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High density 2U hybrid HPC computing power

8+1 Flexible Expansion Slots

The ESC4000/FDR G2 supports up to eight PCI-E Gen3 x16 slots for high expandability, compatible with versatile expansion cards, especially in supporting up-to-date Intel® Xeon Phi™ 5110P and 3100 series as well as NVIDIA Tesla K10/K20 Family and GRID™ K2 of GPU accelerators. In addition, there is an optional riser for a low profile/half-length card and PIKE solution.



Intelligent System Fan Control II Function

To improve heat-dispersion and a stable computing environment, independent smart fans provide cooling for each area of the GPU and CPU, and a dual-fan design for GPU cards provides an extra thermal back-up solution.

1+1 Redundant PSU (1620W 80+ Platinum)

The ESC4000/FDR G2 is equipped with a 1+1 1620W 80+ Platinum level redundant power supply with power efficiency up to 94% for energy savings, while the hot swappable design reduces power loss, improves power efficiency and saves more TCO for users.

Onboard InfiniBand™ FDR for Hyper Interconnection

With an Infiniband™ FDR solution onboard, users can achieve low latency and high bandwidth connectivity for enterprise data centers, along with cloud computing, high performance computing and embedded environments,, all with a data transmission rate up to 56Gbps.

Comprehensive RAID Solutions

The ESC4000/FDR G2 supports the optional ASUS RAID PIKE upgrade kit. With only a PIKE riser card and a PIKE card, upgrade the server from a SATA to SAS based storage system by re-connecting the cable from the onboard SATA to a PIKE riser SAS port. Users now have flexible choices for multiple storage options!

Complete Server Remote Management Solution

By installing an optional Web GUI ASMB6-iKVM module, users can have full control of the server with an out-of-band server-based management (IPMI 2.0 standard) and 24x7 real-time remote monitor. Meanwhile, ASWM Enterprise software provides one-to-multiple centralized management including BIOS flash, remote control, power control and asset management through a user-friendly interface. Users can utilize an effective tool with a user-friendly interface to control the servers remotely.

Cutting-edge Architecture

The ESC4000/FDR G2 supports dual CPUs from the Intel® Xeon® E5-2600 processor family and with 16 DIMM sockets onboard; up to 512GB of four-channel DDR3 1600/1333 memory is supported. Combined, they provide for a high computing capability that can tackle the most difficult of tasks. Additionally, there are more PCI-E lanes with PCI-E Gen 3 support, which is suitable for systems that require high I/O connectivity and bandwidth and supports more PCI-E devices.

Specifications

Processor / System Bus

2 x Socket 2011

Intel® Xeon® processor E5-2600 product family (135W)

Intel® Xeon® processor E5-2600 v2 product family (135W)

QPI 6.4 / 7.2 / 8.0 GT/s

*Refer to www.asus.com for CPU Support list

Core Logic

Intel® C602-A PCH

Mellanox ConnectX-3 FDR

Memory

Total Slots : 16 (4-channel per CPU, 8 DIMM per CPU)

Capacity : Maximum up to 512GB RDIMM/Maximum up to 128GB UDIMM

Memory Type :

Quad Channel DDR3 1866/1600/1333/1066/800 RDIMM

Quad Channel DDR3 1866/1600/1333/1066 UDIMM

Quad Channel DDR3 1866/1600/1333/1066 LRDIMM

Memory Size :

32GB, 16GB, 8GB, 4GB, 2GB, 1GB RDIMM

8GB, 4GB, 2GB, 1GB UDIMM

32GB, 16GB, 8GB LRDIMM

Expansion Slots

Total: 9

Full-length/Full-height

8 * PCI-E 3.0 x16 (4 at x16 Link or 8 at x8 Link) (Slot CPU1_PCIE2, CPU1_PCIE4, CPU2_PCIE1, CPU2_PCIE3 auto switch to x8 link if slot CPU1_PCIE1, CPU1_PCIE3, CPU2_PCIE2, CPU2_PCIE4 is occupied)

Half-length/Low-profile

1 * PCI-E 3.0 x16 (Gen3 x8 Link) (PIKE SAS Card for Storage Enhancement)

*Please refer to add-on card AVL in ASUS Download Site for support list

Storage

SATA Controller :

Intel® C602-A AHCI

2 x SATA3 6Gb/s ports

2 x SATA2 3Gb/s ports

Intel® Rapid Storage Technology Enterprise(RSTe) (For Windows Only)

(Support Software RAID 0, 1, 5, 10)

LSI® MegaRAID (For Linux/Windows)

(Support Software RAID 0, 1, 10)

SATA Controller :

Intel® C602-A SCU

4 x SATA2 3Gb/s ports

Intel® Rapid Storage Technology Enterprise(RSTe) (For Windows Only)

(Support Software RAID 0, 1, 5, 10)

SAS Controller :

ASUS PIKE 2008 8-port SAS2 6G RAID card (Optional)

ASUS PIKE 2008/IMR 8-port SAS2 6G RAID card(Optional)
ASUS PIKE 2108-32PD 8-port SAS2 6G RAID card (Optional)
ASUS PIKE 2208 8-port SAS 6G HW RAID card (Optional)
ASUS PIKE 2308 8-port SAS 6G RAID card (Optional)
ASUS PIKE 9230 4-port SATA 6G RAID card (Optional)

HDD Bays

8 * Hot-swap 3.5" HDD Bays

Auxiliary Storage FDD/CD/DVD

1 * Slim-type Optical Drive Bay
Options: No Device / DVD-RW
(DVD-RW default for North America)

1 SATA port will be occupied once CD/DVD ROM is installed to the system, which means there are 2 combinations for the application.

1. 7 HDDs + 1 ODD.
 2. 8 HDDs + External USB ODD.
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Networking

2 x Intel® 82574L + 1 x Mgmt LAN
1 x Single Port Mellanox ConnectX-3 FDR InfiniBand with QSFP interface

Graphic

Aspeed AST2300 with 16MB VRAM

On Board I/O

1 x External Serial Port
3 x RJ-45 ports (One for ASMB6-iKVM)
4 x USB 2.0 ports (Front x2, Rear x2)
1 x Internal A Type USB Port
1 x VGA port
1 x QSFP Port

OS Support

CentOS 5.7/6.2 32/64-bit
Windows® Server 2008 R2
Windows® Server 2008 R2 Enterprise
Windows® Server 2008 Enterprise 32/64-bit
RedHat® Enterprise Linux AS5.7/6.2 32/64-bit
SuSE® Linux Enterprise Server 11.2 32/64-bit
VMWare ESX4.1/ESXi4.1

*(Subject to change without any notice)

Management Solution

ASWM Enterprise
default 1 x ASMB6-iKVM for KVM-over-Internet

Regulatory Compliance

BSMI, CE, FCC(Class A)

Dimensions

750mm * 444mm * 87mm

Form Factor

2U

Weight

19kg

Power Supply

1+1 Redundant 1620W 80PLUS Platinum Power Supply;
1000W: 100-120Vac, 12-10A;
1200W: 120-140Vac, 12-10A;
1620W: 180-240Vac, 10.5-8A
(following different configuration by region as below)

Environment

Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C
Non operation humidity: 20% ~ 90% (Non condensing)

Accessory Box

1 x ESC4000 G2 User's Guide
1 x Bag of Screws
1 x AC Power Cable
1 x ESC4000 G2 Support DVD
1 X ASWM Enterprise DVD
1 x ASMB6 Manual
1 x ASMB6 DVD

Optional Items

Second 1620W Redundant Power Supply Module (04G180001700)
ASUS PIKE 2008 RAID card (90-S00CS0130T)
ASUS PIKE 2108 H/W RAID card (90-S00CS0150T)

Part List

MB

ASUS Z9PG-D16 Series Server board

HDD Backplane

1 x SAS/SATA Backplane (BP8LX-R21B) (60SC0180-SC0A02)

Front Panel Board

1 x Front I/O Board (FPB-AR14) (60SC0070-SC0C05)

Power Distribution Board

1 x Redundant Power Supply Power Distribution Board (PDB-R21B-G2) (61-C1SF40-01)

Riser Card

1 x Left 4 * PCIe Gen3 x16 slots Riser card (RE16LX4-R21B-G2) (61-C1SF50-01)

1 x Right 4 * PCIe Gen3 x16 slots Riser card (RE16RX4-R21B-G2) (61-C1SF60-01)

1 x PCI-E Low-profile Riser card (RE16R-R12B) (60SC01D0-SC0B01)

1 x PIKE Riser card (RE16R-R21B-PIKE) (60SC0110-SC0A01)

CPU Heatsink/ Cooler

2 x CPU Heatsink (13071-00090600)

Power Supply Unit

1 x 1620W Redundant Power Supply (04G180001700)

(2 x Power Supply Module default for North America)

HDD Tray

8 x Hot-swap 3.5" HDD trays (13GS1I0AM010-1)

Fan

7 x System Fans (80mm x 38mm) (13G074187000)

Air Duct/Mylar

1 x MB Air Duct Mylar (13GS1U00L030-1;13GS1U00T010-1)

4 x NVIDIA Tesla M20x0 series GPU Air Duct (13GS1K0AM050-1)

4 x NVIDIA Tesla K10/K20 series GPU Air Duct (13GS1U0AM020-1)

4 x Intel Xeon Phi series Co-processor Air Duct (13GS1U0AM050-1)

Optical Drive

1 x Slim DVD-RW (17G14113400N)

(DVD-RW default for North America)

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Mounting Rails

1 x Friction rail kit (13GS190AM042-1)

Cable

1 x PMBUS CABLE 5P TO 5P L:140MM (14G000611201)

1 x SLIN SATA CABLE 7+6P TO 7&4P (14G000112303)

1 x USB CABLE 2*5P TO 2*4P,L=550MM (14G000509210)

4 x POWER CABLE 8P TO 6+2P,L=470MM (14001-00250000)(for GPU/Co-processor cards)

2 x W.H CABLE 10P TO 8P,L=1050MM (14G030028230)

1 x W.H CABLE 6P TO 6P,L=900MM (14G03001120E)

1 x SATA CABLE 7P*2 TO 7P*2,L850MM (14G000130810)

3 x SATA CABLE 7P*2 TO 7P*2,L=1M (14G000130811)

1 x FPB CBL 2*8 TO 2*10+1*6,750MM (14G030042840)
