2000, Windows XP or WEPOS. The OS assigns all PnP devices in the system. No: This is selected when the installed OS is not PnP OS.
Clear NVRAM	Whether or not to reset data related to PnP when rebooting the system is set. The default setting is "No". Yes: Reset the data. No: Do not reset the data. This is the normal setting. Reference: Even when this setting is changed to ìYesî and the system is rebooted, it is automatically changed to ìNoî.
PCI Latency Timer	Latency Timer of the PCI bus is set. The default setting is "64". 32: 32 PCI clocks 64: 64 PCI clocks 96: 96 PCI clocks 128: 128 PCI clocks 160: 160 PCI clocks 192: 192 PCI clocks 224: 224 PCI clocks 248: 248 PCI clocks
Allocate IRQ to PCI VGA	Assigning of VGA Interrupt to the IRQ is set. The default setting is "Yes". Yes: The IRQ is assigned to VGA Controller. This is the normal setting. No: The IRQ is not assigned to VGA Controller.
Palette Snooping	Enabled / Disabled of Palette Snooping is set. The default setting is "Disabled". Enabled: Palette Snooping is enabled. Disabled: Palette Snooping is disabled. This is the normal setting.
PCI IDE BusMaster	Enabled / Disabled of PCI Bus Mastering is set. The default setting is "Enabled". Enabled: PCI Bus Mastering is enabled. Disabled: PCI Bus Mastering is disabled. This is the normal setting.
IRQ Resources	Sets the handling of IRQ Resources (interrupt number). Available IRQ resources are, 3, 4, 5, 7, 9, 10, 11, 14, and 15. The default setting is "Available". Available: PCI/PnP device uses IRQ Resource. Reserved: Legacy device uses IRQ Resource.
DMA Resources	DMA resources (DMA channels)is set. Available DMAresources are, 0, 1, 3, 5, 6, and 7. The default setting is "Available" for each resource. Available: PCI/PnP device uses DMA Resource. Reserved: Legacy device uses DMA Resource.

Chipset menu

The items that rely on the chipset on the main board, such as USB and LAN settings are set. Since these settings are executed via [Load Optimal Defaults], they are the optimum settings for the system and generally do not need to be changed.

Table 5-5 Chipset menu

Item		Details
NorthBridge Configuration		
	Graphics Mode Select	The size of Video memory is set. The default setting is "Enabled", 32MB. Disabled: System memory is set to be disabled. Enabled ,1MB: System memory is set at 1MB. Enabled ,4MB: System memory is set at 4MB. Enabled ,8MB: System memory is set at 8MB. Enabled ,16MB: System memory is set at 16MB. Enabled ,32MB: System memory is set at 32MB. This is the normal setting.
	Memory ECC Mode	Enabled / Disabled of Memory ECC Mode is set. The default setting is "Disabled". Enabled: Memory ECC Mode is enabled. Disabled: Memory ECC Mode is disabled. This is the normal setting.
	Boot Display Device	Video output is set. The default setting is "Auto". Auto: BIOS sets the optimum conditions. This is the normal setting. LCD: Set to output to the LCD. VGA: Set to output to the VGA connector. Both: Set to output to both the LCD and the VGA connector.

Table 5-5 Chipset menu

Item		Details
SouthBridge Configuration		
	OnBoard IDE	Enabled / Disabled of IDE Controller is set. The default setting is "Enabled". Disabled: Onboard IDE Controller is set to be disabled. Enabled: Onboard IDE Controller is set to be enabled.
	OnBoard AC'97 Audio	The sound function AC'97 Audio is set. The default setting is "Enabled". Disabled: Onboard AC'97 Audio is set to be disabled. Enabled: Onboard AC'97 Audio is set to be enabled.
	USB Controller	USB Controller is set. The default setting is "Enabled". Do not change the default setting. If it is "Disabled", POS devices such as the touch panel, the 28-key keyboard, and MSR will not be able to be used.
	USB 2.0 (EHCI)	Enabled / Disabled of USB 2.0 function is set. The default setting is "Enabled". Disabled: USB 2.0 function is disabled. Enabled: USB 2.0 function is enabled.
	OnBoard LAN	Enabled / Disabled of LAN Controller is set. The default setting is "Enabled". Disabled: Onboard LAN Controller is disabled. Enabled: Onboard LAN Controller is enabled. Reference: If this item is "Disabled", the items of "On Board LAN BOOT PXE ROM" and "Maintenance Boot" are not displayed.
	OnBoard LAN BOOT PXE ROM	Enabled / Disabled of Onboard LAN Boot ROM (PXE boot agent) is set. The default setting is "Disabled". Disabled: Onboard LAN Boot ROM is disabled. Enabled: Onboard LAN Boot ROM is enabled. Reference: If the item of ìOnboard LANî is "Disabled", this item is not displayed.
	Maintenance Boot	Enabled / Disabled of Maintenance Boot is set. The default setting is "Disabled". Disabled: Maintenance Boot is disabled. Enabled: Maintenance Boot is enabled. Reference: If the items of ìOnboard LANî and ìOnboard LAN BOOT PXE ROMî are "Disabled", this item is not displayed.
	Spread Spectrum	Enabled / Disabled of Spread Spectrum is set. The default setting is "Enabled". Do not change the default setting.

Power menu

The items related to Power Management are set. Power Management controls the operational state of the limited-life devices such as the back light of the LCD unit and HDD.

Table 5-6 Power menu

Item	Details
Power Management/ APM	Enabled / Disabled of APM BIOS is set. The default setting is "Enabled". Enabled: APM is enabled. Disabled: APM is disabled.
Suspend Time Out	The time before shifting to the Suspend mode is set. The default setting is "Disabled". Disabled:There is no shift to the Suspend mode. 1 Min: The Suspend mode is shifted to after 1 minute. 2 Min: The Suspend mode is shifted to after 2 minutes. 4 Min: The Suspend mode is shifted to after 4 minutes. 8 Min: The Suspend mode is shifted to after 8 minutes. 10 Min: The Suspend mode is shifted to after 10 minutes. 20 Min: The Suspend mode is shifted to after 20 minutes. 30 Min: The Suspend mode is shifted to after 30 minutes. 40 Min: The Suspend mode is shifted to after 40 minutes. 50 Min: The Suspend mode is shifted to after 50 minutes. 60 Min: The Suspend mode is shifted to after 60 minutes.
Power Button Mode	Power button function is set. The default setting is "On/Off". Disabled: When the Power button is pressed in the Full-On mode, the operation of the system is not changed. It is shifted to the Full-On mode when the Power button is pressed in the Suspend mode. If the Power button is pressed and held for at least 4 seconds, the system is forcibly terminated. On/Off: Turning ON/OFF of the power when the Power button is pressed is set. Suspend: If the Power button is pressed and held for less than 4 seconds: Shifts to the Suspend mode when in the Full-On mode. Shifts to the Full-On mode when in the Suspend mode. If the Power button is pressed and held for at least 4 seconds: Shifts to the Suspend mode and then the system is forcibly terminated in the Full-On mode. Shifts to the Full-On mode and then the system is forcibly terminated in the Suspend mode.
Hard Disk Drive Time Out	HDD Power Down Timer is set. The HDD motor stops when the HDD is not accessed for a certain time. The default setting is "15 minutes". Disabled: The HDD motor will not be stopped. 1 - 15: The HDD motor stops in 1 minute to 15 minutes (by the minute).
CPU Fan Off In Suspend	CPU Fan Off function in the Suspend mode is set. The default setting is "Disabled". Disabled: The CPU fan rotates even in the Suspend mode. This is the normal setting. Enabled: The CPU fan does not rotate in the Suspend mode.
Resume by PME	Enabled / Disabled of the wake-up function with PME(Power Management Enable) is set. The default setting is "Enabled". Disabled: The wake-up function with PME is disabled. Enabled: The wake-up function with PME is enabled.
Resume by RI	Enabled / Disabled of the wake-up function with RI (Modem Ring In) is set. The default setting is "Disabled". Disabled: The wake-up function with RI is disabled. Enabled: The wake-up function with RI is enabled.

Table 5-6 Power menu

Item	Details
Resume by Alarm	Enabled / Disabled of the wake-up function with the alarm is set. The default setting is "Disabled". Disabled: The wake-up function with the alarm is disabled. Enabled: The wake-up function with the alarm is enabled. In this case,Date of Month / Time (hh : mm : ss) are displayed.
Date of Month / Time (hh : mm : ss)	Date / Time of the wake-up function with the alarm is set. Use (Date (of Month) Alarm) to set the appropriate "date". (Time (hh:mm:ss) Alarm) to set the appropriate time. Once the setting is made, the power turns on or the system resumes to Full-On Mode on the selected day and time each month. Reference: 1) There are items to set "Every Day" and date within "1-3" for the date setting. 2) Use "HH:MM:SS" format for setting the time item.
Resume by OnBoard LAN	Enabled / Disabled of WOL (Wake On LAN) is set. The default setting is "Enabled". Disabled: WOL function is disabled. Enabled: WOL function is enabled.

Boot menu

The device booting sequence, etc. are set.

Table 5-7 Boot menu

Item		Details
Boot Setting Configuration		
	Quick Boot	The type of POST (Power On Self Test) is set. The default setting is "Enabled". Disabled: All tests of POST are executed. Enabled: A number of tests are omitted to reduce the time required for startup. This is the normal setting.
	Silent Boot	The type of POST screen is set. The default setting is "Enabled". Disabled: POST message screen is displayed. Enabled: EPSON logo screen is displayed. This is the normal setting. Reference: By pressing the DEL key, POST screen message is displayed even when the setting is "Enabled".
	Halt On	Conditions to stop the system during POST are set. The default setting is "All, But Diskette". No Errors: Disregard the occurrence of errors and continue the startup process. All, But Diskette: Stop the system when errors occur, with the exception of floppy disk-related errors. This is the normal setting. All, But Diskette: Stop the system when errors occur, with the exception of floppy disk or keyboard-related errors.
	Boot Up Num-Lock	Enabled / Disabled of Num Lock after POST is set. The default setting is "Off". Off: Num Lock on the keyboard after POST is disabled. This is the normal setting. On: Num Lock on the keyboard after POST is enabled.
	PS/2 Mouse Support	PS/2 Mouse support in BIOS level is set. The default setting is "Auto". Disabled: P/S2 Mouse support function is disabled. (It prevents the port from being activated by preventing the use of system resources with P/S2 Mouse port.) This setting is used when a serial mouse is installed. Enabled: P/S2 Mouse support function is enabled. Auto: BIOS automatically sets the function.
	Wait for "F1" If Error	The function of F1 key when POST errors occur is set. The default setting is "Enabled". Disabled: The wait function of the F1 key is disabled. (The system will not be stopped even when errors occur.) Enabled: The wait function of the F1 key is enabled. (The system will be stopped when errors occur, and it is connected by the F1 key.) This is the normal setting.
	Hit "DEL" Message Display	Displaying message "Hit DEL to enter Setup" during POST is set. The default setting is "Enabled". Disabled: The message is not displayed. Enabled: The message is displayed. This is the normal setting.

Table 5-7 Boot menu

Item	Details
Boot Device Priority	Detects the connected devices, and the order of the startup devices in the following categories is set. The device is detected in the order of 1st > 2nd >3rd, and boot the system from the first bootable device (with boot sector / IPL readable). To change the order of the startup devices, select the device, press the Enter key, and select the order with the arrow keys. (Device name : Model name, etc.) is displayed for the detected device. When any devices are not connected, except the HDD, the HDD is displayed at 1st Boot Device, and 2nd Boot Device or later are not displayed. The boot devices by category are detected from the following devices. SCSI device SCSI CD/DVD, SCSI HDD USB device USB Floppy, USB CD/DVD, USB memory(FD emulation),USB memory(HD emulation) SATA device HDD-0, HDD-1 IDE device CF(Compact Flash) Other device Network
Hard Disk Drives	Connected HDD devices are detected and displayed in the search order. Nothing is displayed if there is no HDD device.
Removable Drives	Connected Removable devices are detected and displayed in the search order. Nothing is displayed if there is no Removable device.
CD/DVD Drives	Connected CD/DVD devices are detected and displayed in the search order. Nothing is displayed if there is no CD/DVD device.

Security menu

The items related to Password are set.

Table 5-8 Security menu

Item		Details
Security Setting		
	Supervisor Password	Whether the Supervisor Password is set or not is displayed. Display if the password is set: Installed. Display if the password is not set: Not Installed
	User Password	Whether the User Password is set or not is displayed. Display if the password is set: Installed. Display if the password is not set: Not Installed
Change Supervisor Password		Supervisor Password is set. ìUser Access Levelî, ìChange User Passwordî, and ìPassword Checkî are displayed and can be set when setting the Supervisor Password. Supervisor Password is set as follows: 1) Select Supervisor Password, and press the (Enter) key. 2) The input screen is displayed. 3) Input a password, and press the (Enter) key. 4) The confirmation screen is displayed. 5) Input the same password as 3)again, and press the (Enter) key. 6) The Password Install screen is displayed. 7) Press the (Enter) key. When the setting is completed, the display of "Supervisor Password" in "Security Setting" is changed to "Installed". Also, "User Access Level", "Change User Password", and "Password Check" will be items which can be set. To clear the password, press the (Enter) key without inputting the Password in the above procedure. The Supervisor Password is also used for Drawer Kickout test in DIAG and R/W test of HDD.
User Access Level		Access Level is set. The default setting is "Full Access". No Access: BIOS settings cannot be viewed. View Only: BIOS settings can be viewed, but they cannot be changed. Limited: Limited BIOS settings such as date and time can be changed. Full Access: All BIOS settings can be changed. Reference: When the Supervisor Password is set, this item will be able to be set.
Change User Password		User Password is set. To set the User Password and clear the User Password, carry out the same procedures as for setting and clearing the Supervisor Password.
Password Check		Sets the password entry timing. The default setting is "Setup". Setup: The password is entered at the time of starting the BIOS setup. Always: The password is entered at the time of booting the system or starting the BIOS setup. Reference: When the Supervisor Password is set, this item will be able to be set.
Boot Sector Virus Protection		Boot Sector Virus Protection function is set. The default setting is "Disabled". Disabled: Virus Protection is disabled. Enabled: Virus Protection is enabled.

Exit Menu

Saving the BIOS settings and exiting the Setup utility are executed.

Table 5-9 Exit menu

Item	Details
Save Changes and Exit	Save the setting, exit the BIOS Setup utility, and reboot the system.
Discard Changes and Exit	Discard the setting, exit the BIOS Setup utility, and reboot the system.
Discard Changes	Discard the settings of changed items.
Load Failsafe Defaults	All the settings are returned to the Core BIOS default.
Load Optimal Defaults	All the settings are reset to the system-dedicated default.
Save Changes to USB Floppy	The settings of the BIOS Setup utility are saved onto a USB floppy disk. Save the settings according to the following procedures. 1) Select this item. 2) Set a DOS formatted floppy disk into the USB FDD. 3) Press the (Enter) key. 4) The setting data is saved on the floppy disk. Reference: 1) Make sure that a DOS formatted floppy disk is used. 2) The file is always saved under the name "SETUP000.BIN". (If a file is already saved, it is overwritten.) 3) If an error occurs, no error message is displayed. 4) If the USB FDD is not connected, this item becomes display only and is not performed.
Load from USB Floppy	The settings of the BIOS Setup utility are loaded from a USB floppy disk. Load the settings according to the following procedures. 1) Select this item. 2) Set a floppy disk including the file "SETUP000.BIN" into the USB FDD. 3) Press the (Enter) key. 4) The setting data is loaded from the floppy disk. Reference: 1) Make sure that a DOS formatted floppy disk is used. 2) Make sure that the floppy is created with "Save Changes to USB Floppy function", and the file name is ìSETUP000.BINî. 3) If an error occurs, no error message is displayed. 4) If the USB FDD is not connected, this item is display only and is not performed.
BIOS Flash	The BIOS is updated. Update the settings according to the following procedures. 1) Select this item. 2) Set the BIOS Image Data floppy disk into the USB FDD. 3) Press the (Enter) key. 4) The BIOS is updated. Reference: 1) Make sure that a DOS formatted floppy disk is used. 2) Make sure that the file name of the BIOS Image Data is "AMIBOOT.ROM". 3) If the USB FDD is not connected, this item is display only and is not performed.

Defaults and Selectable Options

FailSafe Defaults and Optimal Defaults for each item and selectable options are as follows. Some items are not displayed and cannot be changed, depending on the settings of their master items.

Main menu

System Information

Item	Options	FailSafe Defaults	Optimal Defaults
System Overview UUID On Chip MAC Address AMI BIOS Build Date ID/Version Processor Type Speed Memory Size Size		Display only	

System Date / Time

Item	Options	Details
System Date	-	-
System Time	-	-

Advanced menu

CPU Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
CPU Configuration Ratio Status Ratio Actual Value	Display only		
Intel(R) SpeedStep(TM) Tech	Auto Disabled	Auto	Auto

IDE Configuration

Primary IDE Master

Item	Options	FailSafe Defaults	Optimal Defaults
Primary IDE Master Device Vendor Size LBA Mode Block Mode PIO Mode Async DMA Ultra DMA SMART Monitoring	Display only		
Type	Auto Not Installed	Auto	Auto
LBA/Large Mode	Auto Disabled	Auto	Auto
Block (Multi-sector Transfer)	Auto Disabled	Auto	Auto
PIO Mode	Auto 0 1 2 3 4	Auto	Auto
DMA Mode	Auto	Auto	Auto
SMART Monitoring	Auto Enabled Disabled	Auto	Auto
32Bit Data Transfer	Enabled Disabled	Disabled	Disabled

IDE Configurations

Item	Options	FailSafe Defaults	Optimal Defaults
IDE Detect Time Out (Sec)	0 5 10 15 20 25 30 35	35	35

Super IO Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Parallel Port Address	Disabled 378 278 3BC	Disabled	378
Parallel Port Mode	Normal Bi-Directional EPP ECP & EPP	(Normal)	Normal
EPP Version	1.7 1.9	(1.9)	(1.9)
ECP Mode DMA Channel	DMA0 DMA1 DMA3	(DMA3)	(DMA3)
Parallel Port IRQ	IRQ5 IRQ7	(IRQ7)	IRQ7
Serial Port 1 Address	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	3F8/IRQ4	3F8/IRQ4
Serial Port 2 Address	Disabled 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 3F8/IRQ11 2F8/IRQ10 3E8/IRQ11 2E8/IRQ10 338/IRQ11 238/IRQ10	2F8/IRQ3	2F8/IRQ3
Serial Port 3 Address	Disabled 3F8 2F8 3E8 2E8 338 238	3E8	3E8
Serial Port 3 IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11	IRQ11	IRQ11

Serial Port 4 Address	Disabled 3F8 2F8 3E8 2E8 338 238	2E8	2E8
Serial Port 4 IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11	IRQ10	IRQ10
Serial Port 5 Address	Disabled 3F8 2F8 3E8 2E8 338 238	Disabled	Disabled
Serial Port 5 IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11	(IRQ7)	(IRQ7)
Serial Port 6 Address	Disabled 3F8 2F8 3E8 2E8 338 238	Disabled	Disabled
Serial Port 6 IRQ	IRQ3 IRQ4 IRQ5 IRQ7 IRQ10 IRQ11	(IRQ5)	(IRQ5)

Hardware Health Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Hardware Monitoring CPU Fan Speed CPU Current Temperature System Current Temperature Vcore AVCC +5VSB VBAT +3.3V VCCP +12V	Display only		
Hardware Health Function	Enabled Disabled	Enabled	Enabled
CPU Fan Control	Enabled Disabled	Enabled	Enabled
CPU Temperature Alarm	Disabled 70C/158F 75C/167F 80C/176F 85C/185F 90C/194F 95C/205F 75C/167F	Disabled	Disabled
System Temperature Alarm	Disabled 45C/113F 50C/122F 55C/131F 60C/140F 65C/149F	Disabled	Disabled

ACPI Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
ACPI Aware O/S	Yes No	Yes	Yes
ACPI 2.0 Features	Yes No	Yes	Yes
AC Power Recovery	Power Off Power On Last State	Power Off	Power Off

USB Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Legacy USB Support	Auto Enabled Disabled	Auto	Auto
USB 2.0 Controller Mode	Hi Speed Full Speed	Full Speed	Full Speed
USB Beep Message	Enabled Disabled	Disabled	Disabled

USB Mass Storage Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
USB Mass Storage Reset Delay	10sec 20sec 30sec 40sec	20sec	20sec
Emulation Type	Auto Floppy Forced FDD Hard Disk CDROM	Auto	Auto

PCI/PnP Menu

Item	Options	FailSafe Defaults	Optimal Defaults
Plug & Play OS	Yes No	Yes	Yes
Clear NVRAM	Yes No	No	No
PCI Latency Timer	32 64 96 128 160 192 224 248	64	64
Allocate IRQ to PCI VGA	Yes No	Yes	Yes
Palette Snooping	Enabled Disabled	Disabled	Disabled
PCI IDE BusMaster	Enabled Disabled	Enabled	Enabled
IRQ3	Available Reserved	Available	Available
IRQ4	Available Reserved	Available	Available
IRQ5	Available Reserved	Available	Available
IRQ7	Available Reserved	Available	Available
IRQ9	Available Reserved	Available	Available
IRQ10	Available Reserved	Available	Available
IRQ11	Available Reserved	Available	Available
IRQ14	Available Reserved	Available	Available
IRQ15	Available Reserved	Available	Available

DMA Channel 0	Available Reserved	Available	Available
DMA Channel 1	Available Reserved	Available	Available
DMA Channel 3	Available Reserved	Available	Available
DMA Channel 5	Available Reserved	Available	Available
DMA Channel 6	Available Reserved	Available	Available
DMA Channel 7	Available Reserved	Available	Available

Chipset Menu

NorthBridge Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Graphics Mode Select	Enabled, 1MB Enabled, 4MB Enabled, 8MB Enabled, 16MB Enabled, 32MB	Enabled, 32MB	Enabled, 32MB
Memory ECC Mode	Enabled Disabled	Disabled	Disabled
Boot Display Device	Auto LCD VGA Both	Auto	Auto

SouthBridge Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Onboard IDE	Enabled Disabled	Enabled	Enabled
OnBoard AC'97 Audio	Enabled Disabled	Enabled	Enabled
USB Controller	Enabled Disabled	Enabled	Enabled
USB 2.0 (EHCI)	Enabled Disabled	Enabled	Enabled
Onboard LAN	Enabled Disabled	Enabled	Enabled
Onboard LAN Boot PXE ROM	Enabled Disabled	Disabled	Disabled
Maintenance Boot	Enabled Disabled	Disabled	Disabled
Spread Spectrum	Enabled Disabled	Enabled	Enabled

Power Menu

Item	Options	FailSafe Defaults	Optimal Defaults
Power Management/APM	Enabled Disabled	Disabled	Enabled
Suspend Time Out	Disabled 1 Min 2 Min 4 Min 8 Min 10 Min 20 Min 30 Min 40 Min 50 Min 60 Min	Disabled	Disabled
Power Button Mode	On/Off Suspend Disabled	On/Off	On/Off
Hard Disk Drive Time Out	Disabled 1 Min | 15 Min	Disabled	15 Min
CPU Fan Off In Suspend	Enabled Disabled	Disabled	Disabled
Resume by PME	Enabled Disabled	Enabled	Enabled
Resume by RI	Enabled Disabled	Disabled	Disabled
Resume by Alarm	Enabled Disabled	Disabled	Disabled
Date of Month	Every Day 1 - 31	(15)	(15)
Time (hh : mm : ss)	00:00:00 | 23:59:59	(12:30:30)	(12:30:30)
Resume by Onboard LAN	Enabled Disabled	Enabled	Enabled

Boot menu

Boot Setting Configuration

Item	Options	FailSafe Defaults	Optimal Defaults
Quick Boot	Enabled Disabled	Enabled	Enabled
Silent Boot	Enabled Disabled	Disabled	Enabled
Halt On	All, But Diskette All, But Disk/Key No Errors	All, But Diskette	All, But Diskette
Boot Up Num-Lock	On Off	Off	Off

PS/2 Mouse Support	Auto Enabled Disabled	Auto	Auto
Wait for "F1" If Error	Enabled Disabled	Enabled	Enabled
Hit "DEL" Message Display	Enabled Disabled	Enabled	Enabled

Boot Device Priority

The basic boot priority of the BIOS is as follows.

Priority	Device category
1st Boot Device	SCSI device
2nd Boot Device	USB device
3rd Boot Device	SATA device(HDD)
4th Boot Device	IDE device
5th Boot Device	Other device

Details for each category are as follows.

Category	Representative device example
SCSI device	SCSI CD/DVD drive SCSI Hard Disk drive
USB device	USB Floppy drive USB Hard Disk drive USB CD/DVD drive USB Memory (FD emulation) USB Memory (HD emulation)
SATA device	Hard Disk drive-0 Hard Disk drive-1
IDE device	CF (Compact Flash)
Other device	Network

Security Menu

Item	Options	FailSafe Defaults	Optimal Defaults
Supervisor Password	Display only		
User Password			
Change Supervisor Password	-----	-----	-----
User Access Level	No Access View Only Limited Full Access	(Full Access)	(Full Access)
Change User Password	-----	-----	-----
Password Check	Setup Always	(Setup)	(Setup)
Boot Sector Virus Protection	Enabled Disabled	Disabled	Disabled

Exit Menu

Item	Options	FailSafe Defaults	Optimal Defaults
Save Changes and Exit	-----	-----	-----
Discard Changes and Exit	-----	-----	-----
Discard Changes	-----	-----	-----
Load Failsafe Defaults	-----	-----	-----
Load Optimal Defaults	-----	-----	-----
Save Changes to USB Floppy	-----	-----	-----
Load from USB Floppy	-----	-----	-----
BIOS Flash	-----	-----	-----

Chapter 6

Device Diagnostics Utility

This chapter explains the function of the Device Diagnostics Utility and describes how to use it.

Function

The Device Diagnostics Utility (DIAG) allows you to run functional tests on the IR-700. You can check on the whole system or individual unit (the main board and the peripheral devices) with the DIAG.

To start the DIAG, press the hot key while the Power On Self Test (POST) is running.

It cannot be started from Windows.

Devices Available for the DIAG

Test Item	Device
CPU	CPU, Main board and CPU
System Board	Main board and controllers
RAM	DIMM, Main board and memory
COM1	Main board and COM1
COM2	Main board and COM2
Printer (COM3)	TM-T88IIIX, Main board
DM-D (COM4)	Customer Display, Main board
COM5	Main board and COM5
COM6	Main board and COM6
LPT	Main board and LPT
HDD	HDD, CF, Main board and SATA
RAID	HDD, Main board and RAID
Video	LCD, Main board and Video
LAN	Main board and LAN
Sound (AC97)	Main board and Sound
USB	Main board and USB0, 1, 2, 3, 4, 5
Drawer	Drawer, TM-T88IIIX, Main board and COM3
Operating the DIAG	Keyboard/Mouse, Main board and PS/2

Devices Not Available for the DIAG

Device	Test Methods
Touch Panel of the LCD	Windows use
28-key POS Keyboard	---
MSR unit	---
60-key POS Keyboard	USB devices cannot be tested.
PCI card	---
USB-FDD	USB devices cannot be tested.
USB-CDROM	USB devices cannot be tested.

How to Do the DIAG Test

How to Start the DIAG

1. Connect the PS/2 keyboard and mouse to the IR-700.

   ✎ *NOTE*
   A USB keyboard and a USB mouse cannot be used.

2. Turn on the IR-700.

3. A message "Press Ctrl T to run EPSON DD" is displayed when the POST starts. Hold down the Ctrl key and press the T key.

4. The DIAG will start.

✎ *NOTE*
Every time the DIAG is started up, all devices (test items) are selected for the standard test by default.

5. After the test has completed, the result is displayed on the lower right of the screen.

How to Exit the DIAG

Click on the EXIT button with the PS/2 mouse, or press the F10 key on the PS/2 keyboard. The IR-700 will exit the DIAG and reboot.

Using the Keyboard

Both the PS/2 mouse and the PS/2 keyboard can be used to operate the DIAG. When using the keyboard, refer to the table below to know what kind of functions are available with the keys.

Key	Description
↑,↓,→,←	Selects the test icon. Refer to the NOTE given below.
Tab	
Shift +Tab	
Space	Selects or deselects the standard test or the enhanced test of each device.
+	Selects the test items to be executed collectively
-	Deselects the test items to be executed collectively

Esc	Cancels the test
F1	Starts the test
F10	Exits the DIAG and reboots the IR-700

✎ *NOTE*

A USB keyboard and a USB mouse cannot be used.

When operating the DIAG with the keyboard only, press the Space key before pressing the arrow keys to select the test icon. Without pressing the Space key, you cannot use the arrow keys for the selection.

Explanation of the Screen

The section provides explanation of the icons, buttons, and windows displayed on the DIAG screen and describes their functions.

❏ Test Counter

Sets the number of executions of the selected test. Follow the procedure below to set the number.

1. Click on the Test Counter icon.

2. Test Counter setting window will appear on the lower right of the screen.

3. Enter your desired number of executions with the numeric keypad.

4. Press the Enter on the keyboard to set the number.

✎ *NOTE*

• Available number of executions is 1 through 100 times. If numbers greater than 100 are entered, the number of executions is set to 100 times.

• If you enter 0 (zero), the selected test is repeated until you click on the STOP button or press the Esc key.

❏ Hardware Monitoring Window

Displays statuses of the CPU and the IR-700 system. Internal temperature, power supply voltages, and CPU fan rotation speed are checked at regular intervals and the results are displayed. The following are explanations of the items on the window. If an error condition is detected, the detected numeric value is displayed in red.

CPU Temp	Displays the temperature of the CPU.	Vcore	Displays the actual power supply voltages.
Sys Temp	Displays the temperature of the IR-700 main board.	+3.3V	
CPU Fan	Displays the rotation speed of the CPU fan.	+5V	
		+12V	

❏ Test Icon

Represent the components or devices to be selected for the test. After selecting the icon, selecting the test type (standard or enhanced) can be made on the icon box. The test results are also displayed on the icon box.

- Selecting the icon   Click on the icon with the mouse or select the icon using the arrow keys on the keyboard and press the Enter key.

- Selecting the test type   The enhanced test is available for some components or devices. If the selected item has choice of the test type, clicking on the icon with the mouse or selecting the icon with the keyboard can switch the test type between the standard or enhanced.
  [V]   Standard test
  [!]   Enhanced test
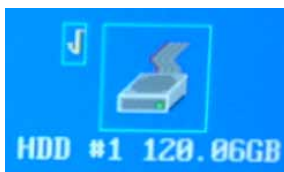
(Selecting Standard Test)

(Selecting Enhanced Test)

- Deselecting the Test Icon

  When the icon is deselected, it is displayed in gray and the check mark disappears.

- Test Result

  The test result is displayed on the right side of the icon box. "Pass" is displayed when the component or device is diagnosed as normal, and "Fail" is displayed if it is detected as abnormal.

  (Normal)

  (Abnormal)

  ✎ *NOTE*

  See for more information on the test result .

  If you have set number of executions for the test by the Test Counter, number of normal results and abnormal results are displayed on the icon box.

  (Normal)

  (Abnormal)

Test Icons to be Displayed

The test icons displayed on the DIAG screen differ according to the setting condition such as BIOS setting or number of installed hard disk drives.

Test Item	Condition to be Displayed
CPU	Always displayed
SystemBoard	Always displayed
RAM	Always displayed
COM1	Not displayed if COM1 is disabled
COM2	Not displayed if COM2 is disabled
Printer (COM3)	Always displayed
DM-D (COM4)	Always displayed
COM5	Always displayed
COM6	Always displayed
LPT	Not displayed if the LPT is disabled
HDD	Number of the icons corresponds to the number of installed hard disk drives and CompactFlash cards. Not displayed when they are not connected.
RAID	Always displayed
Video	Always displayed
LAN	Not displayed if Ethernet is disabled
Sound (AC97)	Not displayed if the Sound is disabled
USB	Not displayed if USB is disabled
Drawer	Always displayed

❏ Operation Buttons

The following operation buttons are displayed on the DIAG screen.

Operation Button	Description
START	Executes the selected test.
STOP	Cancels the test during execution of the test.
HELP	Displays the operating instructions.
PRINT	Prints out the test result by the printer.
EXIT	Exits the DIAG and reboots the IR-700.

✎ *NOTE*
The test result data is first sent to an external printer to be printed out. When no external printer is detected or when printing fails due to an error, the test result is printed out from the exclusive TM printer connected to COM3 port.

❏ Executing the Password-Protected Tests

The Write test of the hard disk drive (CF, RAID) and the Drawer Kick Out test are password-protected. You need to set the password in the Supervisor Password of the BIOS Setup to perform those tests.

Follow the procedure below to execute the tests.

1. After selecting the HDD or Drawer test icon, select the enhanced test.

✎ *NOTE*

See page 6-11 for information on what kind of tests are available by the standard and enhanced test.

2. A dialogue box asking for your password will appear on the lower right of the screen.
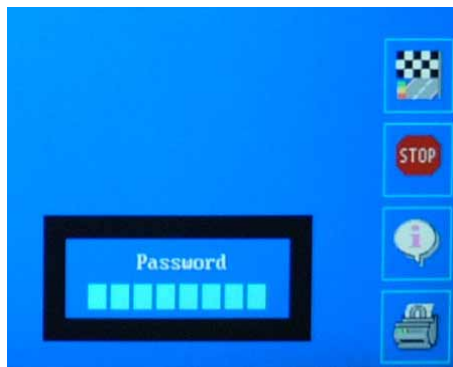
3. Type in your password in the box and press the Enter key. The password should be the same as the Supervisor Password set in the BIOS Setup.

✎ *NOTE*

• If the Supervisor Password has not been set, the HDD Write test and the Drawer Kick Out test cannot be performed.

• No password is set at the factory, so you have to set the Supervisor Password in advance.

• See Chapter 5 "BIOS" section for the information on how to set the Supervisor Password.

4. The password dialogue box will disappear and changing the test icon setting becomes available.

Whole System Test and Individual Test

The Device Diagnostic Utility provides the following two test methods.

- Standard test of the whole system (all devices)
- Standard/Enhanced test of individual device

Whole System Test

Perform the test following the procedure below.

1. Confirm that check marks are displayed on all of the test icon boxes.

✎ *NOTE*
Every time the DIAG is started up, all devices (test items) are selected for the standard test by default.

2. Click on the START button or press the F1 key to execute the test.
   To cancel the test, click on the STOP button or press the Esc key.

   After the test has completed, the result is displayed on the lower right of the screen.

(Normal)   (Abnormal)

Individual Test

Perform the test following the procedure below.

1. Select the test icon of the device to be tested. And then select the test type between the standard and the enhanced.

2. Click on the START button or press the F1 key to execute the test.
   To cancel the test, click on the STOP button or press the Esc key.

3. After the test has completed, the result is displayed on the selected icon box.

✎ *NOTE*
See for the information on how to select and deselect the device and the test type.

Printing the Test Result

Click on the PRINT button to print out the result.

✎ *NOTE*
The test result data is first sent to an external printer to be printed out. When no external printer is detected or when printing fails due to an error, the test result is printed out from the exclusive TM printer connected to COM3 port.

Details of the Device Test

The following are details of the device test.

❏ CPU with Math

Executes a test of the CPU.

Standard Test	Enhanced Test
Protect mode test	---
Numeric processor abbreviated test	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box.

❏ System Board

Executes a functional test of the main board.Tests of the interfaces are not included. The interfaces can be checked individually by selecting the corresponding test icons.

Standard Test	Enhanced Test
DMA controller test	---
Interrupt controller test	
Timer test	
RTC (CMOS) test	
Legacy Beep test	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. A beep will sound.

❏ RAM

Executes a test of memory-related items. The standard test executes the test for the Base Memory (1 MB) only. The enhanced test checks all memory areas.

Standard Test (Base Memory 1 MB only)	Enhanced Test (All areas of the memory)
Read/Write test	←
Stuck Fault test	←
Data Bus test	←

The test result is displayed as "Pass" or "Fail" on the right side of the icon box.The amount of memory from which the Video RAM is subtracted is displayed under the test icon.

✎ *NOTE*
Canceling the RAM test is not possible since the test is performed in interrupt prohibit mode.

❏ COM1/2/5/6

Executes a test of the each COM port. The standard test checks from the port to the controller. The enhanced test allows you to perform a communication test with a loopback connector.

Standard Test	Enhanced Test
Type Detection test	Loopback test
Register test	Connect a loopback connector and perform a communication test.

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. The COM port number and the system address are displayed.

✎ *NOTE*
• Fixed addresses (COM1 3F8h; COM2 2F8h; COM5 338h; COM6 238h) are used to assign the system resources.
• COM1 and COM2 test icons are not displayed if they are disabled in the BIOS setting.

The pin layout for the external loopback connection is shown below.

Signal Name	Pin No.	Description
RxD <--> TxD	2 <--> 3	
DTR <--> DSR	4 <--> 6 <--> 9	
RTS <--> CTS <--> RI	7 <--> 8	
DCD <--> GND	1 <--> 5	Make this connection when using the LED to check the +5 and +12 V. The polarity is as shown below. Be sure to insert a resistance. Pin 1: Positive Pin 5: Negative
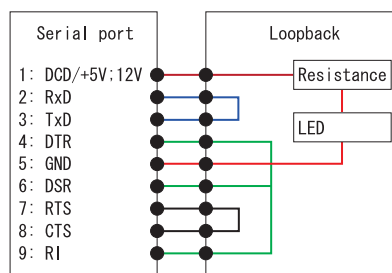
❏ Printer (COM3)

Executes a test of the exclusive TM printer (TM-T88IIIX).The standard test checks the controller of the COM port used for the printer. The enhanced test allows you to make a test print.

Standard Test	Enhanced Test
Type Detection test	Printing test
Register test	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box.And the type of the printer and the printer status are displayed on the icon box.

✎ *NOTE*
Communication conditions such as baud rate are automatically set to match the printer setting.

❏ DM-D (COM4)

Executes a test of the Customer Display.The standard test checks the controller of the COM port used for the display. The enhanced test allows you to perform a actual display test.

Standard Test	Enhanced Test
Type Detection test	DM-D display test
Register test	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. And the DM-D status is displayed below the test icon.

✎ *NOTE*
Communication conditions : 9600bps,8-Bit, None-Parity

❏ LPT

Executes a test of the LPT port. The standard test checks the LPT port controller. The enhanced test allows you to perform a communication test with a loopback connector.

Standard Test	Enhanced Test
Type Detection test	Loopback test
Register test	Connect a loopback connector and perform a communication test.

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. And the LPT port number and the system address are displayed.

The pin layout for the external loopback connection is shown below.

Signal Name	Pin No.
STROBE<--> SLCT	1 <--> 13
D0 <--> ERROR	2 <--> 15
ACK <--> INIT	10 <--> 16
BUSY <--> SLCTIN	11 <--> 17
PE <--> AF	12 <--> 14
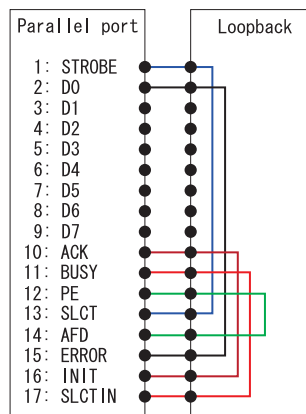
Check the D1 through the D7 by connecting an external printer to the LPT port and making a test print.

❏ HDD (CF)

Executes a test of the hard disk drive and the CompactFlash. The number of HDD icons is the same as the number of installed hard disk drives and each drive can be checked individually.
The standard test checks the controller on the main board and performs a Read test. The enhanced test allows you to perform both Read and Write tests.

Standard Test	Enhanced Test
IDE Controller test (Access test to the Status Register)	Read and Write tests of the hard disk drive
Ready test from the hard disk drive	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. And the LPT port number and the system address are displayed.

⚠ WARNING

When executing a enhanced test, HDD data is deleted.

HDD Number and Connection Drives

Connected Drive	Test Icon
No connection	Not displayed
SATA-0 only	HDD #1 :SATA-0
SATA-1 only	HDD #1 :SATA-1
CompactFlash only	HDD #1 :CF
SATA-0 and CompactFlash	HDD #1 :SATA-0 HDD #2 :CF
SATA-1 and CompactFlash	HDD #1 :SATA-1 HDD #2 :CF
SATA-0 and SATA-1	HDD #1 :SATA-0 HDD #2 :SATA-1
SATA-0 , SATA-1 and CompactFlash	HDD #1 :SATA-0 HDD #2 :SATA-1 HDD #3 :CF

✎ *NOTE*

- IDE interface performs a test of Primary IDE Master. The CompactFlash operates in True IDE Mode.

- The enhanced test requires your password to be entered. See .

- The enhanced test takes a lot of time. It will take several hours to test a 120 GB hard disk drive.

❏ RAID

The standard test checks the RAID controller on the main board and acquires data from the RAID controller.

Standard Test	Enhanced Test
Data acquisition from the RAID controller	---
Controller test (Access test to the Status Register)	
Ready test from the hard disk drive	

The following data can be acquired from the RAID controller.

✎ **NOTE**
The enhanced test requires your password to be entered. See .

❏ Video

Executes a test of video-related items. Checks the controller on the main board and the display port, and performs a LCD displaying test.

Standard Test	Enhanced Test
Controller test	---
VRAM test	
Display test (Displayed color, text, and graphics)	

During the test, texts and graphics are displayed on the LCD.The test result is displayed as "Pass" or "Fail" on the right side of the icon box.And the size of the VRAM and the type of the connected LCD unit are displayed as shown below.

✎ **NOTE**
The texts and graphics are displayed on the LCD with changing contents and color. This is intended for your visual check and not reflected in the test result. The displaying test for an external display is performed if the display is detected during the POST.

❏ LAN

Executes a test of the LAN port. The standard test checks the LAN port controller on the main board. The enhanced test allows you to perform a communication test with a loopback connector.
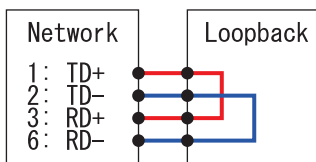
Standard Test	Enhanced Test
Controller test	Loopback test
Network Detection	Connect a loopback connector and perform a communication test.

The test result is displayed as "Pass" or "Fail" on the right side of the icon box.And the Mac address is displayed as shown below.

The pin layout for the external loopback connection is shown below.

Signal Name	Pin No.
TD+<--> RD+	1 <--> 3
TD- <--> RD-	2 <--> 6

❏ Sound (AC97)

Executes a test of sound-related items. Checks the controller on the main board and the built-in speaker and performs an output test to the Lineout port.

Standard Test	Enhanced Test
Bus Detection test	---
Register test	
Beep test	

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. And the speaker will sound.

❏ USB

Executes a test of the USB port and the controller.The standard test checks the USB port controller on the main board. The enhanced test allows you to perform a communication test by connecting a USB device to the USB port on the side of the IM-700.

Standard Test	Enhanced Test
Register test	Loopback test Connect a USB device and perform a communication test.

The test result is displayed as "Pass" or "Fail" on the right side of the icon box.And the USB setting information is displayed as shown below in the standard test.

✎ *NOTE*
The USB test icon is not displayed if USB is disabled in the BIOS setting. And when EHCI setting is enabled, USB 2.0 is not displayed.

After the enhanced test has completed, the port numbers are displayed as shown below.

The colors of the displayed port numbers represent the test result.

Normal   Green
Error   Red
Not detected   Gray

The loopback test can be performed by connecting a USB device.The USB ports that can be used for the test are shown in the table below.

Port No.	Location	Availability for the Test
USB-1	Connector on the rear of the side surface of the IM-700	O
USB-2	Connector on the rear of the IM-700. A USB hub is used.	X
USB-3	Connector on the front of the side surface of the IM-700.	O
USB-4	For a powered USB board. When it is not connected, the number is displayed in gray.	---
USB-5	POS controller in the LCD unit	---
USB-6	For the exclusive TM printer. When it is not connected, the number is displayed in gray.	---

❏   Drawer

Executes a test of the Drawer. The Drawer is controlled by the printer port. The standard test checks the controller of the COM3 port on the main board. The enhanced test allows you to perform a Drawer Kick Out test.

Standard Test	Enhanced Test
Register test	Kick Out test

The test result is displayed as "Pass" or "Fail" on the right side of the icon box. And the type of the printer and the printer status are displayed on the icon box.

✎ *NOTE*

• The enhanced test requires your password to be entered. See .

• If the printer is in an error condition such as a cover open error, the Drawer Kick Out test cannot be performed. As soon as the printer recovers from the error, the Kick Out test will be performed.

❏   PS/2

The DIAG does not support the PS/2. Checking of the PS/2 can be made by checking the operating performance of the connected PS/2 keyboard or mouse.

Chapter 7
How to Use RAID

The IR-700 has a RAID controller on the main circuit board. The RAID system on the model with 2 hard disk drives enables the system to operate continuously and avoid loss of data, which improves the security.

This chapter has the following contents:

❏ What is RAID?   Describes the basics of RAID.

❏ IR-700 RAID System   Describes detailed information about the IR-700 RAID system.

❏ Settings before Use   Describes the settings before you use RAID.

❏ Using the RAID system Describes how to use RAID.

❏ Failures and determining the failed HDD
                          Describes corrective actions when an error occurs due to hard disk failure.

❏ Building RAID   Describes the procedure of rebuilding RAID in cases such as HDD replacement.

❏ RAID BIOS   Describes the basics of RAID BIOS.

❏ GUI Utility   Describes how to install the GUI utility and basic functions of the GUI utility.

❏ RAID Event Watch tool Describes the functions and settings of the RAID Event Watch tool.

What is RAID?

RAID is a disk subsystem that employs two or more ordinary hard disk drives in combination for fault tolerance and performance. The IR-700 supports RAID 1 which provides for disk mirroring. In a RAID system using mirroring, all data in the system is written simultaneously to two separate hard disks within the same system. Since all the data is on the second drive, it is ready to use if the first one fails. This ensures stability of computer operations, decreasing the likelihood of data loss due to hard disk failure.

✎ *NOTE*

The disk mirroring is intended only for backup purposes. It cannot be used for restoring lost data or recovering from errors.

If both of the two hard disk drives fail, or the system fails, the backup function is disabled.

Mirroring System
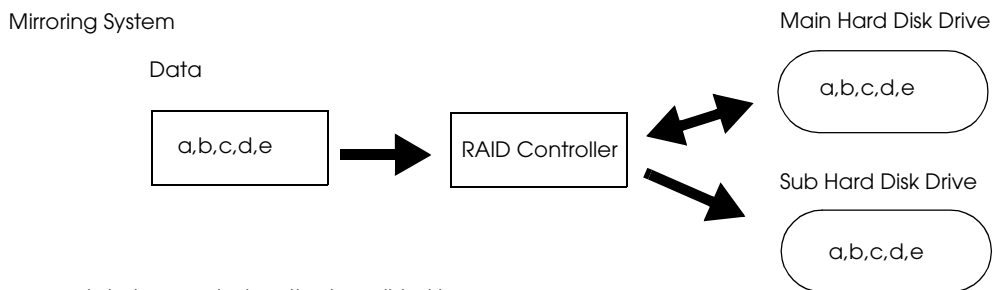
The same data is recorded on the two disk drives.
When reading data, the data comes from the main disk drive.

The IR-700 RAID system records the same data on the main and sub hard disk drives, and reads the data from the main drive. In the event a failure occurs in the main drive, the sub drive automatically takes over. In that case, the sub drive can duplicate error messages if automatic e-mail alerts, pop-up message boxes, or the recording event log function has been enabled.

When the Main Hard Disk Drive Fails
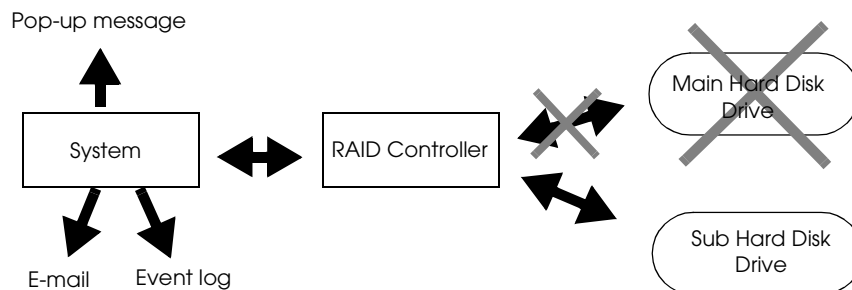
The controller stops accessing the main drive and starts to use the sub drive as the main immediately after the main drive fails.

When one of the two disk drives is replaced, the system restructures RAID in the background. The system can run applications while performing the background task.

There is no difference in user operations between using two hard disk drives and using one drive.

To use the system with RAID1, two hard disk drives must be configured for mirroring in the RAID BIOS.

✎ *NOTE*

The two hard disk drives to be used for the mirroring must be the same model and have the same capacity.

Array Build

To use RAID, RAID arrays for the two hard disk drives must be configured. The configuration can be made by the RAID BIOS. The array setup for the IR-700 RAID system is not done at the factory, and it must be done by the customers.

The synchronization of writing on two disks is automatically checked at regular time intervals.When an out-of-sync status is detected, rebuilding the array is performed by making a duplicate copy of the logical master drive as the logical second drive. All of the operation is carried out automatically without interrupting user operations. The status can be checked by the RAID BIOS or GUI utility.

If one of the two hard disk drives fails, the system can continue to operate using the second one. Error messages for the first drive failure can be displayed if the corresponding setup is made by GUI utility (Critical/Dropped). When the system is turned ON for the first time after the main disk is switched, the RAID BIOS detects the status and the start-up sequence is stopped for a brief period of time before running Windows.

RAID Status and Error Detection

- ❏ Critical/Dropped   The hard disk drive is at fault

- ❏ Rebuild   Rebuilding the arrays

- ❏ Sync   Checking the synchronization of the two disks

- ❏ Current   The system is operating normally

Detecting RAID errors are made by the following methods.

- ❏ During system startup   Errors can be detected by the RAID BIOS

- ❏ During Windows runs   Various real-time alerts are available by GUI utility.
The GUI utility also allows you to check the operational status.
Available alerts and error checking settings: E-mail, Coloring
of tray icon, Sound, Event log recording
Use the RAID Event Watch tool to display popup messages in
front of an application.

Although the system can operate normally with one hard disk after the other one fails, note that
there is no more protection against another hard disk failure. It is recommended to recover the
mirroring function as soon as possible by repairing or replacing the failed hard disk drive.

Detecting errors after Windows starts up is performed as shown below.
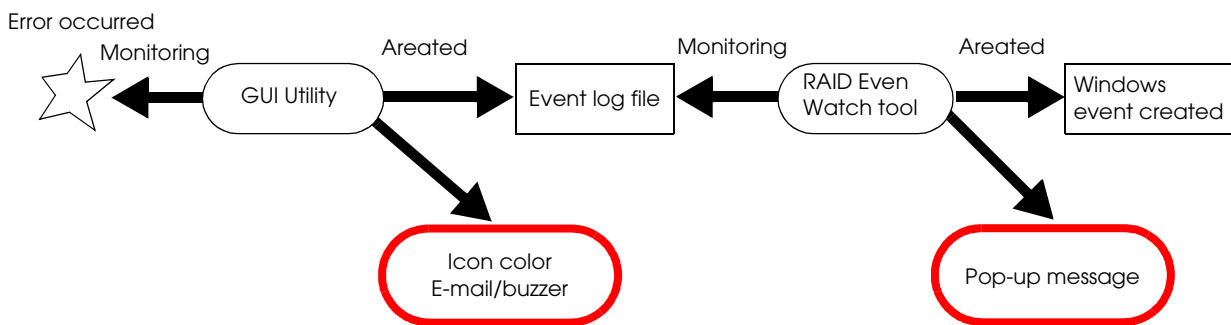
Error Detection Functions of Utility

The following error detection functions are available through the GUI utility and the RAID Event Watch tool.

Alerting Method	Description	Default	Remarks	Tool	Refer to Page
Color of the task tray icon	The color of SATARaid icon on the task tray changes when an error occurs during operation under Windows.	Information Level	Windows task tray is used. So, this cannot be seen when making the window go full-screen.	GUI Utility	page 7-42
Pop-up message box	A pop-up message box is displayed when an error occurs during operation under Windows.	Information Level	This cannot be seen when making the window go full-screen.	GUI Utility RAID Event Watch tool	page 7-17
E-mail	An e-mail message to announce the occurrence of an error is automatically sent to a specified address during operation under Windows.	Information Level	Can be directed to a particular administrator in a different place.	GUI Utility	page 7-13
Sound	Occurrence of an error is indicated by a sound (beep or any other sound) during operation under Windows.	Warning Level	The sound comes from the speaker.	GUI Utility	page 7-16

Notification of Event

When the GUI utility and the RAID Event Watch tool are running, information is sent to the Event viewer of Windows.
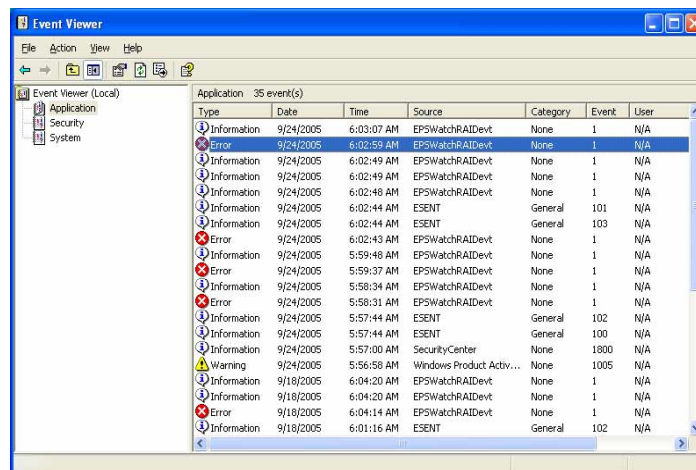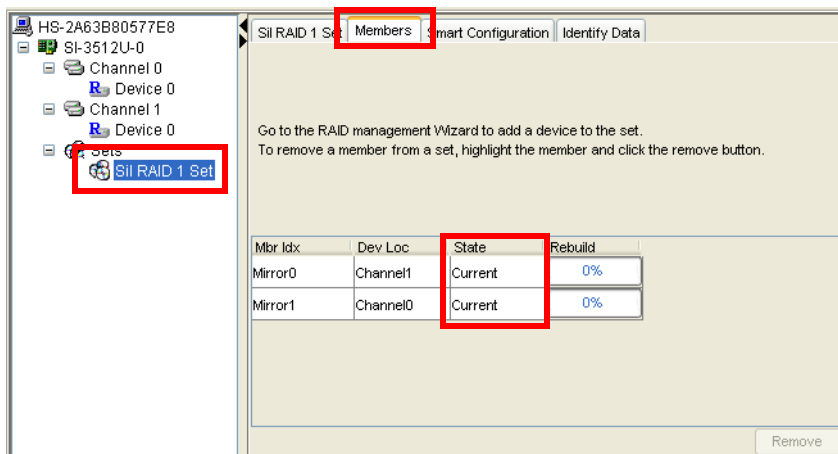
Click on the **Event** tab to display the detailed information on each event.
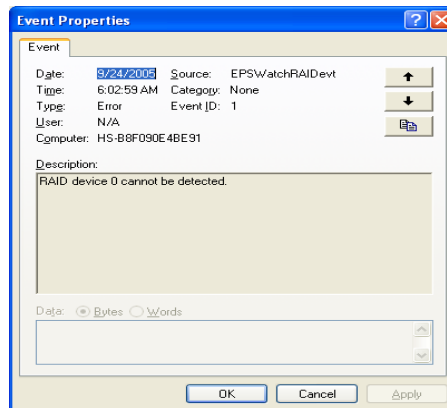
Checking the RAID Status

The GUI utility allows you to check whether the hard disk drives are operating normally under the RAID system.

Start up the GUI utility and click on **Sets and Sil RAID 1** Set in the device screen. And click on the **Member** tab on the information screen.

When Current is displayed on the State column for both the Mirror 0 and 1, it indicates the hard disks are operating normally.

Indications on State column

Current   The system is operating normally

Rebuild   Rebuilding the arrays
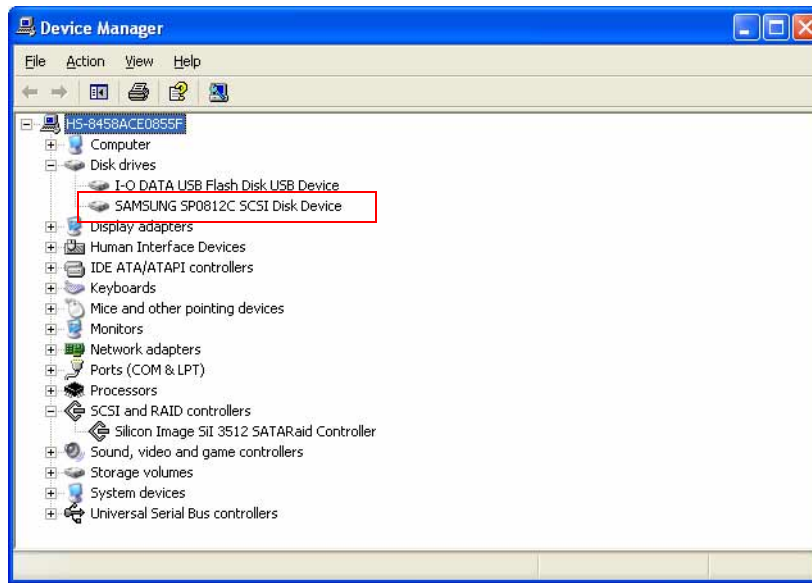
Dropped   The hard disk drive is at fault

✎ *NOTE*

Do not use the RAID Manager in the GUI utility to build or delete RAID because it is made by the RAID BIOS.

Windows Recognition

Even if two hard disk drives are installed, Windows recognizes them as one when RAID is established.

When RAID is established, the following device is displayed in the Windows 2000 Device Manager.

IR-700 RAID System

The IR-700 RAID system is configured with the following devices, system and utility.

❏ RAID controller   Sil3512 (Silicon Image) is contained on the main board.

❏ Two hard disk drives   SerialATA with 80 GB or more (The two disks are exactly the same.)

❏ RAID BIOS   Builds and deactivates RAID. Performs operational checks at power-on.
When setting up RAID using the RAID BIOS, a PS/2 keyboard is required.

❏ GUI utility   Operates under Windows. Checks the RAID operating status, detects a malfunction of hard disk drive, and performs error notifications by event log, e-mail and etc.
The detecting level can be specified.
The IR-700 RAID system does not come installed with the GUI utility. It must be installed by the user as necessary.

❏ RAID Event Watch tool   Operates under Windows. Monitors events of the GUI utility and displays popup messages. Also notifies events of the GUI utility as event logs for Windows.

Settings before Use

The array setup for the IR-700 RAID system is not done at the factory, so it must be done by customers.

You need to install the GUI utility and RAID Event Watch tool if you want to let it detect errors and confirm the status.

Array Build

Build the array. (See page 7-29.)

Installation

Install the J2RE and the GUI utility that are copied in the hard disk drive to use the GUI utility.
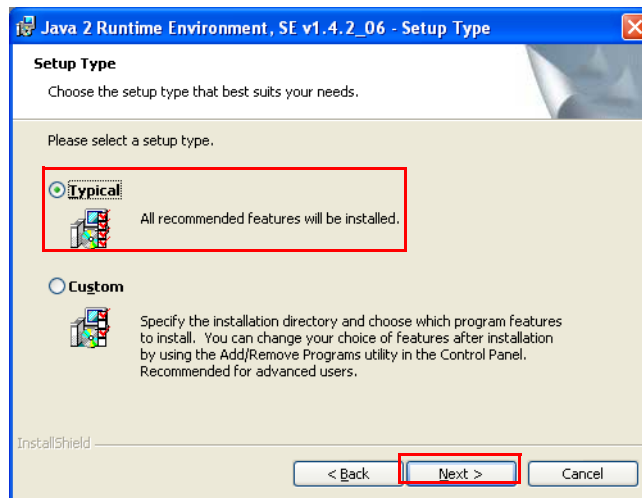
Installing J2RE

To use the GUI utility, you need to install J2RE first. Follow the steps below to install J2RE.
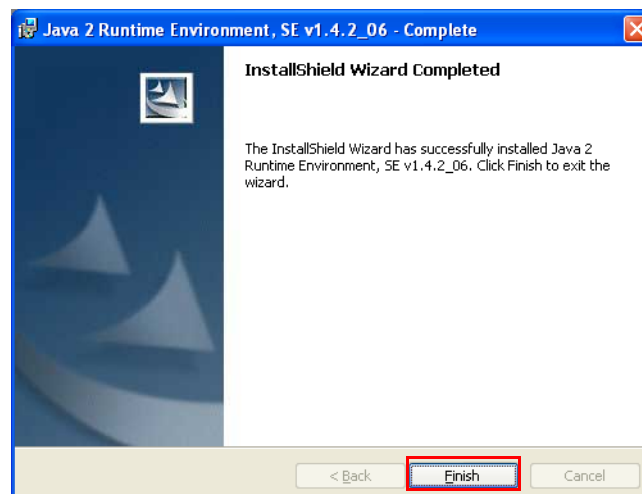
1. Execute Backup\SATARAID\Tool\J2RE-1_4_2_06-windows_i586-p.

2. The "License Agreement" screen appears. Select "I accept the terms in the license agreement," and click **Next**.
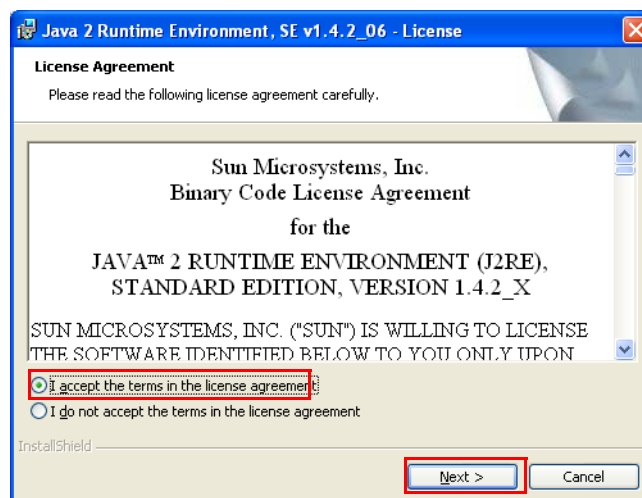
3. The "Setup Type" screen appears. Select "Typical," and click **Next**.

4. The "InstallShield Wizard Completed" screen appears. Click **Finish**.

Installing the GUI Utility

Follow the steps below to install the GUI utility.

1. Execute Backup\SATARAID\Tool\Java SATARaid._GUI-v113.

2. "Welcome to the InstallShield Wizard for Java SATARaid" screen appears. Click **Next**.
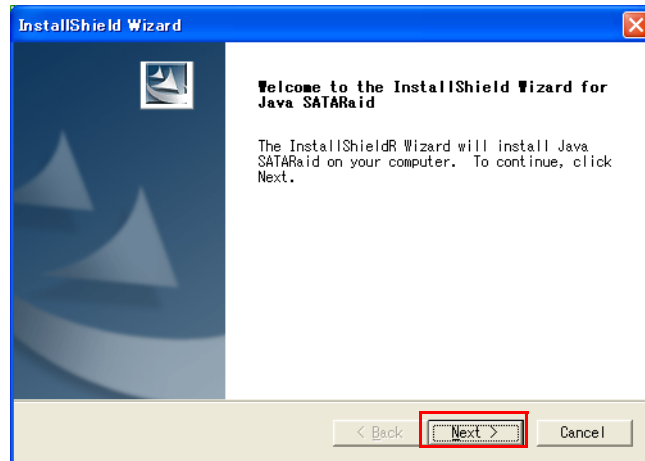
3. The "Choose Destination Location" screen appears. Specify a place to save the files, and click **Next**.
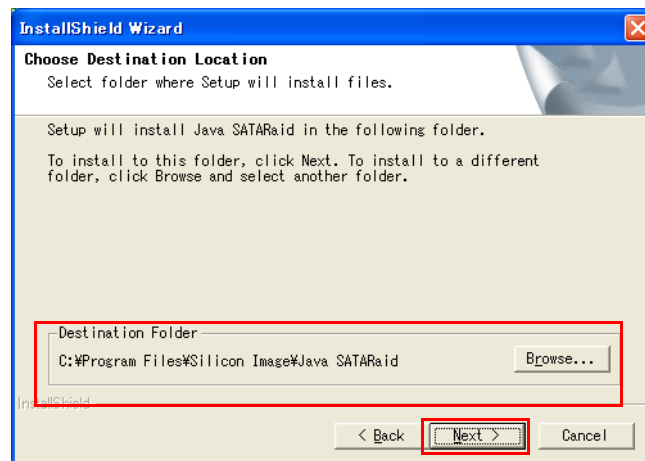
4. The "InstallShield Wizard Completed" screen appears. Click **Finish**.
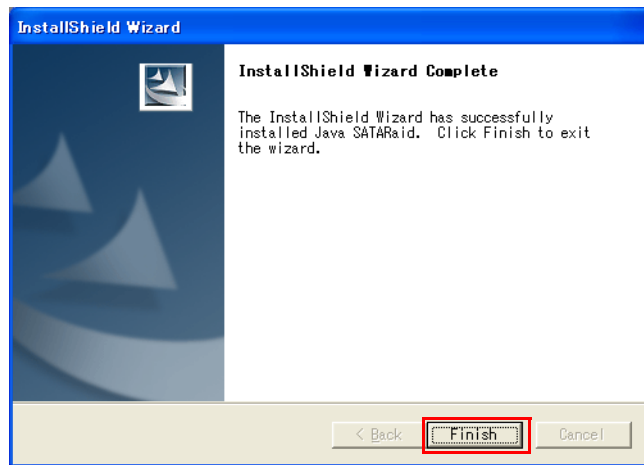
5. Reboot the IR-700.

E-mail Setting

You can use the GUI utility to have e-mails sent when an HDD failure occurs during use after Windows starts up.

E-mails can be sent to a system administrator and/or other specified addresses.

Follow the steps below for setting.

1. Start up the GUI utility.

2. Click **SATARaid Configuration** to display the Configuration screen.

3. Click the **SMTP** tab on the Configuration screen to display the following screen. Set the SMTP server to send e-mails.
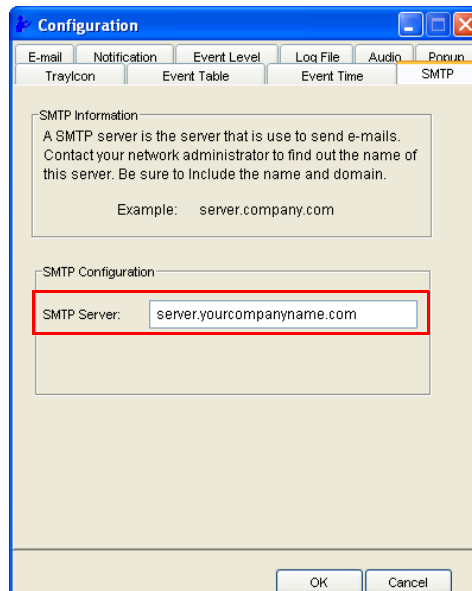
4. If you want e-mails sent to a system administrator, click the **e-mail** tab. (If you do not want e-mails sent to the system administrator, skip steps 4 and 5.)
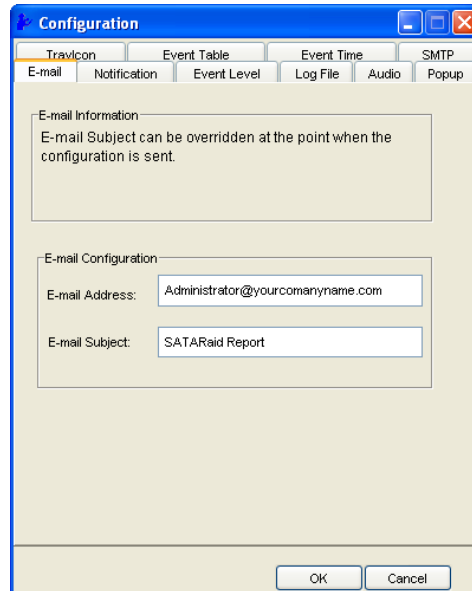
5. Specify the e-mail address of the system administrator and subject; then click **OK**.

6. If you want to have e-mails sent to other addresses, click the **Notification** tab. (If you do not want e-mails sent to other addresses, skip steps 6, 7, and 8.)
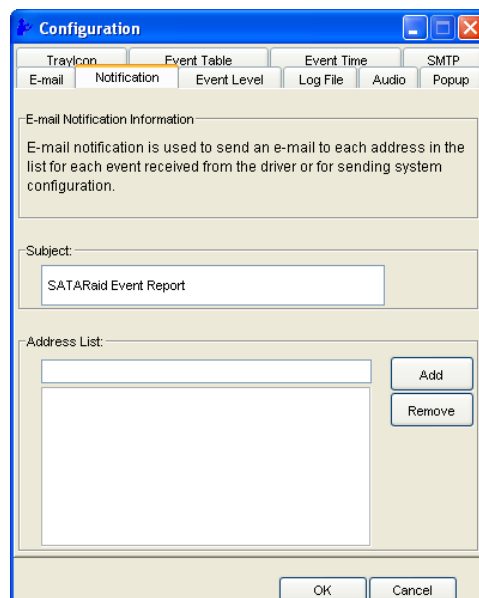
7. Specify e-mail addresses in the Address List, and click **Add**. When you want to delete an address, specify it and click **Remove**.

8. When the setting is completed, click **OK**.

9. Click the **Event Level** tab. Slide the bar to set the Event Level for sending e-mails, and click **OK**.
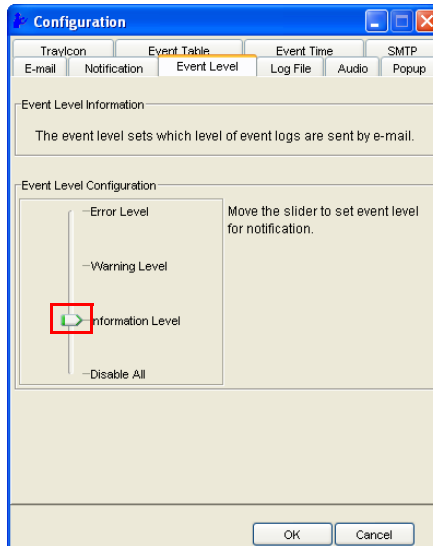
Event Level settings are as follows:

Setting	Description
Error Level	Sends e-mails when a critical error is caused by HDD failure.
Warning Level	Sends e-mails when an event such as HDD removal occurs.
Information Level	Sends e-mails when an event such as HDD rebuilding occurs.
Disable All	Does not send e-mails.

E-mails are sent to the addresses set on the **E-mail** or **Notification** tabs, depending on the Event Level setting.

Buzzer/Sound Setting

When an event such as an HDD failure occurs after Windows starts up, a buzzer or sound notification is possible.

1. Start up the GUI utility.

2. Click **SATARaid Configuration** to display the Configuration screen.

3. Click the **Audio** tab. Configure the sound setting when an event occurs.
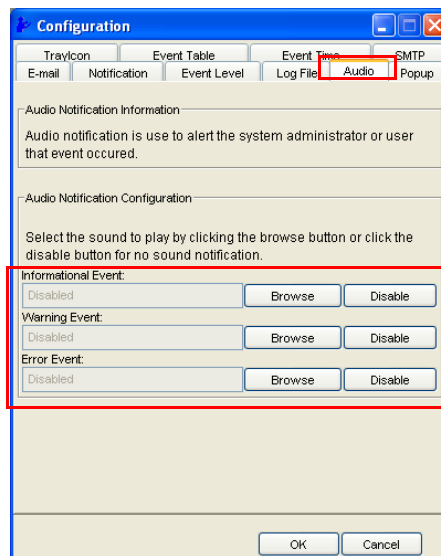
On the **Audio** tab, you can configure on/off and tone setting of sound for each event. Click **Browse** to specify sound source files. Click **Disabl**e to disable sounds.

Setting	Description
Information Event	Sounds when an event such as HDD rebuilding occurs.
Warning Event	Sounds when an event such as HDD removal occurs.
Error Event	Sounds when a critical error is caused by HDD failure.

Display of Popup Message

When an event such as an HDD failure occurs after Windows starts up, a popup message can be displayed. A buzzer notification is also possible.
Even when an application is in full-screen mode, the popup menu is displayed in front of the application.
With this setting, RAID events can be created as event logs for Windows.

When using this function, start up the GUI Utility and the EPSWatchRAIDevt.exe after setting the GUI Utility/EPSWatchRAIDevt.reg/EPSWatchRAIDevt.ini file.

GUI Utility setting

1. Start up the GUI utility.

2. Click **SATARaid Configuration** to display the Configuration screen.

3. Click the **Popup** tab.

4. Slide the bar to set the Popup, and click **OK**.
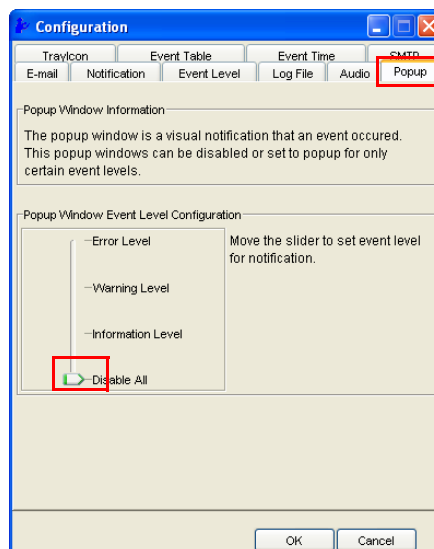
EPSWatchRAIDevt.reg setting

1. Select **EPSWatchRAIDevt.reg**. It is registered in the following directory by default.

   `C:\Backup\SATARAID\Tool`

2. Right-click **EPSWatchRAIDevt.reg**, and select **Edit** to open EPSWatchRAIDevt.reg.

3. Enter the path name before EPSWatchRAIDevt.exe after ""CategoryMessageFile"=" and ""EventMessageFile"=."

Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application\EPSWatchRAIDevt]

"TypesSupported"=dword:00000007

"CategoryCount"=dword:00000001

"CategoryMessageFile"="Path name"

"EventMessageFile"="Path name"

Example:)
"CategoryMessageFile"="c:\\backup\\sataraid\\tool\\epswatchraidevt.exe"
"EventMessageFile"="c:\\backup\\sataraid\\tool\\epswatchraidevt.exe"

4. Save the setting and close the text.

5. Execute EPSWatchRAIDevt.reg to rewrite the registry.

EPSWatchRAIDevt.ini file setting

1. Rewrite necessary settings in EPSWatchRAIDevt.ini file.
   The file is registered in the following directory by default.

   C:\Backup\SATARAID\Tool

The initial values of EPSWatchRAIDevt.ini are as follows.

```
[General]
TrayIcon=Enable
BackTrace=Disable
NoDisk="Please contact system administrator."
CheckDiskTIimer=5
CheckGUICount=5
CheckGUIInterval=10

[Error]
Message ="Original"
Beep = -1
```
— Setting when an error event is detected.
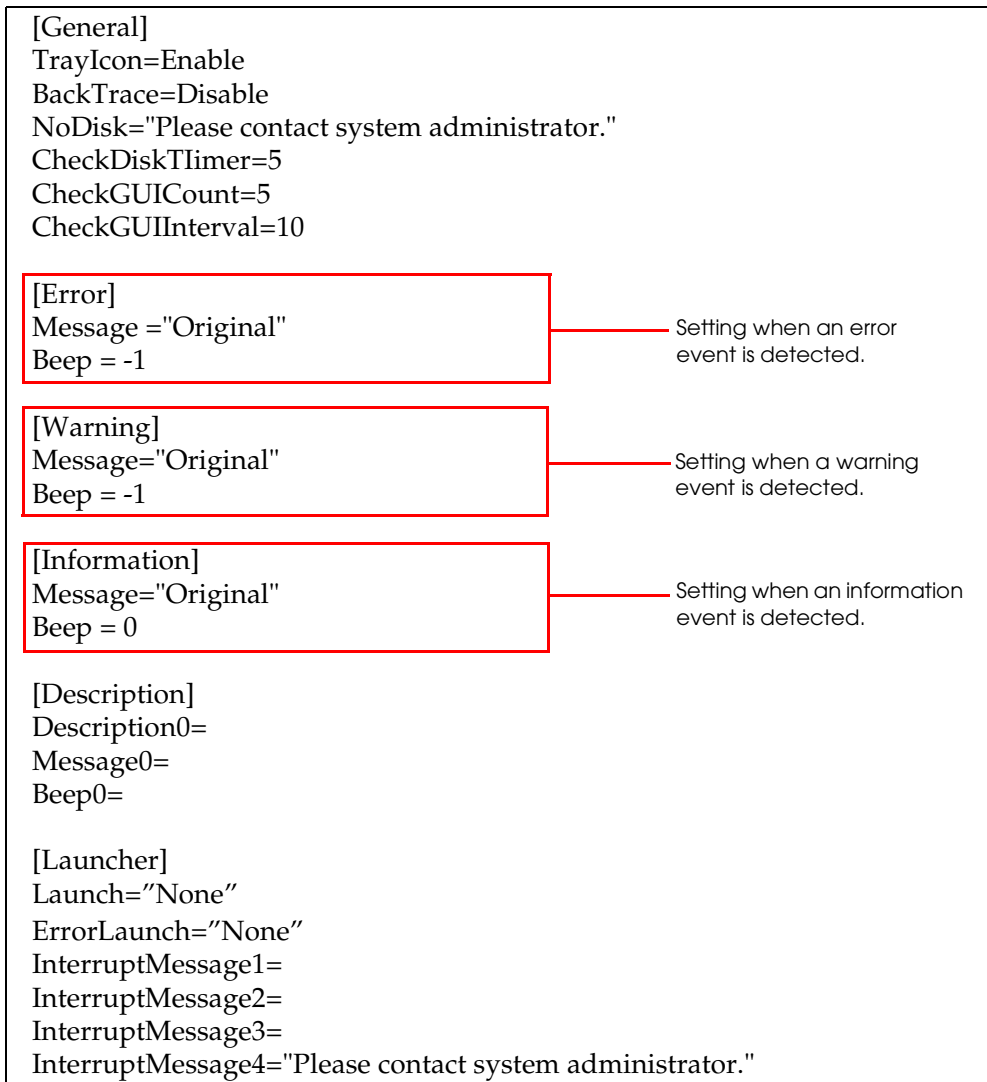
```
[Warning]
Message="Original"
Beep = -1
```
— Setting when a warning event is detected.

```
[Information]
Message="Original"
Beep = 0
```
— Setting when an information event is detected.

```
[Description]
Description0=
Message0=
Beep0=

[Launcher]
Launch="None"
ErrorLaunch="None"
InterruptMessage1=
InterruptMessage2=
InterruptMessage3=
InterruptMessage4="Please contact system administrator."
```

❏ Settings when an event is detected

Set the content of popup messages and buzzer when an event such as HDD rebuild occurs.

- Content of popup message
  Enter the message you want to display after "Message =." Put the message between "".

- When you want to sound a buzzer
  Set to "Beep = -1."

When the error level is detected or when only one of the two HDDs is detected and started up, the following popup message is displayed by default.

Starting up EPSWatchRAIDevt.exe

1. When you startup EPSWatchRAIDevt.exe, the RAID Event Watch tool starts up.
   It is registered in the following directory by default.

   C:\Backup\SATARAID\Tool

2. When the RAID Event Watch tool starts up, an icon appears in the task tray.
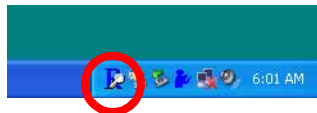
✎ *NOTE*
If you create a shortcut to EPSWatchRAIDevt.exe and register it for the startup, the RAID Event Watch tool automatically starts up when Windows starts up.

3. When an event such as an error occurs in the RAID system, a popup message is displayed and event for Windows is created, following the setting with EPSWatchRAIDevt.ini.
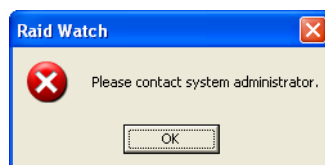
Events for Windows can be confirmed with the Event Viewer.

Event Viewer can be displayed by selecting;
For Windows 2000:   **Start-Settings-Control Panel-Administrative Tool-Event Viewer**
Foe Windows XP: **Start-Control Panel--Performance and Maintenance-Administrative Tool-Event Viewer**
Foe WEPOS: **Start-Control Panel--Performance and Maintenance-Administrative Tool-Event Viewer**

Using the RAID system

Once the array of the hard disk drives is configured, RAID1 is activated whenever the system operates. The hard disks are always controlled by RAID BIOS. Other than that, there is no operational difference from normal operation with one hard disk drive.

OS Startup Operations

The RAID BIOS checks the hard disk drives during the system's start-up process.

When the Hard Disks are found to be Normal.

```
Sil 3512A SATARaid BIOS Version 4.3.47
Copyright (C) 1997-2004 Silicon Image, IncÅD

Press <Ctrl+S> or F4 to enter RAID utility
0 SAMSUNG SP1213C               114498MB
1 SAMSUNG SP1213C               114498MB
```

As soon as the check is completed, it starts Windows.

OS Termination Operations

The operation to quit the OS is exactly the same as that performed under normal one-disk condition.

Checking of RAID operations

You can confirm the RAID status of hard disk drives during system operation by the following method.

Double-click the GUI utility icon on the task bar to start the GUI utility.

Failures and Determining the Failed HDD

This section describes corrective actions when an error occurs due to hard disk failure.

Errors that can be Detected During the System's Start-up Process

The RAID BIOS checks the hard disk drives during the system's start-up process.And the check result appears on the screen as shown below.

When the Hard Disks are found to be Normal

```
Sil 3512A SATARaid BIOS Version 4.3.47
Copyright (C) 1997-2004 Silicon Image, IncÅD

Press <Ctrl+S> or F4 to enter RAID utility
0 SAMSUNG SP1213C               114498MB
1 SAMSUNG SP1213C               114498MB
```

When a RAID Error is Detected

```
Sil 3512A SATARaid BIOS Version 4.3.47
Copyright (C) 1997-2004 Silicon Image, IncÅD

Press <Ctrl+S> or F4 to enter RAID utility

0 SAMSUNG SP1213C               114498MB

Sil Mirrored set SAMSUNG SP1213C
RAID1 set is in Critical Status.
Press any key to enter Configuration Utility.
```

The above check result indicates that one of the two hard disk drives is at fault.
In such case, press Ctrl+S, or F4 key to start RAID BIOS.

The error condition is displayed on the information field of RAID BIOS as follows.

Pattern 1

```
* 0 PM SAMSUNG SP1213C          114498MB
  1
```

The lack of information on (left side disk) shows that the disk is at fault. If there is no problem in its connection status, replace the hard disk drive.

```
* 0
  1PM SAMSUNG SP1213C           114498MB
```

The lack of information on (right side disk) shows that the disk is at fault. If there is no problem in its connection status, replace the hard disk drive.

Pattern 2

```
* 0 No device detected...
```

This shows that both the two hard disk drives cannot be detected.If there is no problem in their connection status, replace both the two disks.

Pattern 3

```
Cannot write...
```

This indicates that the main board than the hard disks is at fault..

Pattern 4

```

```

Nothing appears on the test result screen.

This indicates that the main board or any other part or component other than the hard disks is at fault.

Errors that can be Detected During Operation

When one of the two hard disk drives fails during operation, the operation is continued with the other normal disk. Mirroring function becomes disabled from then.

The following methods are available to know the error condition during operation.

❏ Pop-up message box

❏ E-mail

❏ Event log in the Event Viewer of the GUI utility

When the error condition is found by any of the above methods, first determine which hard disk drive is faulty using the GUI utility.

Determining the Failed Hard Disk Drive

The GUI utility allows you to find out which one of the two hard disks is at fault.

1. Start the OS and start up the GUI utility.

2. Click on Sets and Sil RAID 1 Set in the device screen. And click on the **Member** tab on the information screen.
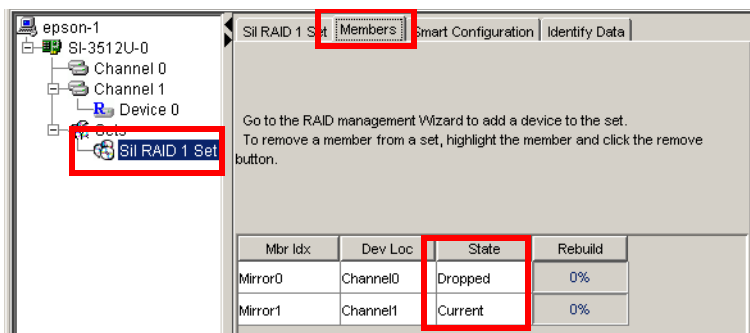
"Dropped" appears in the "State" column for the failed hard disk drive.

- Dev Loc: Channel0   Hard disk drive on the right side

-            Channel1   Hard disk drive on the left side

3. In this case, the failed hard disk is the one on the right side. Check its connection status and if there is no problem in the connection, replace the right side hard disk.

✎ *NOTE*
A hard disk drive which is not connected to the system, or not configured to be used for RAID is not displayed on the screen.

The meanings of the items displayed on the screen are as follows:

Mbr Idx	Dev Loc	State	Rebuild
Mirror0	Channel1	Current	0%
Mirror1	Channel0	Current	0%

❑ Mbrldx   Logical device   Mirror0:   Primary device
             Mirror1;   Secondary device

❑ Dev Loc   Physical device   Channel0:   Right side hard disk drive
             Channel1;   Left side hard disk drive

❑ State   RAID status   Current: Normal
             Rebuild;   Rebuilding the array
             Dropped;   Hard disk drive failure

❑ Current   The system is operating normally

❑ Rebuild   The RAID array is now being rebuilt

❑ Dropped   The hard disk drive is at fault

❑ The rebuilding status is displayed as shown below.

Mbr Idx	Dev Loc	State	Rebuild
Mirror0	Channel1	Rebuild	43%
Mirror1	Channel0	Current	0%

Building RAID

This section explains how to build a RAID system in the following cases:

❏ Establishing RAID system by adding one more hard disk to the normal one-drive system

❏ Newly building RAID system

❏ Rebuilding RAID after replacing one of the two hard disks

Establishing RAID system by adding one more hard disk to the normal one-drive system

Follow the procedure below to establish RAID by adding one more hard disk to the normal one-drive system.

Establishing RAID system is impossible if the all area of the current hard disk drive is used.In such case, make a backup copy of the important data, and then build RAID in the same way as newly building it.

The hard disk drive of the normal one-drive system is connected to the R (Primary) side.

1. Make a backup copy of important data stored on the hard disk drive.

✎ *NOTE*
Be sure to make the backup copy as a protection against loss of data due to an operating error.

2. Connect another hard disk drive, whose model number is exactly the same with that of the one in current use, to the L (Secondary) side. See page 3-40 for information on how to connect it.

3. Reboot the system.

4. Press Ctrl+S or F4 key while POST is running to start RAID BIOS.

5. The RAID BIOS screen will appear. Information of the connected hard disk drives is displayed in the information field.Verify that there is no difference in the displayed information (model number and capacity) between the two hard disks (0 and 1). RAID status will be displayed below the information after it is configured.

```
0   PM   SAMSUNG   SP1213C      114498MB

1   SM   SAMSUNG   SP1213C      114498MB
```
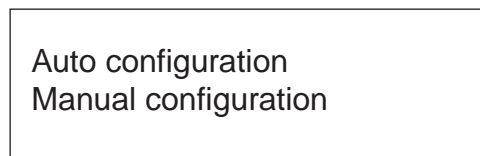
6. Select "Create RAID set" from the menu field.

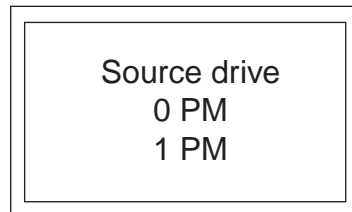7. The following pop-up box will appear. Select "Mirrored".

```
┌─────────────────┐
│ ┌─────────────┐ │
│ │   Striped   │ │
│ │   Mirrored  │ │
│ └─────────────┘ │
└─────────────────┘
```

✎ *NOTE*

The IR-700 system does not support "Striped" (RAID0). Make sure to select the "Mirrored".

8. The following items will appear in the menu field. Select the "Manual configuration".

```
┌───────────────────────────┐
│                           │
│   Auto configuration      │
│   Manual configuration    │
│                           │
└───────────────────────────┘
```

9. The following pop-up box will appear. Select the "0 PM" as the source hard disk if the source hard disk is connected to the "R" (Primary) side.

```
┌─────────────────┐
│ ┌─────────────┐ │
│ │ Source drive│ │
│ │    0 PM     │ │
│ │    1 PM     │ │
│ └─────────────┘ │
└─────────────────┘
```

10. The following pop-up box will appear. Select the "1 SM".

```
┌─────────────────┐
│ ┌─────────────┐ │
│ │ Target drive│ │
│ │    1 SM     │ │
│ └─────────────┘ │
└─────────────────┘
```
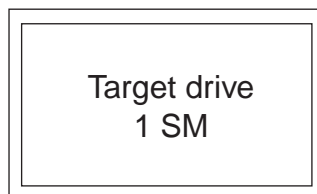
✎ *NOTE*

If you have selected "1 PM" at Step 9, "0 SM" will appear as the target drive.

11. The following pop-up box will appear. Select "Yes".

```
Disk Copy
   Yes
   No
```

12. The following pop-up box will appear. Select "offlinecopy".
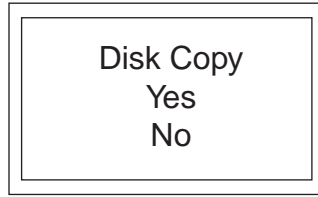
```
  onlinecopy
  offlinecopy
```

13. "Are you sure (Y/N)?" message will appear in the operation guide field. Press Y key.

14. RAID building will start. The mirroring advance ratio will be displayed in the guide field.

```
Copying...  X   nn% done
```
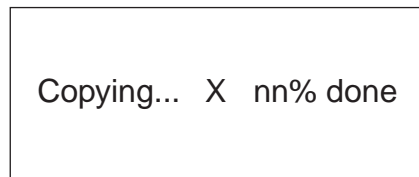
15. When the mirroring is completed, built RAID information appears in the information field.

```
0  PM  SAMSUNG  SP1213C     114498MB
1  SM  SAMSUNG  SP1213C     114498MB

* Set0 Sil Mirrored set   <PM>      114497MB
    0  SAMSUNG  SP1213C      Current
    1  SAMSUNG  SP1213C      Current
```

16. Press Ctrl+E. A confirmation message; "Are you sure to Exit? (Y/N)" will appear. Press Y key to exit from the "Create RAID set".
    Exit the RAID BIOS and reboot the system.

17. When Windows starts, "New hardware detected." screen will appear. Reboot the system to enable the newly detected hardware.

18. Return the backup files to the hard disk drive if necessary.

Newly Building RAID System

When you need to replace both the hard disks, the RAID must be built before installing the OS. If you do that in reverse order, Windows may not be able to start.

Follow the procedure below to newly build RAID system.

1. Install two new hard disk drives to the IR-700. See page 3-40 for information on how to install them.

2. Press Ctrl+S or F4 key while POST is running to start RAID BIOS.

3. The RAID BIOS screen will appear. Information of the connected hard disk drives is displayed in the information field. Verify that there is no difference in the displayed information (model number and capacity) between the two hard disks (0 and 1). RAID status will be displayed below the information after it is configured.

```
0   PM   SAMSUNG   SP1213C        114498MB

1   SM   SAMSUNG   SP1213C        114498MB
```

4. Select "Create RAID set" from the menu field.

5. The following pop-up box will appear. Select "Mirrored".

```
Striped
Mirrored
```

✎ *NOTE*
The IR-700 system does not support "Striped" (RAID0). Make sure to select the "Mirrored".

6. The following items will appear in the menu field. Select the "Auto configuration".

```
Auto configuration
Manual configuration
```

7. "Are you sure (Y/N)?" message will appear in the operation guide field. Press Y key to automatically build RAID.

8. When the mirroring is completed, built RAID information appears in the information field.

```
0 PM  SAMSUNG  SP1213C      114498MB
1 SM  SAMSUNG  SP1213C      114498MB

* Set0 Sil Mirrored set   <PM>      114497MB
    0  SAMSUNG  SP1213C      Current
    1  SAMSUNG  SP1213C      Current
```

9. Press Ctrl+E. A confirmation message; "Are you sure to Exit? (Y/N)" will appear. Press Y key to exit from the "Create RAID set".
   Exit the RAID BIOS and reboot the system.

10. Install the OS.See Chapter 2 for information on the OS installation.

Rebuilding RAID after Replacing One of the Two Hard Disks

You need to rebuild the RAID when one of the two hard disks is replaced. Follow the procedure below to accomplish it.

1. Install a new hard disk drive to the IR-700.
   (Replace a hard disk that is indicated as faulty by RAID BIOS. See page 7-22.)

2. Press Ctrl+S or F4 key while POST is running to start RAID BIOS.

3. Select "Rebuild Mirrored set" from the menu field.

4. The following pop-up box will appear. Select "offlinecopy".

```
onlinecopy
offlinecopy
```
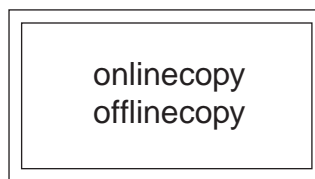
5. "Are you sure (Y/N)?" message will appear in the operation guide field. Press Y key.

6. Mirroring of the hard disk will start. The mirroring advance ratio will be displayed in the guide field.

```
Copying...   X   nn% done
```
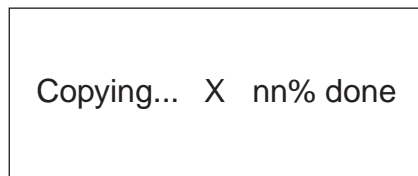
7. Press Ctrl+E after the mirroring is completed. A confirmation message; "Are you sure to Exit? (Y/N)" will appear. Press Y key to exit from the "Rebuild Mirrored set".
   Exit the RAID BIOS and reboot the system.

Canceling the RAID System

Canceling the RAID system also can be made by RAID BIOS.

⚠CAUTION

Be sure to use the RAID BIOS to cancel the RAID. Do not perform that using the GUI utility.

Doing so may damage the hard disk drives and cause a malfunction of them.

Follow the procedure below to cancel the RAID.

1. Press Ctrl+S or F4 key while POST is running to start RAID BIOS.

2. Confirm that the RAID information appears in the information field.

```
0 PM  SAMSUNG  SP1213C      114498MB
1 SM  SAMSUNG  SP1213C      114498MB

Set0 Sil Mirrored set   <PM>      114497MB
   0  SAMSUNG  SP1213C          Current
   1  SAMSUNG  SP1213C          Current
```

3. Select "Delete RAID set" from the menu field.

4. When "Set0" is displayed, press the Enter key.

5. "Are you sure (Y/N)?" message will appear in the operation guide field. Press Y key.

6. The RAID will be canceled.When the canceling operation is completed, the RAID information disappears from the information field.

```
0  PM   SAMSUNG  SP1213C      114498MB

1  SM   SAMSUNG  SP1213C      114498MB
```

RAID BIOS

This section provides instructions on how to operate the RAID BIOS.

How to Start and Exit the RAID BIOS

Starting the RAID BIOS

Follow the procedure below to start the RAID BIOS.

1. Connect a PS/2 keyboard to the keyboard connector on the IR-700.

2. Turn the IR-700 ON.

3. When "Press Ctrl+S or F4 key to enter RAID utility" appears on the screen, press Ctrl+S or F4 key.

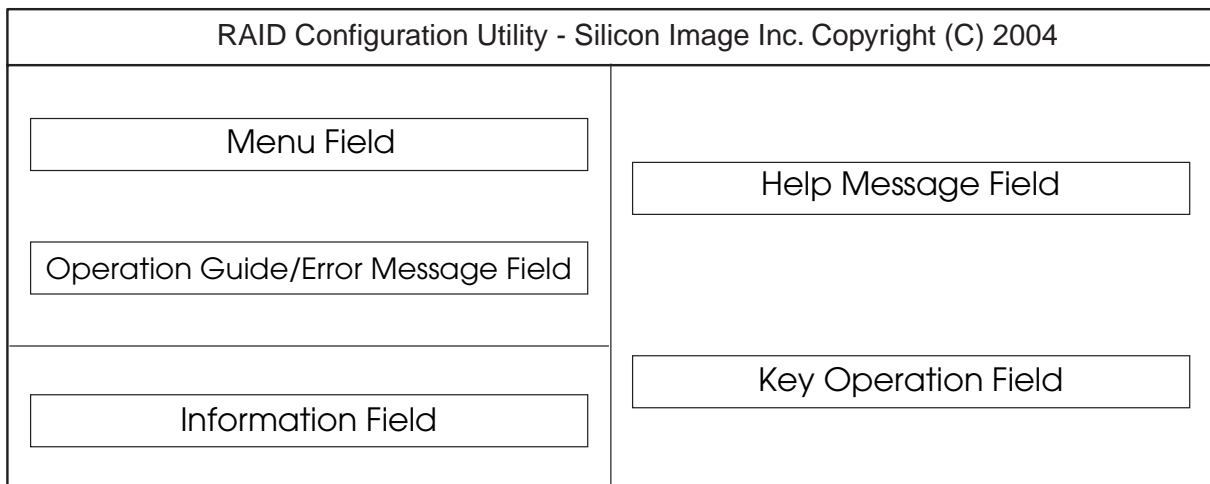4. RAID BIOS will start.

Exiting the RAID BIOS

Press Ctrl+E. The following message will be displayed.

"Are you sure to Exit (Y/N) ?"

Press Y key to exit the RAID BIOS. The IR-700 will automatically reboot.

RAID BIOS Screen Configuration

The diagram below shows the screen layout of the RAID BIOS.

RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2004

Menu Field

Operation Guide/Error Message Field

Information Field

Help Message Field

Key Operation Field

Menu Items

The following menu items are provided in the menu field.

Item	Description
Create RAID set	Creates a mirroring system.
Delete RAID set	Cancels a mirroring setting.
Rebuild Mirrored set	Rebuild a mirroring system.
Resolve Conflicts	Solves RAID errors.
Low Level Format	Formats the hard disk drives.

Information Field

Information on the installed hard disk drives and mirroring status is displayed in the information field.
Example
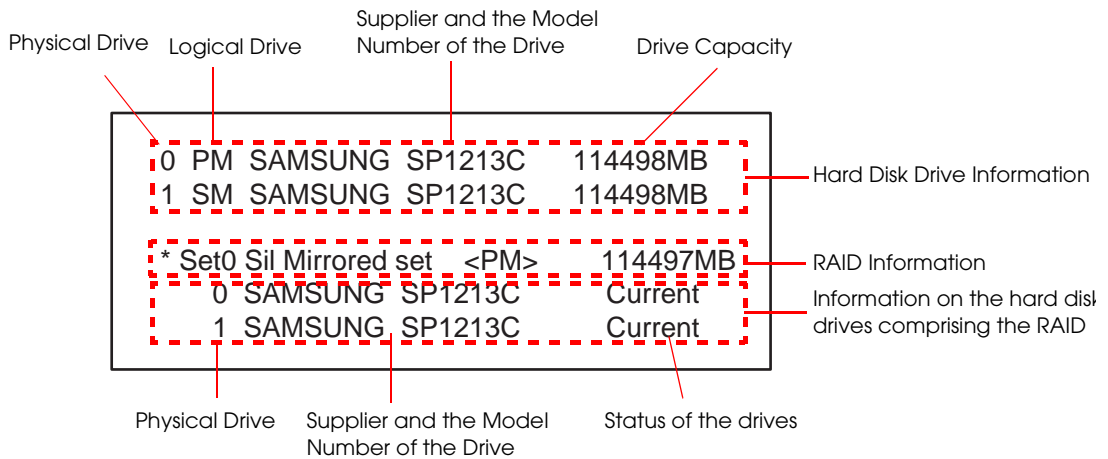
Physical Drive

0	Drive on the R side
1	Drive on the L side

Logical Drive

0	The primary side. Both reading and writing are performed.
1	The slave side. Writing only.
*	Indicates the master side.

✎ *NOTE*
If the RAID has not been established using the installed hard disk drives, nothing appears in this area.

Status of the drives

Current	The drive is working normally.Both of the two drives are "Current" when they are performing the mirroring operation normally.
Rebuild	The system is rebuilding the RAID. All data in the primary drive is being copied to the secondary drive.
SYNC	The system is checking the synchronization between the two drives.

Formatting the Hard Disk Drives

Follow the procedure below to format the hard disk drives.

1. Connect the target hard disk drive to the IR-700 system.

2. Turn the IR-700 ON and press Ctrl+S or F4 key to start the RAID BIOS.

3. Select "Delete RAID set" from the menu field.

4. The following pop-up box will appear. Select one of the two options and press the Enter key.

```
        Source drive
           0 PM
           1 PM
```
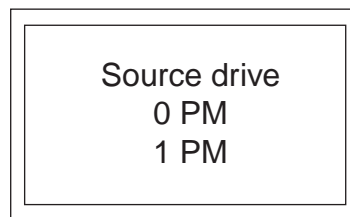
✎ *NOTE*
When the target hard disk is connected to the "R" side, only "0 PM" is displayed.And when it is connected to the "L" side, only "1 SM" is displayed.
The screen shown above appears when two hard disks are connected to "R" and "L" sides respectively.

5. "The Data will be lost! Are You Sure? (Y/N)" will be displayed. Press Y key.

6. While formatting the hard disk, "Formatting ... xx% done" is displayed.

7. The system automatically returns to the RAID BIOS menu screen after finishing the formatting job.

Using the Keyboard

The following keys are used to operate the RAID BIOS

|	
Up-arrow key	Selects the menu item.
Down-arrow key	
Esc key	Returns to the previous menu screen.
Enter key	Executes the selected menu item.
Ctrl+E key	Exits the RAID BIOS and reboots the system.

GUI Utility

You can configure settings on RAID with the GUI Utility.

Staring up the GUI Utility

The GUI utility automatically starts up when the IR-700 starts up. Click the tray icon on the lower right screen.

The GUI utility screen appears.

Device screen

Information screen
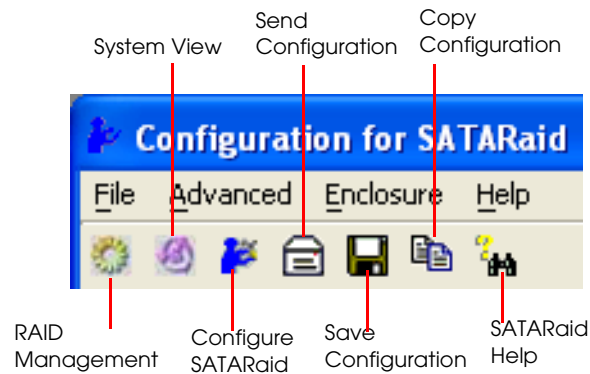
Event viewer screen   Event screen
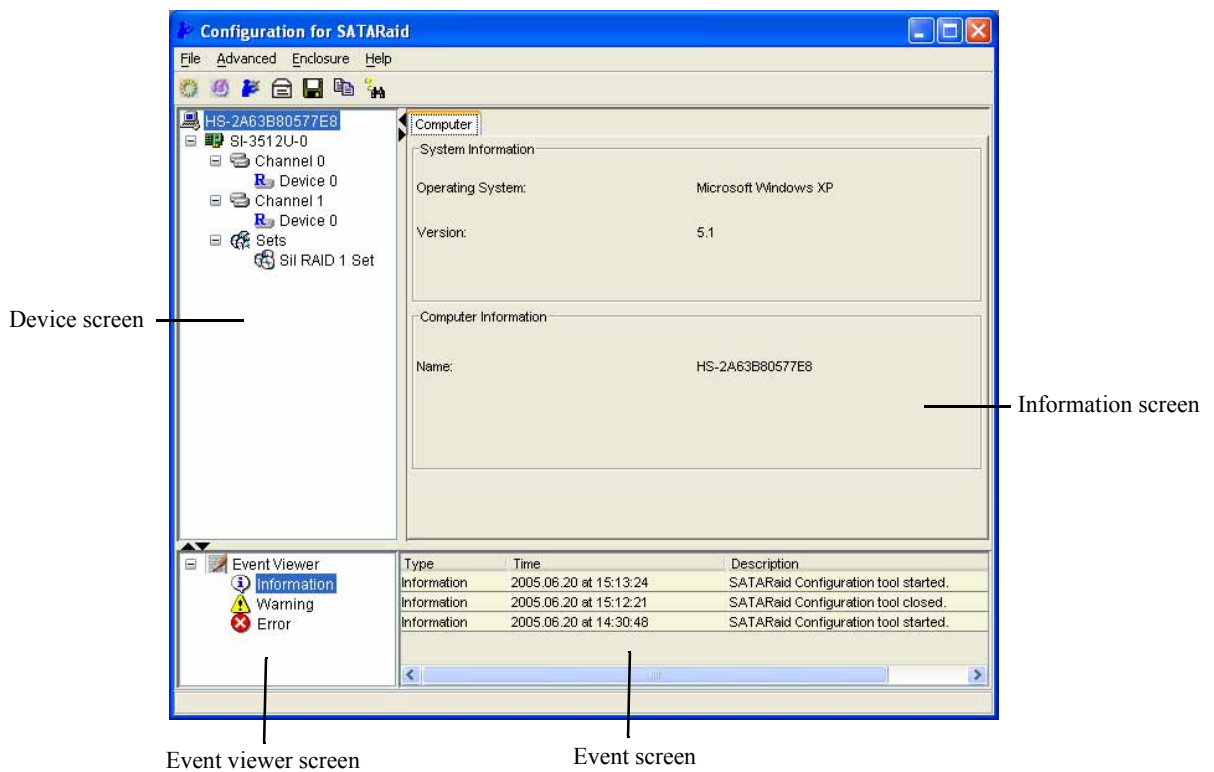
When you exit the GUI utility and then start up again, select [Start], [All Programs], and then [Java SATARaid]. Then, click the tray icon on the lower right screen.

How to Operate the GUI Utility

Toolbar

The GUI utility menu bar has the following 7 icons:

RAID Management :   Not used.

System View :   Displays detailed information on Host Adapter and RAID set.

Configure SATARaid :   Configures settings for event notification, e-mail notification, log file, audio, and popup message.

Send Configuration :   E-mails configuration information.

Save Configuration :   Saves configuration.

Copy Configuration :   Not used.

SATARaid Help :   Displays a help screen.

On e-mail function

When any event occurs, e-mails containing the event log and with a title to identify the event are sent.
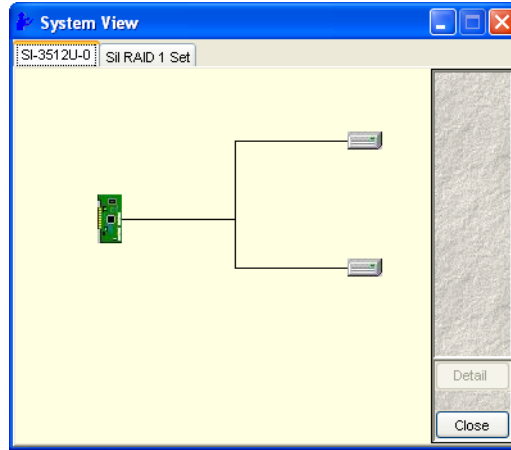
E-mails of Send Configuration are sent with a mail header and all data that can be viewed by System View.
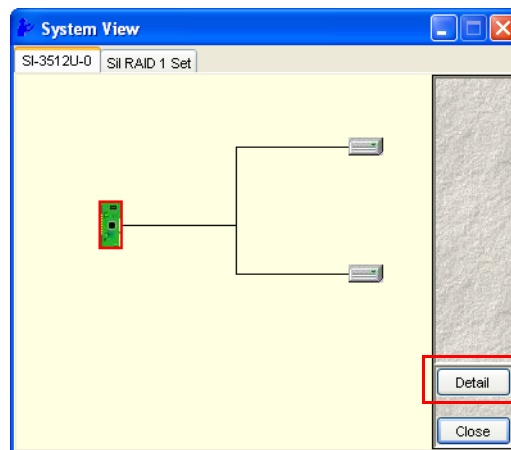
RAID Management

Establishment or deletion of RAID is performed with BIOS. Do not use this icon.

System View

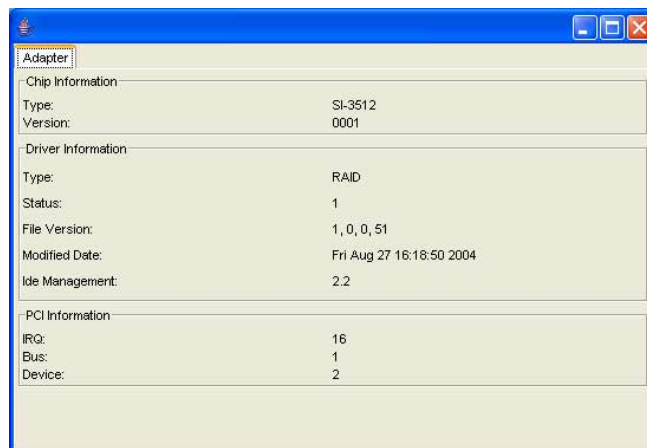Information on Host Adapter and RAID Set can be displayed. In the menu bar, click **System view** to display the System view screen.

When you need Adapter information, click the Adapter, and then click **Detail**.

The following screen appears. The Adapter information is displayed.

When you need Device information, select the Device, and then click **Detail**.
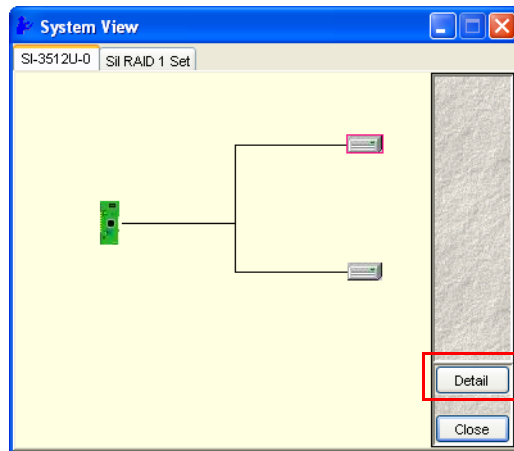
The device screen appears. The Device information is displayed.
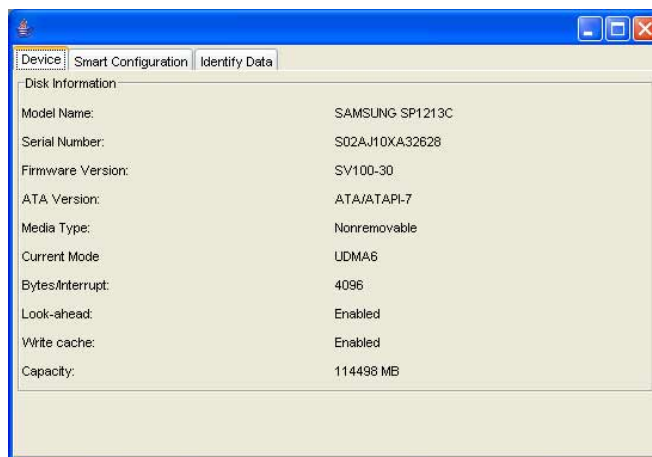
On the device screen, click the **Smart Configuration** tab to display the S.M.A.R.T information. On this screen, you can configure settings for Transfer Mode and Write Cache.
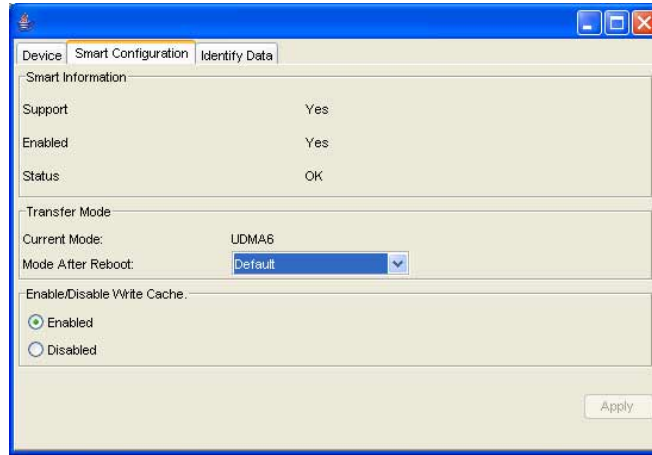
On the device screen, click the **Identify Data** tab to display the identify information.

Configure SATARaid

You can configure settings for event notification, e-mail notification, log file, audio, and popup message.

In the menu bar, click **SATARaid Configuration** to display the Configuration screen.
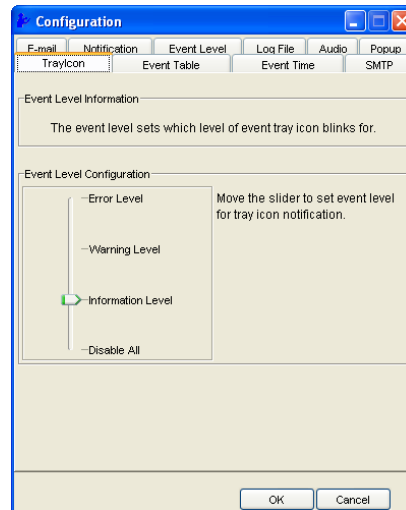
❏ TrayIcon

You can set the SATARaid icon in the task tray to flash when an event occurs. Click **TrayIcon** on the Configuration screen to display the following screen. Slide the bar to set the Event Level.
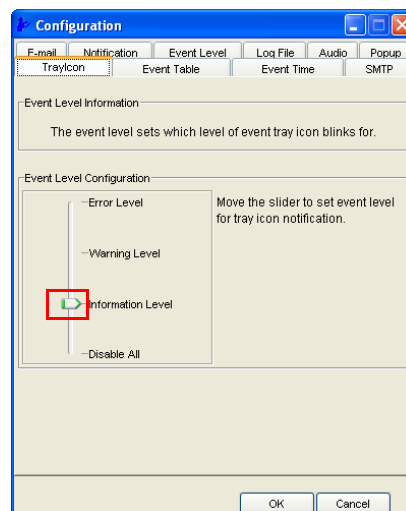
Event Level settings are as follows:

Setting	Description
Error Level	Flashes the tray icon when a critical error is caused by HDD failure.
Warning Level	Flashes the tray icon when an event such as HDD removal occurs.
Information Level	Flashes the tray icon when an event such as HDD rebuilding occurs.
Disable All	Does not flash the tray icon.

The tray icon flashes, depending on the Event Level setting.
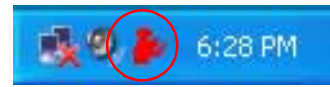
Normal status   When an event occurs

❏   Event Table

Click the **Event Table** tab on the Configuration screen to display the following screen. Slide the bar to set the Event Level.
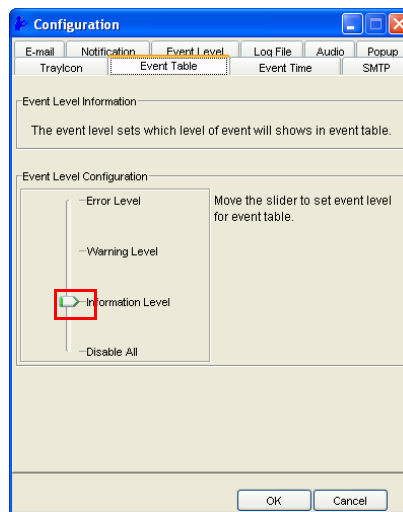
Event Level settings are as follows:

Setting	Description
Error Level	Creates an event log when a critical error is caused by HDD failure.
Warning Level	Creates an event log when an event such as HDD removal occurs.
Information Level	Creates an event log when an event such as HDD rebuilding occurs.
Disable All	Does not create event logs.

Event logs are created, depending on the Event Level setting, and they are displayed in the event window.
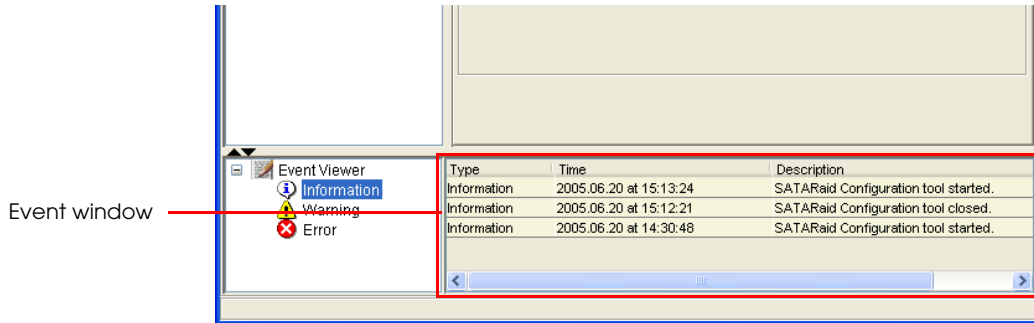
Event window

✎ *NOTE*

The event logs created here are for events in the GUI utility, and event logs for Windows are not created.

❏ Event Time

Sets the timing to monitor the RAID status by the GUI utility.

Click the **Event Time** tab on the Configuration screen to display the following screen.
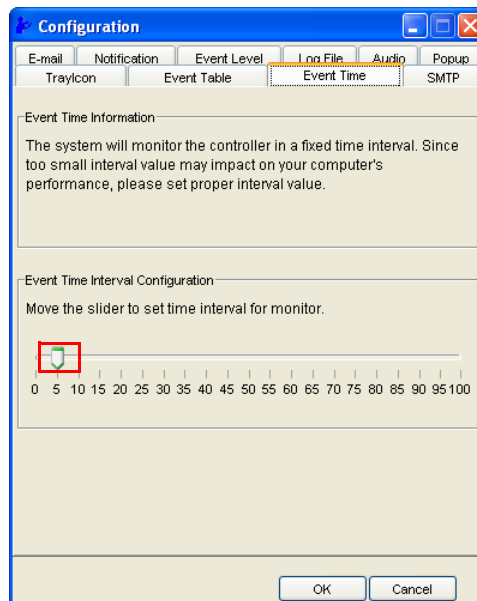
✎ *NOTE*

The number of the "Event Time Interval Configuration" indicates the number of seconds.

The default setting is "5."

❏ SMTP

Click the **SMTP** tab on the Configuration screen to display the following screen. Set the SMTP server to send e-mails.
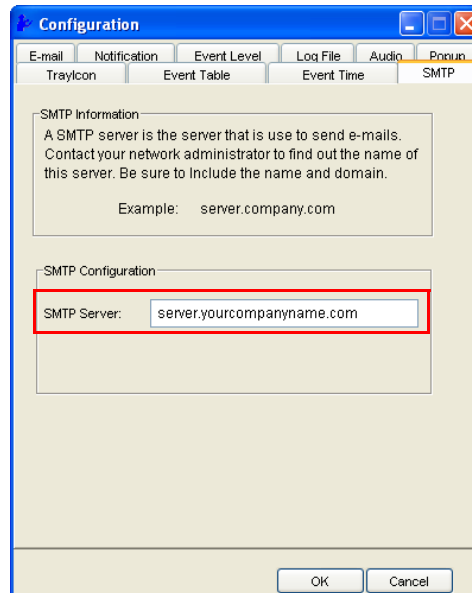
❏ E-mail

Click the **E-mail** tab on the Configuration screen to display the following screen. Specify the e-mail address of the system administrator and subject to send e-mails when events occur.
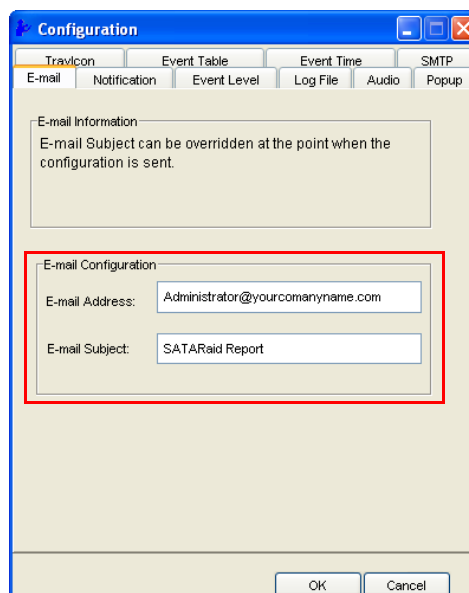
❏ Notification

Click the **Notification** tab on the Configuration screen to display the following screen. Specify the e-mail addresses and subject to send e-mails when events occur.
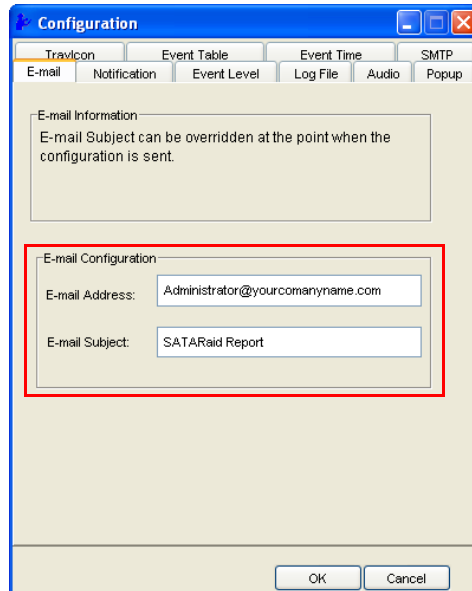
❏ Event Level

Click the **Event Level** tab on the Configuration screen to display the following screen. Slide the bar to set the Event Level.
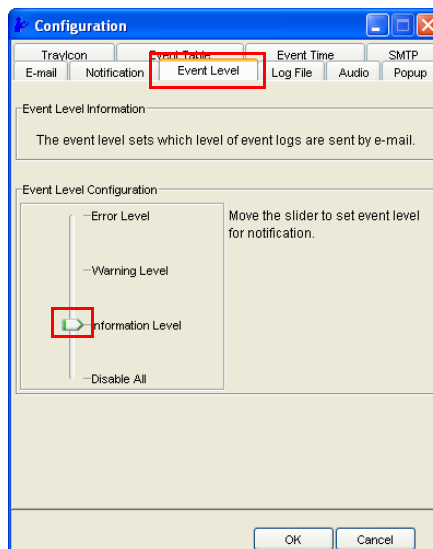
Event Levels are set as follows:

Setting	Description
Error Level	Sends e-mail when a critical error is caused by HDD failure.
Warning Level	Sends e-mail when an event such as HDD removal occurs.
Information Level	Sends e-mail when an event such as HDD rebuilding occurs.
Disable All	Does not send e-mails.

E-mails are sent to the addresses set on the **Notification** tab, depending on the Event Level setting.

❏ Log File

Click the **Log File** tab on the Configuration screen to display the following screen. The log file is used to store events received from all the Silicon Image IDE RAID drivers.
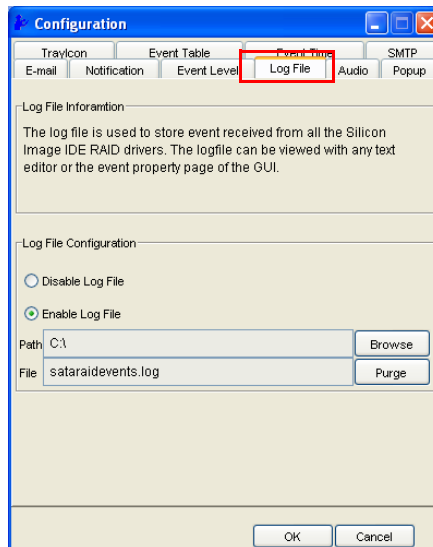
Follow the steps below to store event logs.

1. Set the Log File Configuration to Enable Log File.
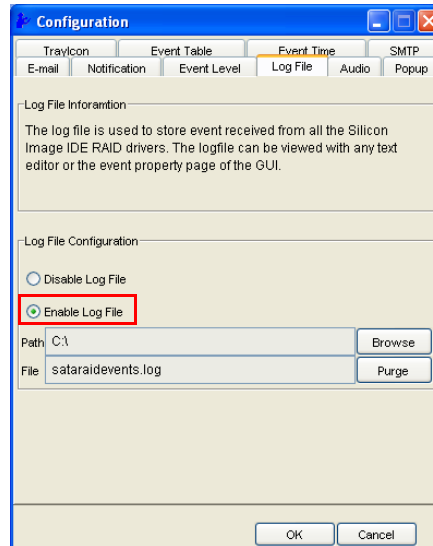
2. Specify the location to store the file and file name, and click **OK**.
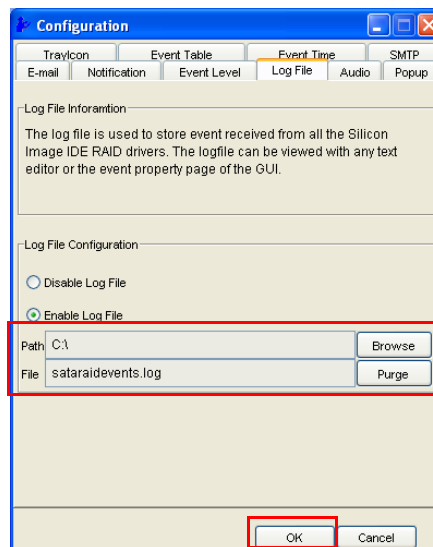
If Pure is clicked, the contents preserved in the log file are copied into the newly created text file, and the log file is cleared.

❑ Audio

Click the **Audio** tab on the Configuration screen to display the following screen. Set the sound when events occur.
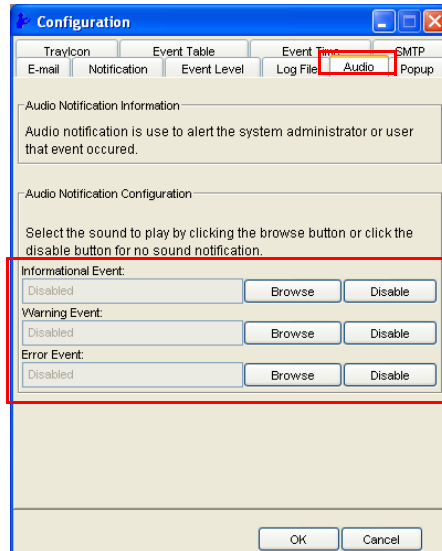
On the **Audio** tab, you can configure on/off and tone setting of sound for each event.
Click **Browse** to specify sound source files.
Click **Disable** to disable sounds.

| Setting	Description
Information Event	Sounds when an event such as HDD rebuilding occurs.
Warning Event	Sounds when an event such as HDD removal occurs.
Error Event	Sounds when a critical error is caused by HDD failure.

❏ Popup

Click the **Popup** tab on the Configuration screen to display the following screen. Slide the bar to set the Event Level. Use the RAID Event Watch tool to display the popup menu.
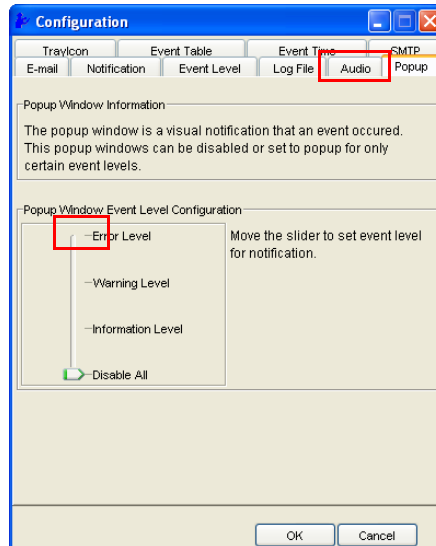
Popup windows are displayed, depending on the Event Level setting.

Event Levels are set as follows:

Setting	Description
Error Level	Displays a popup message when a critical error is caused by HDD failure.
Warning Level	Displays a popup message when an event such as HDD removal occurs.
Information Level	Displays a popup message when an event such as HDD rebuilding occurs.
Disable All	Does not display popup messages.

Send Configuration

You can send the SATARaid setting to the other e-mail address.

In the menu bar, click **Send Configuration** to display the Send Configuration screen. Specify the e-mail server to SMTP and e-mail address to To.
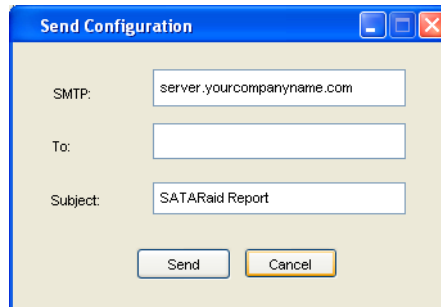
Save Configuration

Saves the contents of "SATARaid Configuration." In the menu bar, click **Save Configuration** to display the Save Configuration screen.
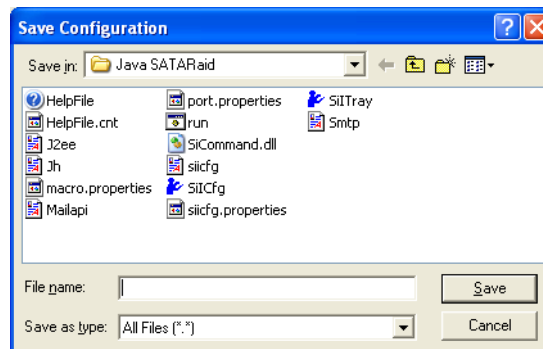
Specify the file name, and click **Save**.

SATARaid Help

You can display the help screen to use the help function. In the menu bar, click **SATARaid Help** to display the Help Topics screen.
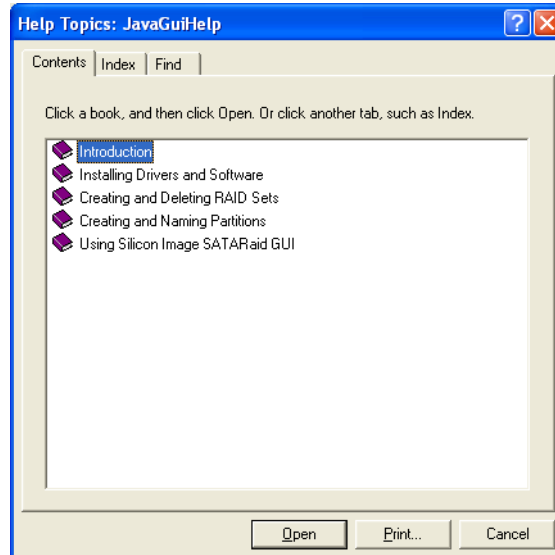
Device/Information window

Devices are displayed in a tree view. Select a component displayed in the tree to display information on it.
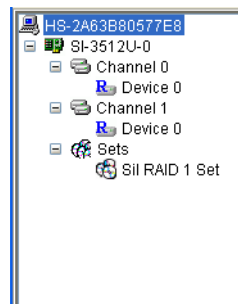
System (Computer) information

When you select a system, the system information of the IR-700 is displayed.
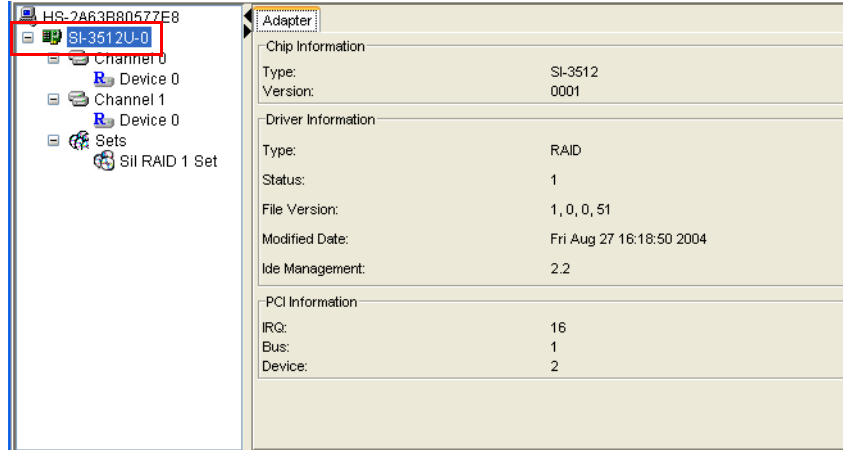
Adapter information

When you select an Adapter, the adapter information is displayed. You can obtain the same information with the System view. (See page page 7-39.)
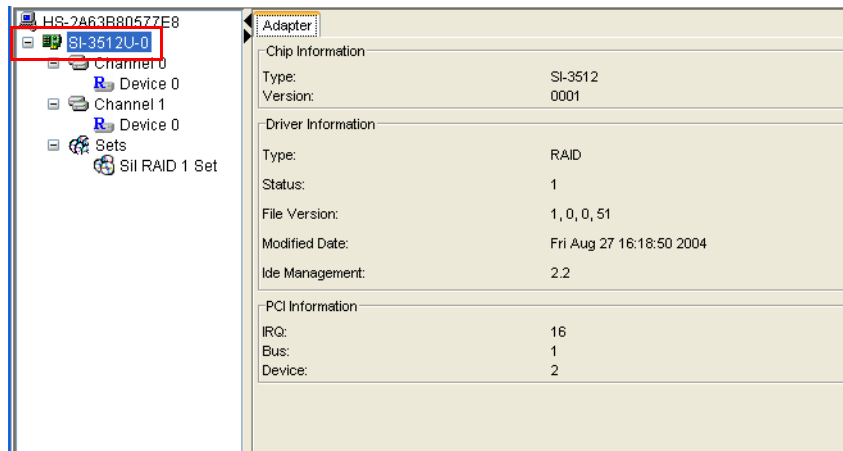
Channel information

When you select a channel, the information on the channels 0 or 1 is displayed.
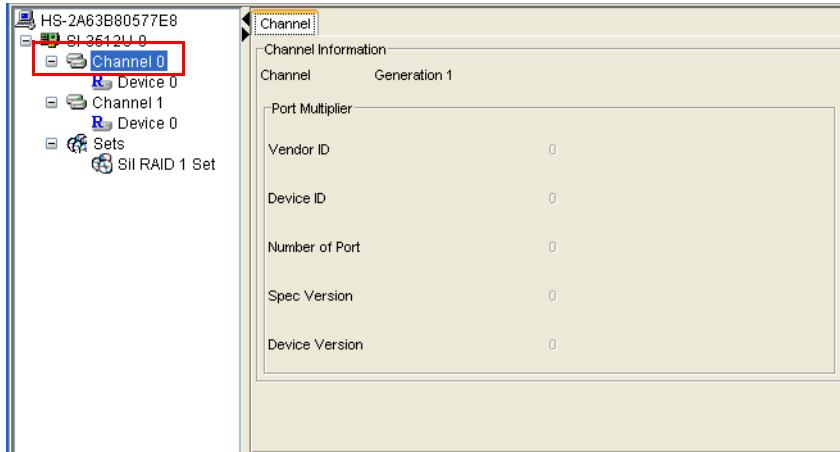
Device Information

When you select a device, the device information is displayed. You can obtain the same information with the System view. (See page page 7-39.)
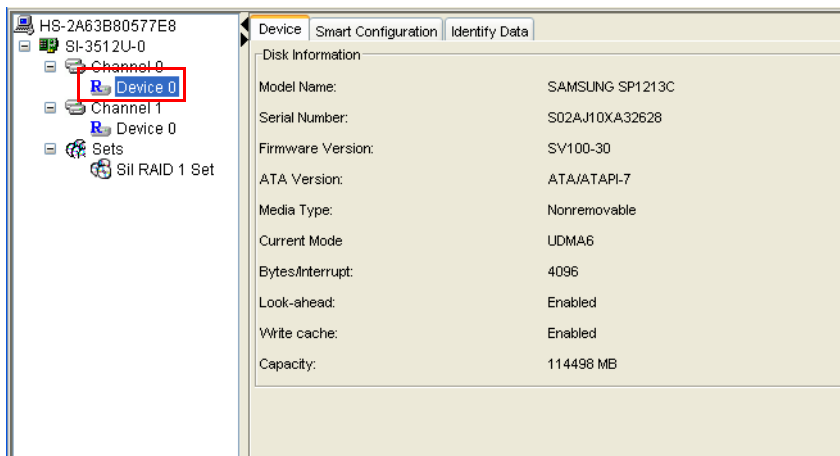
Sets (RAID Set Control) Information

When you select a RAID set control, the RAID set control information is displayed.
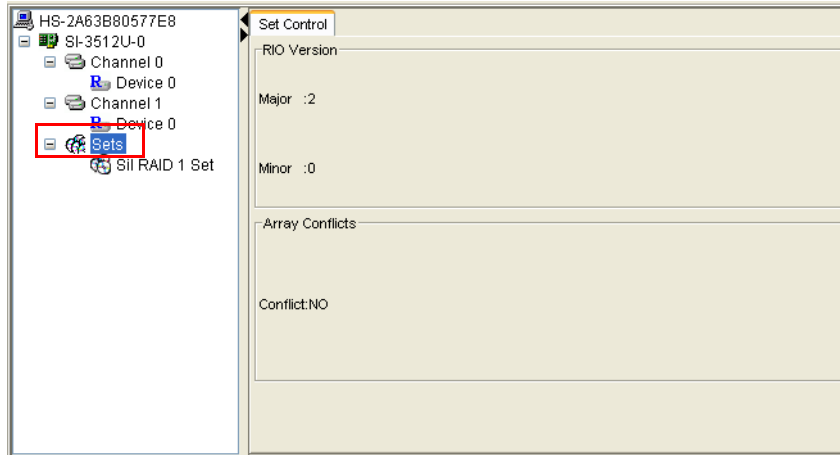
RAID Set Information

When you select a RAID set, the RAID set information is displayed.
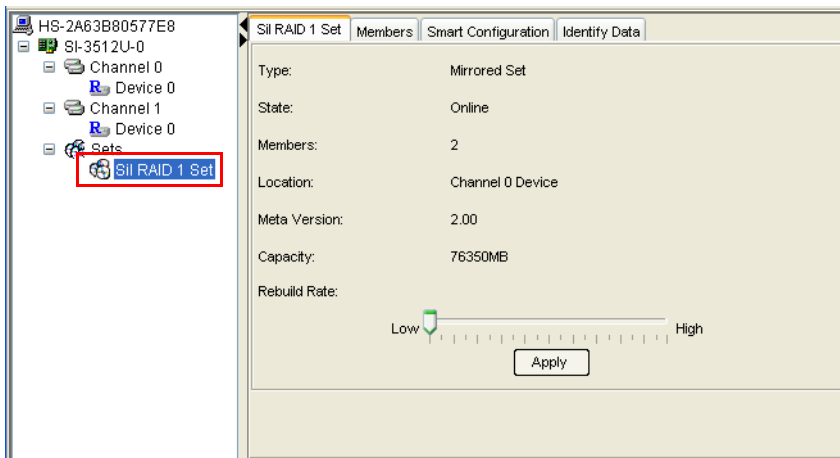
Sil RAID 1 Set tab

Displays the type and capacity of the RAID. Also, you can change the RAID rebuild rate.
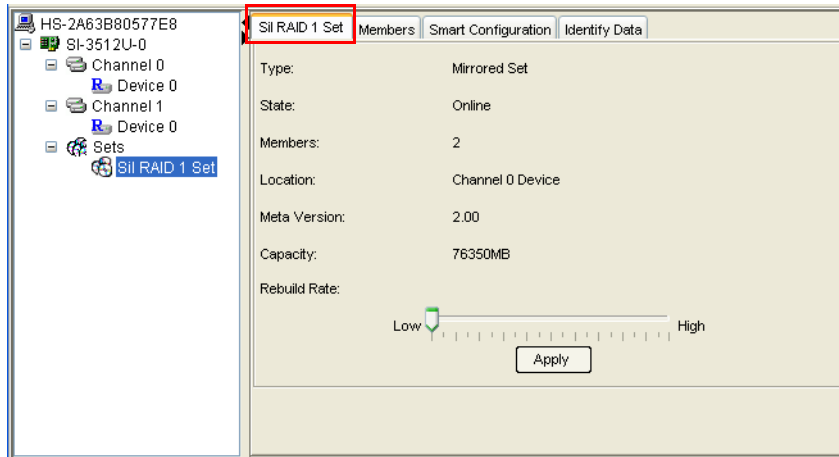
Follow the steps below to change the RAID rebuild rate.

Slide the rebuild rate bar to change the RAID rebuild rate, and click **Apply**.

Members tab

Displays the RAID status of the hard disk drives.

Hard disk drives that are not connected or not RAID established are not displayed.

The meanings of the items displayed on the screen are as follows:

❏ *MbrIdx*   *Logical device   Mirror0:   Primary device*
                  Mirror1;   Secondary device

❏ *Dev Loc*   *Physical device Channel0:   Right side hard disk drive*
                  Channel;   Left side hard disk drive

❏ *State*   *RAID statusCurrent: Normal*
                  Rebuild;   Rebuilding the array
                  Dropped;   Hard disk drive failure

❏ *Current*   *The system is operating normally*

❏ *Rebuild*   *The RAID array is now being built*

❏ *Dropped*   *The hard disk drive is at fault*

❏ *The rebuilding status is displayed as shown below.*

Mbr Idx	Dev Loc	State	Rebuild
Mirror0	Channel1	Rebuild	43%
Mirror1	Channel0	Current	0%

You can configure settings for Smart information and automatic rebuild. Enable HotSpare Auto Rebuild setting for automatic rebuild.
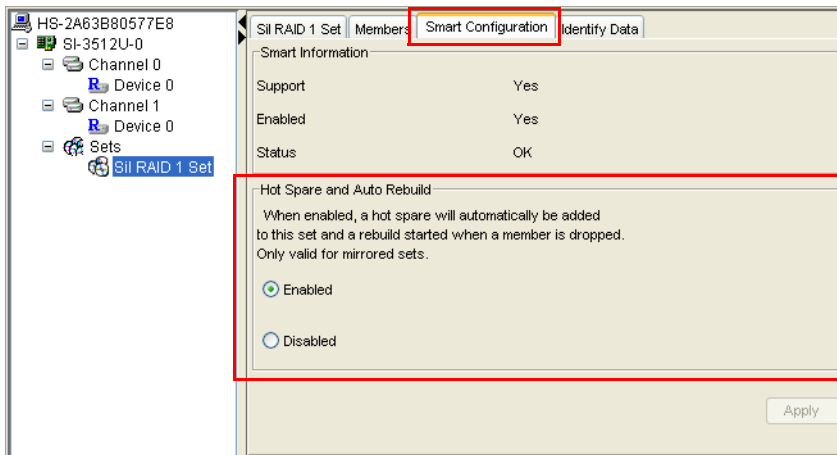
Identify Data tab
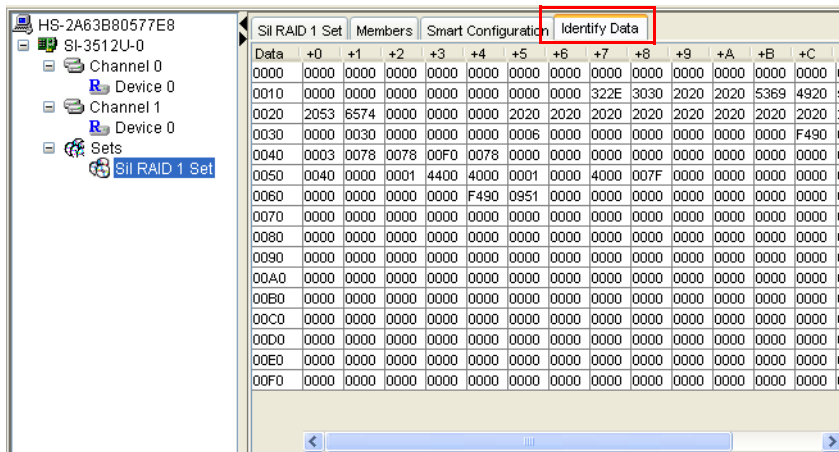
Event viewer

Displays events that have occurred.
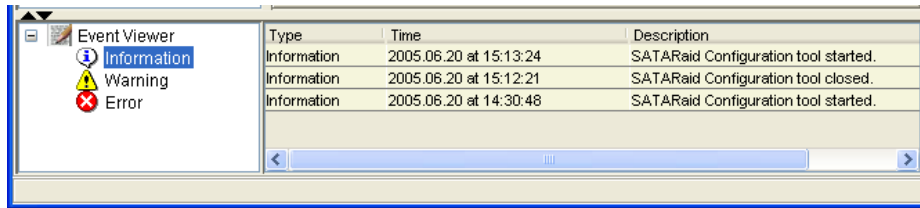
RAID Event Watch Tool

The RAID Event Watch tool detects events of the GUI utility, displays a popup menu in front of an application, and creates event logs for Windows.

Monitors events of the GUI utility and displays popup messages. Also notifies events of the GUI utility as event logs for Windows.

✎ *Note:*
Set the popup setting for the GUI utility to "Disable ALL."
The tool does not operate when the GUI utility is not running.

Setting and rewriting registry for EPSWatchRAIDevt.reg

The RAID Event Watch tool has a function to create event logs for Windows. To use this function, it is required to set a path with EPSWatchRAIDevt.reg and rewrite the registry.

Follow the steps below to perform the setting.

1. Select **EPSWatchRAIDevt.reg**. It is registered in the following directory by default.

   C:\Backup\SATARAID\Tool

2. Right-click **EPSWatchRAIDevt.reg**, and select **Edit** to open EPSWatchRAIDevt.reg.

3. Enter the path name before EPSWatchRAIDevt.exe after ""CategoryMessageFile"=" and ""EventMessageFile"=."

Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application\EPSWatchRAIDevt]

"TypesSupported"=dword:00000007

"CategoryCount"=dword:00000001

"CategoryMessageFile"="Path name"

"EventMessageFile"="Path name"

Example:)
"CategoryMessageFile"="c:\\backup\\sataraid\\tool\\epswatchraidevt.exe"
"EventMessageFile"="c:\\backup\\sataraid\\tool\\epswatchraidevt.exe"

4. Save the change and close the text.

5. Execute EPSWatchRAIDevt.reg to rewrite the registry.

Startup

The RAID Event Watch tool is registered in the directory that is specified when installed. It is registered in the following directory by default.

`C:\Backup\SATARAID\Tool`

Double-click **EPSWatchRAIDevt.exe** to start it. When the RAID Event Watch tool starts up, an icon appears in the task tray.

✎ *Note:*
If you create a shortcut to EPSWatchRAIDevt.exe and register it for the startup, the RAID Event Watch tool automatically starts up when Windows starts up.

Setting

Set the operation conditions for the RAID Event Watch tool with EPSWatchRAIDevt.ini file. It is registered in the following directory by default.

`C:\Backup\SATARAID\Tool`

Open the EPSWatchRAIDevt.ini file and perform the setting.

The initial values of EPSWatchRAIDevt.ini are as follows.

```
[General]
TrayIcon=Enable
BackTrace=Disable
NoDisk="Please contact system administrator."
CheckDiskTIimer=5
CheckGUICount=5
CheckGUIInterval=10
```
Setting when the RAID Event Watch tool starts up.

```
[Error]
Message = "Please contact system administrator."
Beep = 0
```
Setting when an error event is detected.

```
[Warning]
Message=
Beep = 0
```
Setting when a warning event is detected.

```
[Information]
Message=
Beep = 0
```
Setting when an information event is detected.

```
[Description]
Description0=
Message0=
Beep0=
```
Setting for each description of event log file

```
[Launcher]
Launch="None"
ErrorLaunch="None"
InterruptMessage1=
InterruptMessage2=
InterruptMessage3=
InterruptMessage4="Please contact system administrator."
```
Setting when an error is detected during an automatic startup program starts up.

❏ Overall setting

Specify the operation conditions for the RAID Event Watch tool. This section can specify the following parameters.

Command	Default value	Value	Function
TrayIcon	Enabled	Enabled	Displays the icon of the RAID Event Watch tool in the task tray.
		Disabled	Does not display the icon in the task tray.
BackTrace	Disabled	Enabled	Traces back event log files of the GUI utility and detects unsolved errors when an program starts up.
		Disabled	Does not trace back event log files when an program starts up, but detects from newly created events.
NoDisk	"Please contact system administrator."	"Message"	Specifies the message displayed when only one of two HDDs can be detected and started up.
CheckDiskTimer	5	0	Does not check connected drives periodically.
		1-24	Checks connected drives every specified hours. (Specify by hour.)
CheckGUICount	5	0	Does not check whether the GUI utility is running.
		1-20	Specifies the number of times to check whether the GUI utility is running. (Specify the monitoring interval with CheckGUI Interval.)
CheckGUIInterval	10	10-30	Checks whether the GUI utility is running at the specified intervals. (Specify by second. Specify the monitoring time with CheckGUICount.)

❏ Setting when an error event is detected

Perform the setting for the case when an error event is recorded for GUI utility event log.
This section can specify the following parameters.。

Command	Default value	Value	Function
Message	"Please contact system administrator."	Message	Specifies the text for the popup message.
		Original	Displays the description of an event log file.
Beep	0	0	No beep
		-1	Standard beep from a computer speaker
		MB_ICONASTERISK	Message (Information)
		MB_ICONEXCLAMATION	Message (Warning)
		MB_ICONHAND	System error
		MB_ICONQUESTION	Message (Inquiry)
		MB_OK	Standard warning beep

❏ Setting when a warning event is detected

Perform the setting for the case when a warning event is recorded for the GUI utility event log. This section can specify the following parameters.

Command	Default value	Value	Function
Message	Blank	"Message"	Specifies the text for the popup message.
		Original	Displays the description of an event log file.
Beep	0	0	No beep
		-1	Standard beep from a computer speaker
		MB_ICONASTERISK	Message (Information)
		MB_ICONEXCLAMATION	Message (Warning)
		MB_ICONHAND	System error
		MB_ICONQUESTION	Message (Inquiry)
		MB_OK	Standard warning beep

❏ Setting when an information event is detected

Perform the setting for the case when an information event is recorded for the GUI utility event log.
This section can specify the following parameters.

Command	Default value	Value	Function
Message	Blank	Message	Specifies the text for the popup message.
		Original	Displays the description of an event log file.
Beep	0	0	No beep
		-1	Standard beep from a computer speaker
		MB_ICONASTERISK	Message (Information)
		MB_ICONEXCLAMATION	Message (Warning)
		MB_ICONHAND	System error
		MB_ICONQUESTION	Message (Inquiry)
		MB_OK	Standard warning beep

❑ Setting for each description

Specify the operation when a specified description is recorded for the GUI utility event log. Different operations are possible for each specified description.

The event log file of the GUI utility is C:\sataraidevents.log. The event log file name and folder can be changed with the GUI utility. (See.)

The event specified by this section is executed in priority to the specifications of error/warning/information described above, and they are ignored.

Up to 256 types of setting are possible for this section.

This section can specify the following parameters.

Command	Default value	Value	Function
DescriptionN*	Blank	"Message"	Specifies the message displayed when the GUI utility records an event for event logs.(Description of Sataridevents.log: contents described for the rest)
MessageN*	Blank	"Message"	Specifies the message displayed when the GUI utility records an event specified with DescriptionN for event logs.
BeepN*	0	0	No beep
		-1	Standard beep from a computer speaker
		MB_ICONASTERISK	Message (Information)
		MB_ICONEXCLAMATION	Message (Warning)
		MB_ICONHAND	System error
		MB_ICONQUESTION	Message (Inquiry)
		MB_OK	Standard warning beep

* Use DescriptionN, MessageN, BeepN in a set. The N must be the same number.
  The N can be any number between 0 and 255.

Setting example

Time: 2005.09.10 at 14:19:56 Controller ID: 1 SeqNumber: 0 Severity: 3
Description: Member dropped. Set 0 dropped Channel 1 device on adapter 1 due to
a port error. SRB status was Device Selection Timed Out.

Time: 2005.09.10 at 14:20:56 Controller ID: 1 SeqNumber: 0 Severity: 3
Description: Member dropped. Set 0 dropped Channel 0 device on adapter 1 due to
a port error. SRB status was Device Selection Timed Out.

————Event log file

[Description]
Description0=Member dropped. Set 0 dropped Channel 1 device on adapter
1 due to a port error. SRB status was Device Selection Timed Out..
Message0="This is operating with the left HDD."
Beep0=-1

Description1=Member dropped. Set 0 dropped Channe0 1 device on adapter
1 due to a port error. SRB status was Device Selection Timed Out.
Message1="This is operating with the right HDD."
Beep1=-1

Description1=

——— EPSWatchRAIDevt.ini file

❏ Setting for message displayed when an error is detected while an automatic startup program is running.

Confirms whether an error is recorded for the GUI utility event log file when the RAID Event Watch tool starts up, and set the later operation.

The flowchart of startup is as follows.
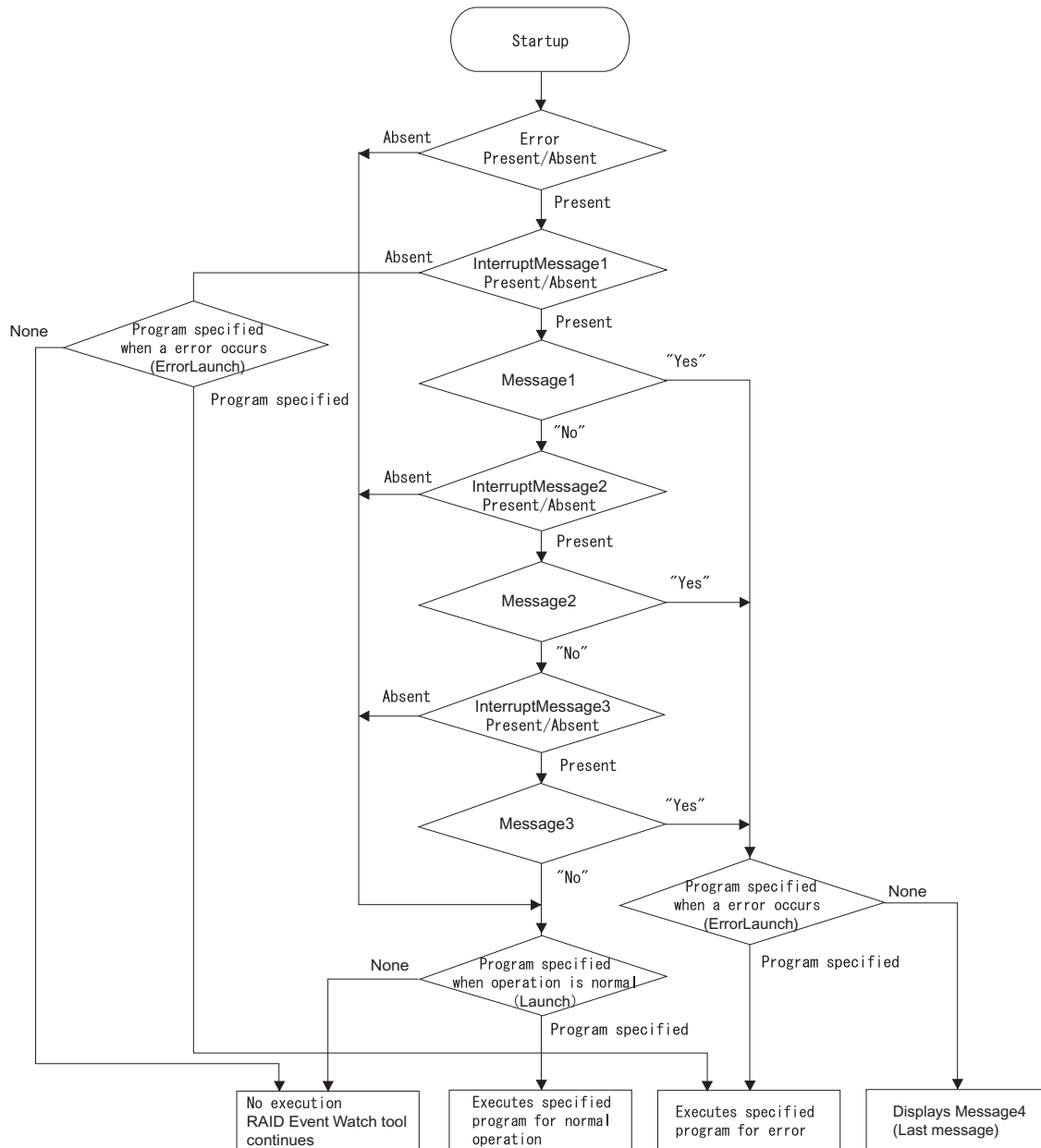
Selection results for the Messages 1, 2, and 3 are recorded for Windows event logs.
If Message 4 is not defined, the default message, "Please contact system administrator." is displayed.

This section can specify the following parameters.

Command	Default value	Value	Function
Launch	None	None	No execution
		Execution file name	Specifies the application to be executed next with a full path when no error occurs while this program is starting up.
ErrorLaunch	None	None	No execution
		Execution file name	Specifies the application to be executed next with a full path when an error occurs while this program is starting up.
InterruptMessage1	Blank	"Message"	Specifies the message to be displayed when an error occurs while this program is starting up. (No execution, if no message is specified.)
InterruptMessage2	Blank	"Message"	Specifies the message to be displayed after the InterruptMessage1. (No execution, if no message is specified.)
InterruptMessage3	Blank	"Message"	Specifies the message to be displayed after the InterruptMessage2. (No execution, if no message is specified.)
InterruptMessage4	"Please contact system administrator."	"Message"	Specifies the last message to be displayed after the InterruptMessage1, 2, and 3. (No execution, if no message is specified.)

The following usages are possible.

- When no error occurs, a normal program automatically starts up. When an error occurs, a special program for error occurrence automatically starts up. No message is displayed.

  The InterruptMessage1 is blank. The normal program is written for the Launch. The special program for error occurrence is written for the ErrorLaunch.

- When an error occurs, a message is displayed and a special program for error occurrence starts up. When no error occurs, a normal program automatically starts up.

  Message A is written for the InterruptMessage1. The normal program is written for the Launch. The special program for error occurrence is written for the ErrorLaunch.

- When an error occurs, a message is displayed and a program is stopped.

- Message A is written for the InterruptMessage1. Message B is written for the InterruptMessage4.
  When an error occurs a popup message, the "Message A" is displayed. If you select "Yes," a popup message, the "Message B" is displayed and the program is stopped. If you select "No," the normal operation starts up. When the RAID Event Watch tool is rebooted, this message disappears.

Appendix-A
Hardware Specifications

This chapter explains the hardware specifications of the IR-700.

System Diagram

The block diagram of the IR-700 is as follows.

```
LCD/Touch Monitor

MSR — 28Key — MSR Board

                    LCD POS        Touch Panel
                    Board
                                   Inverter      LCD
Receipt Printer                    Board

              LED Board
```

```
                                                  Main PC Unit

HDD Board    Front Riser Board    Main Board    PCI Riser Board

HDD (SATA)   Power Switch | Front USB                    PCI slot | PCI slot
HDD (SATA)   Reset Switch | Speaker Volume
                                         CPU Cooler
                                         CPU
             Power Supply Unit           DIMM

                              External Interface
```

—————— Connect to Cable
▭ Connect to Connector
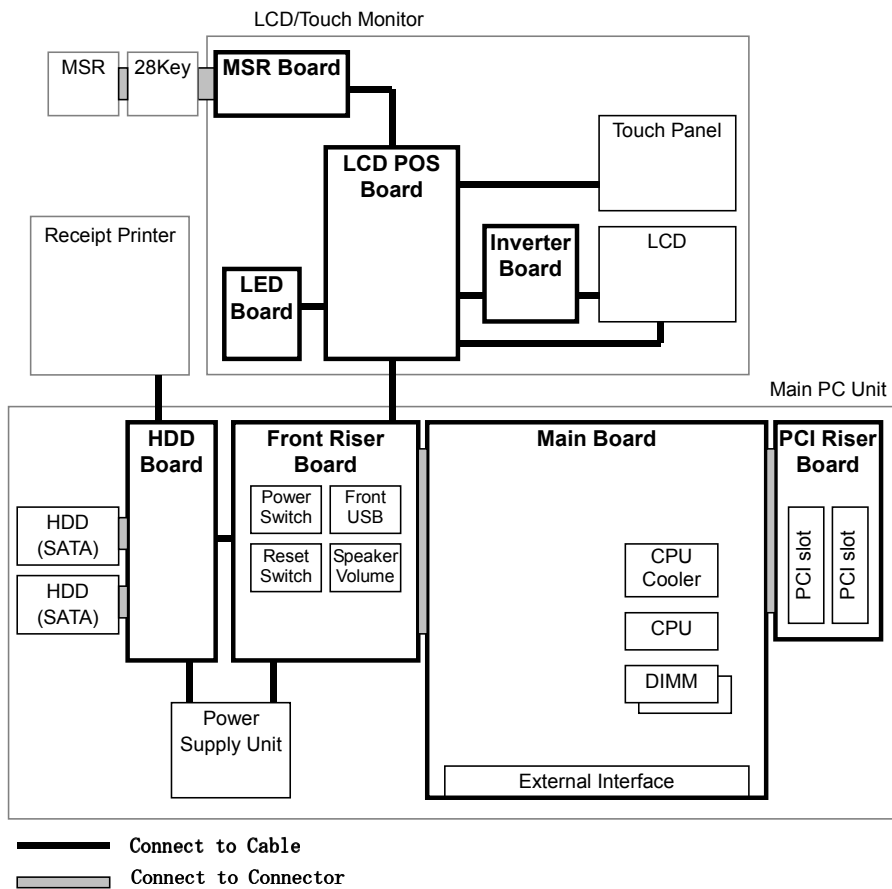
System Memory

A 1 MB flash ROM is mounted on the IR-700 as the system ROM. After the BIOS is booted, the system BIOS resides in the 64 KB area between 0F0000h and 0FFFFFh, and the video BIOS resides in the 44 KB area (40 KB for the IR-300) between 0C0000h and 0CBFFFh. The area between 0A0000h and 0FFFFFh in the system memory (main DRAM) is used for the shadow memory and system management memory (SMM). The figure below is a system memory map.

Address	Area	Description
	RAM	expanded memory area
100000h	system BIOS	system ROM area
0F0000h		
0E0000h		
0CB000h		expanded ROM area
0C0000h	video BIOS	
0B8000h	color	video buffer area
0B0000h	monochrome	
0A0000h	graphics	
	RAM	conventional memory area
000000h		
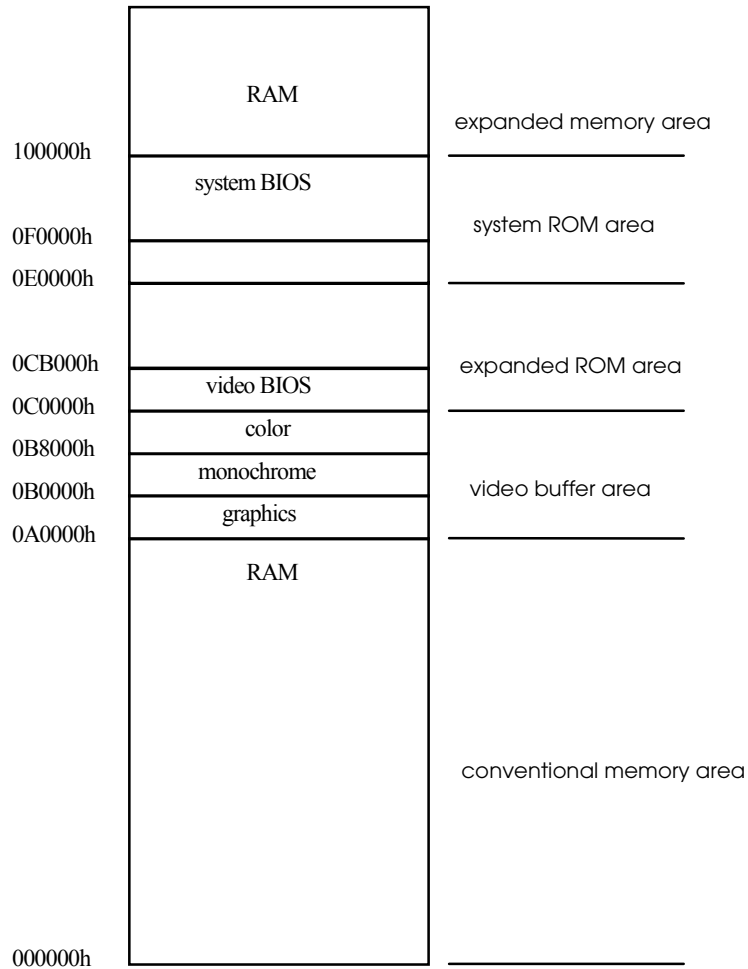
Figure 0-1 memory map

System Interrupts

The system connects 2 8259A-equivalent interrupt controllers in cascade and has 15 levels of interrupts, besides NMIs. The following table shows the application for each interrupt. Change the system interrupts with the BIOS setup program or Plug & Play function.

Assign COM5 and COM6 to interrupts not in use.

Table 5-3 System interrupts

Controller 1	Controller 2	Application	Changeable
IRQ0		Timer	NO
IRQ1		Keyboard	NO
IRQ2		Controller 2 cascade	NO
	IRQ8	RTC	NO
	IRQ9	ACPI	NO
	IRQ10	Serial port 4	OK
	IRQ11	Serial port 3	OK
	IRQ12	Mouse	*1
	IRQ13	Numerical operation coprocessor	NO
	IRQ14	IDE controller (primary)	*1
	IRQ15	IDE controller (secondary)	*1
IRQ3		Serial port 2	OK
IRQ4		Serial port 1	OK
IRQ5		Not used *2	OK
IRQ6		Not used *2	OK
IRQ7		Parallel port 1	OK
NMI		I/O error check	NO

*1 Changes are not possible when the device is in use, but can be cleared when not in use.

*2 PCI (for example, network) is automatically set through the detection of the unused interrupt level.

Hardware Specifications

CPU

Intel Pentium M or Celeron M (478pin socket) is used as the CPU. FSB is 400MHz.Be sure to use the CPU that we supplied or specified.

Memory (184pin DDR DIMM)

Two 184-pin DIMM sockets are available, and a maximum of 1 GB of memory can be mounted. Only DDR DRAM is supported. DIMM can be used by one unit. Two memories having different capacities can be used as well.

Be sure to use the DIMM that we supplied or specified.

SDRAM specification: Supports up to PC2700(DDR333).

Real-time Clock

The real-time clock (RTC) is built in the chipset (Intel 82801DA). The RTC has a clock function and CMOS RAM function, and is backed up by the built-in lithium primary battery even when the system is turned off.

CMOS RAM stores the system setting information such as the clock and power management settings. To clear CMOS RAM, turn the power off and short 2-3 of JP1601 on the main board.

To set the clock, use the BIOS Standard CMOS Features menu.

Clock precision: ±100 seconds per month.

Video Controller

The video controller in the chipset

The video memory uses the part of the main memory, and the color count settings shown below are possible for each resolution.

Dual display is available with Windows function. Another screen can be displayed on an external display as well as the LCD.

It has a screen stretching function. When the VGA screen is displayed on the LCD with SVGA or XGA, the screen in expanded to display without reducing the size.

POS Controller

The POS controller is built in the LCD unit. The POS controller sets and controls the touch panel, 28 Key POS keyboard, and MSR. It also stores the definition data of the 28 Key POS keyboard and MSR. The POS controller is connected with the IR-700 through an USB port and sends the input data from these devices to the IR-700 through it.

Before using the 28 Key POS keyboard, it is necessary to set the definition data in the POS controller. (Refer to Chapter 4 "28-key Definition Utility" for more information.)

To use the MSR or touch panel, it is not necessary to set the definition data in the POS controller. If any other settings are necessary, set them before use. (Refer to Chapter 4 "MSR Setting Utility" for more information.)

HDD

Up to two Serial ATA 3.5" HDDs can be installed. The rear structure of the system enables you to replace them easily.

The model with two HDDs can establish a RAID system to operate the system continuously and to improve security by preventing a data loss.

HDD capacity   80 GB or more

24 hour-continuous operation	Continuous operation cannot be recommended because it shortens the life of the product. When you must operate it continuously, stop the turning of the motor during the idle time by referring to "Appendix-B Operating the Product Continuously (24-hours/day)."

Audio

The mike input, stereo line out terminal, and monaural speaker are built in. Mike input, output from the system, and beep output from the system and MSR are available. The volume of the speaker can be adjusted with the speaker volume controller on the right or OS.

CF Slot

CF (CompactFlash) can be installed on Primary of the main board as an IDE device.

HDD is not an IDE device but an SATA device.

Serial Device

The IR-700 has four serial ports (COM1, COM2, COM5, COM6). Also, +5V or +12V can be output at the 1st pin by the Jumper setting of the main board. The serial ports COM3 and COM4 are internally used for the dedicated TM printer unit/customer display (COM3) and the touch panel (COM4). Also, the system can be started up by the ring signal from the 9th pin.

To use the serial ports COM5 and COM6, it is necessary to set other unused devices (for example, parallel) to disabled (not used) using the BIOS setup and then allocate interrupts for the serial ports COM5 and COM6.

✎ *Note:*
COM3 (printer unit) and COM4 (customer display) cannot be used because they are internally dedicated for IR-700.

PCI Slots

The PCI of the IR-700 has the following features:

❑ Two PCI cards can be mounted.

- +3.3 V power supply

- Mountable PCI card size

The PCI cards within the dimensional range as shown in the following figure can be mounted.

167.64mm{4.8"} or less

Parts Side

106.68mm {4.18"} or less
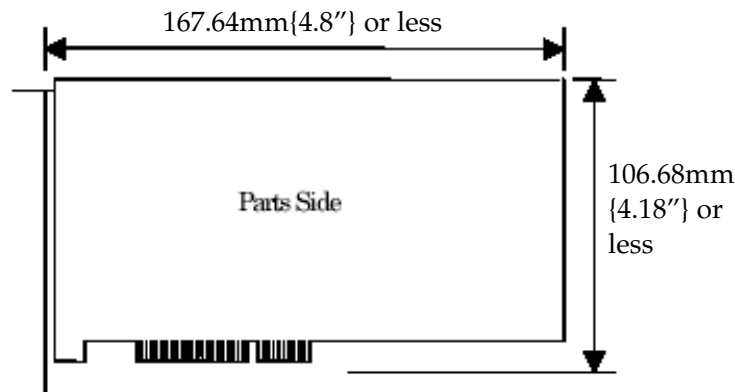
Printer

EPSON thermal printer TM-T88IIIX is installed. It is an advanced and reliable printer.

The printer is controlled by Windows driver APD (EPSON Advanced Printer Driver), OPOS, ESC/POS command, etc.

For more information about the printer, refer to [TM-T88IIIX Technical Reference Manual].

Drawer

It is connected on the drawer connector of the printer unit, and controlled via the printer. A three-terminal regulator is built in the printer for current limiting.

Ethernet Controller

The Ethernet controller is built in the Chipset (Intel ICH4). This enables operation at 10 Mbps and 100 Mbps and wakeup from the LAN.

To enable the wakeup, set Resume by OnBoard LAN to Enable with the BIOS Power menu.

The operating status of LAN can be confirmed by the LED of the Ethernet connector.

The controller can be disabled by setting OnBoard LAN of the Chipset menu in the BIOS to Disabled. (Refer to Chapter [BIOS] for more information.)

The MAC address specific to each controller is described on the seal attached to the main board (remove the side panel which is on the left side of the unit). For Windows 2000/XP/WEPOS, the MAC address can be obtained by using the following command:

```
ipconfig/all
```

⚠ *CAUTION:*

If connection is made directly from an outdoor, overhead LAN cable, the connected equipment may be damaged by lightning. When connecting to such a cable, the connection should be routed through a device to counter the surge; otherwise, do not use the connection.

Dual Display

On the IR-700, you can add an additional external monitor, besides the LCD, to display the same or different contents (such as an enlargement of the work area).

When a monitor is added, the same content is usually displayed on both monitors.

Electrical Specifications

Input Specification

Input voltage	AC 100 - 240 V(+-10%)
Frequency (rating)	50-60 Hz
Input current	4A

Protection Circuit/Unit

When the protection circuit is activated, it automatically shuts off the power. If recovery is possible, turn off the main power switch, wait for more than 2 minutes, and then turn on the main power switch.

❑ Short-circuit protection:
  Shuts down the system when the output terminal (output power supply) is short-circuited. Recovery is possible.

❑ Over-voltage protection:
  Protection circuit to prevent the output terminals from exceeding the rated voltage. Recovery is possible.

❑ Overheating protection:
  Shuts down the system when excessive heat is detected in some element within the power supply unit. Recovery is possible.

❑ Input power fuse:
  Shuts down the system when the input current exceeds the specified value. Trouble within the power supply unit is possible. If the fuse has blown, the whole power supply unit should be replaced. Recovery is impossible.

Electrical Capacity to External Devices

The total power capacities available to the devices that receive power supply from the board inserted into the PCI slot; the serial ports COM1, COM2, COM5, and COM6; the keyboard/mouse; and the USB port are shown below. Be sure the current consumptions do not exceed the total power capacities listed below as to the voltages 5 V, +3.3 V, +12 V, -12 V, and +24 V.

Table 5-6 External power capacity

Power supply	Use	Total capacity
DC+5V	PCI slot, COM port, Keyboard, Mouse, USB	3.0A
DC+3.3V	PCI slot	1.0A
DC+12V	PCI slot, COM port, Customer display	1.5A
DC-12V	PCI slot	0.3A
DC+24V	Printer unit or Power supply for external TM, drawer	2.0A

Also, each port has the following capacity limit.

Table 5-7 Power capacity of each port

Port	Power supply	Supply capacity	Remarks
COM port	+5V(DC)	500mA each (peak 1A/100ms)	Do not exceed the value on the left column even with a total of the four ports.
	+12V(DC)	500mA each (peak 1A/100ms)	
USB port	+5V(DC)	500mA each (peak 1A/100ms)	--
Keyboard/Mouse	+5V(DC)	500mA (peak 1A/100ms)	--
Drawer	+24V(DC)	1A	--

Lithium Battery

The IR-700 is internally equipped with a non-rechargeable Lithium Battery. This battery is used for backing up the RTC and the CMOS RAM built in the RTC. This is different from the IR-310.

Battery type   CR-2032
Backup time   5 years

If the message "cmos check sum error" appears every time the system is started up, replace the battery.

⚠ CAUTION

Be sure to use the IR-700 within the specification temperature range. In particular, do not use the battery in high heat and moisture, and never allow dew formation.

Do not disassemble, charge, deform, heat, or throw the lithium battery into the fire.
Injuries due to bursting or chemical reaction may result.

Do not remove or replace the lithium battery around fire or a heater.
Overheating or fire may result.

To dispose of the lithium battery, cover the terminals with tape or the like, and separate each battery. Do not put the battery together with metallic parts or other batteries.

Overheating, fire, or explosion may result.

Interface

Serial Connectors

The IR-700 has four NS16550-compatible serial ports (COM1, COM2, COM5, COM6). It has four outside connectors, however, COM5 and COM6 cannot be used by default. Assign COM5 and COM6 to interrupts not in use.

```
  1           5
 ○ ○ ○ ○ ○
  ○ ○ ○ ○
  6       9
```
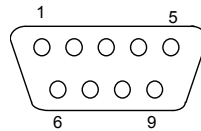
Assignment of serial connector signals

No.	Signal name	I/O	Description
1	DCD/power supply (*)	I/ -	Carrier detection signal or power supply output
2	RXD	I	Received data signal
3	TXD	O	Transmission data signal
4	DTR	O	Terminal ready signal
5	GND	-	Ground
6	DSR	I	Data set ready signal
7	RTS	O	Transmission request signal
8	CTS	I	Transmission data cleared signal
9	RI	I	Ring signal

(*) Pin 1 can be set for +5 V output and +12 V output with the jumper settings (JP7 to JP18) on the main board.

(*) Pin 1 can be set for +5V output or +12V output with the Jumper settings (JP2801,2802,2901,2902) on the main board.

Parallel Connector (LPT Connector)

The LPT connector is a 25-pin D-Sub female connector. Set the LPT port to bidirectional or EPP/ECP mode in BIOS setup. The IR-700 does not support an OCIA interface.
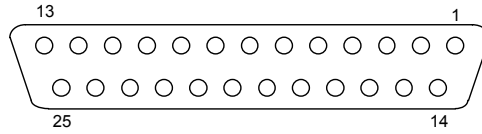

Assignment of parallel connector signals

No.	Signal name	I/O	Description
1	STROBE#	O	Strobe signal
2	PD0	I/O	Data signals
3	PD1	I/O	
4	PD2	I/O	
5	PD3	I/O	
6	PD4	I/O	
7	PD5	I/O	
8	PD6	I/O	
9	PD7	I/O	
10	ACK#	I	Acknowledge (receiving complete) signal. LOW: Receiving enabled
11	BUSY#	I	Busy signal. LOW: Busy
12	PE	I	Paper error signal. HIGH: Error
13	SLCT	I	Selection signal. HIGH: select
14	ATFD#	O	Auto-feed signal. LOW: Paper feed
15	ERR#	I	Error signal. LOW: Error
16	INIT#	O	Initialization signal. LOW: initialize
17	SLIN#	O	Printer selection signal. HIGH: Select
18 to 25	GND	-	Ground

following a signal name indicates active LOW.
See the IEEE 1284 Specification

DKD Connector

The DKD connector, which is located on the rear panel, is a connector for the cash drawer. The connector is a 6-pin, modular connector.
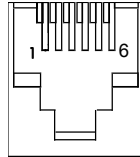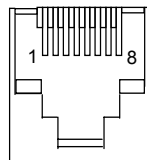

DKD connector pin assignments

No.	Signal name	I/O	Description
1	FG	-	Frame ground
2	DKD1	O	Drawer 1 kick-out signal; LOW: Open
3	DK Status	I	Drawer status signal; Low/High is different with the specification of the Drawer.
4	+24 V	-	+24 V (DC) of electrical power
5	DKD2	O	Drawer 2 kick-out signal; LOW: Open
6	SG	-	Signal ground

* Low/High differs depends on the specification of the Drawer.

Customer Display Connector

Connect a DM-D series customer display to the customer display connector. The connector is an 8-pin modular connector.

DM-D connector pin assignments

No.	Signal name	I/O	Description
1	FG (frame GND)	-	Frame ground
2	RXD (not used)	I	Received data (not used with this unit)
3	TXD	O	Transmission data
4	DTR (not used)	O	Unit ready signal (always at ready)
5	DSR/CTS	I	Customer display ready signal
6	SG (signal GND)	-	Signal ground
7	+24 V DC	-	+24 V of electrical power
8	PGND (power GND)	-	Power supply ground

Appendix-B

Operating the Product Continuously (24-hours/day)

Continuous operation cannot be recommended because it shortens the life of the product. When you must operate it continuously, stop the turning of the motor during the idle time by referring to the following procedures.

✎ *Note:*
Even if the motor is stopped, continuous operation is not guaranteed.

HDD Motor Stop Setting

To stop the HDD motor, set the HDD Power Down Timer and the Windows Update.

In case of the following condition, even if you set the HDD motor to stop, the HDD motor cannot be stopped.

- When the application is set not to enter the standby (idle) condition for the HDD.

- When the HDD Power Down Timer is set to more than an hour, Windows accesses the HDD regularly to synchronize the timer, so the HDD motor does not stop.

✎ *Note:*
When using the RAID system, the GUI utility accesses the HDD regularly, so the HDD motor does not stop.

HDD Power Down Timer Setting

The HDD Power Down Timer checks the access to the HDD.

With the HDD Power Down Timer, the access condition to the HDD is checked. When the time that the HDD is not accessed passes the specified time, the HDD motor is stopped.

If the OS of Epson is installed, the HDD Power Down Timer is set to "Never."
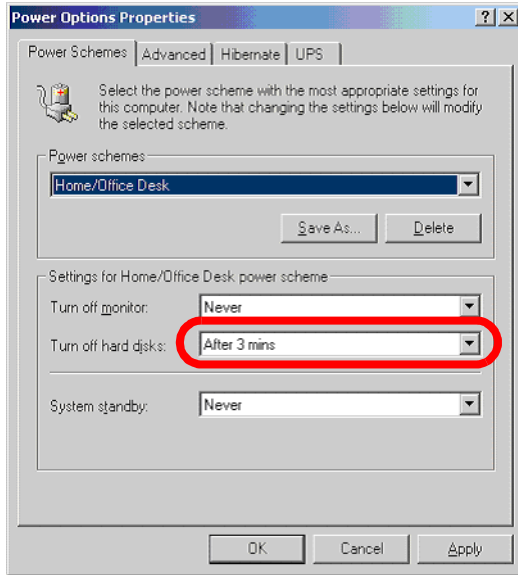
Do the following setting because the HDD motor cannot be stopped by "Never."

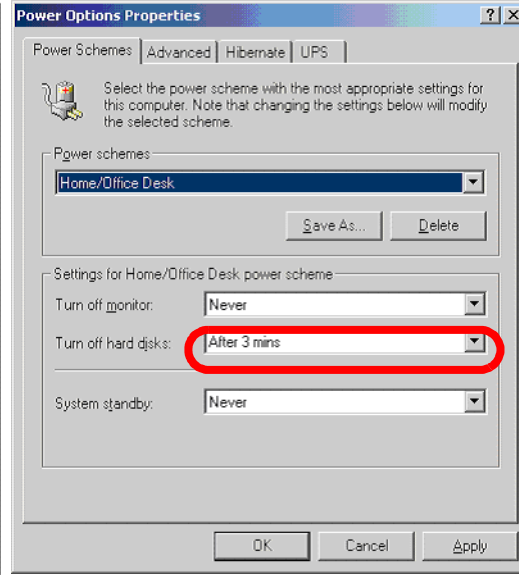The procedure of the setting is as follows.

1. Click [Control Panel] in the start menu of Windows.

2. Select [Power Option Properties].

3. Click the [Power Schemes] tab.

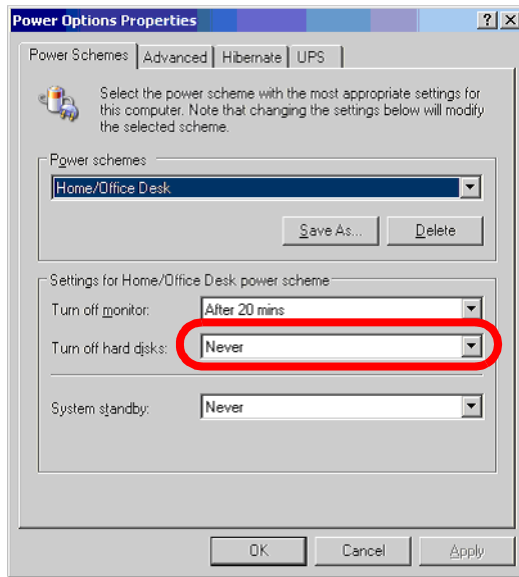4. Select the time in the [Turn off hard disks] option.

Windows 2000   Windows XP

WEPOS

5. Click [OK].

✎ *Note:*
When there is access to the HDD within the set interval, the motor does not stop.

Windows Update Setting

If it is set, the HDD is accessed regularly and the HDD does not become idle. Set the Windows Update to be disabled.

After the OS of Epson is installed,set the HDD is as follows.

- Windows 2000   [Automatic Updates] is set [recommended]. Do the setting described below.

- Windows XP   [Automatic Updates] is not set. When adding a log-on user, the setting is accessed in Administrator.

- WEPOS   [Automatic Updates] is not set. When adding a log-on user, the setting is accessed in Administrator.
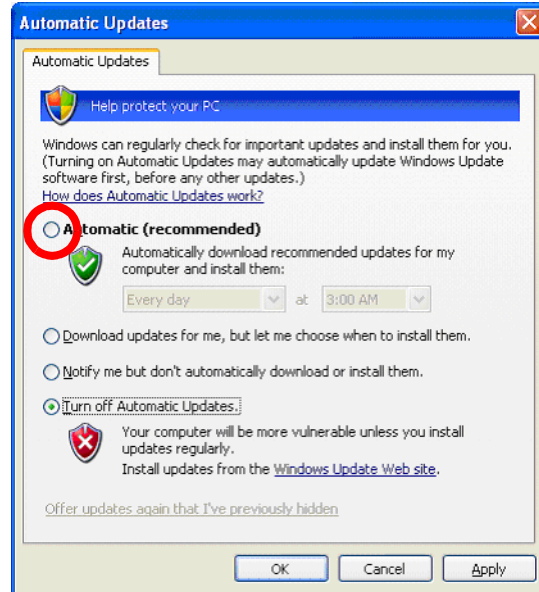
The procedure of the setting is as follows.

1. Click [Control Panel] in the start menu of Windows

2. Select [Automatic Updates].

3. Uncheck the checkbox [Keep my computer up to ...] (Windows 2000), [Automatic] (Windows XP), [Automatic] (WEPOS).
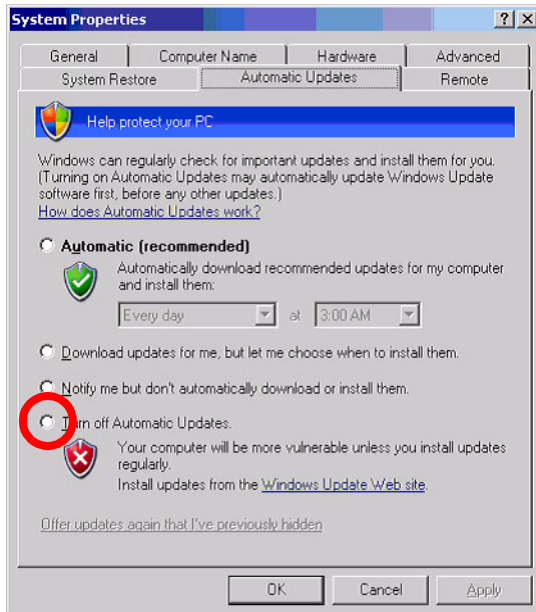
Windows 2000
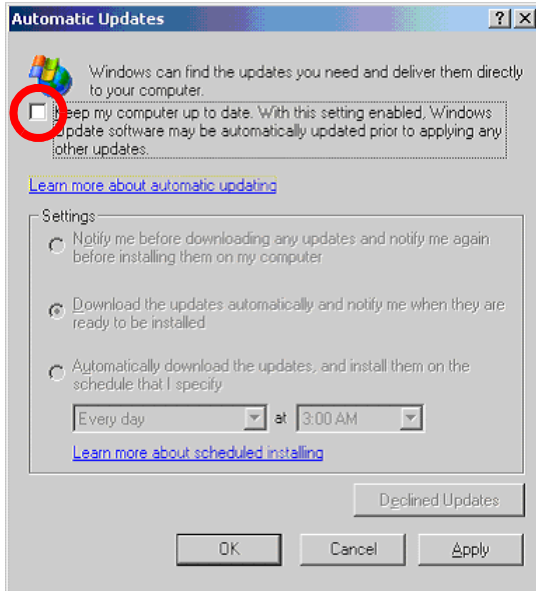
Windows XP

WEPOS

4. Click [OK].

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