

# ZERO ONE ELECTRONICS

200 MOGGILL ROAD,  
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BRISBANE. AUSTRALIA.  
PHONE 371 6707

## BRISBANE'S NEWEST COMPONENT SUPPLIER

Distributors for Bishop Graphics,  
ZILOG Components, Honeywell

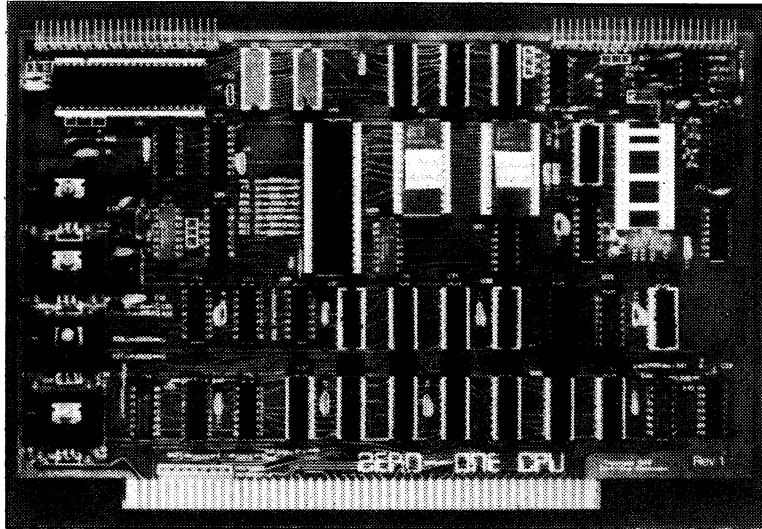
# ELECTRONICS

### INTRODUCES THE FIRST AUSTRALIAN DEVELOPED Z80 S100 BUS SYSTEM

### Z80 CPU CARD

#### FEATURES —

- Comes with full assembly instructions and card documents.
- Power on jump for automatic execution of monitor program on startup.
- Front panel-less operation allowed by on board 2k monitor which is too good to explain here; 19 commands all unique abbreviations allowed.
- Full S100 DMA Capabilities.
- Sockets supplied for all major devices.
- Clock speed, 2MHz Standard, 4MHz Option.
- I/O Z80 P10 2 x 8 bit programmable parallel I/O.
- RAM 256 Bytes scratch pad (Monitor).
- Onboard 2100 baud Tarbell Cassette Interface (Softwave Controlled) with cassette recorder remote motor control. Cassette supplied with CPU. Kit contains set up procedures for cassette interface, as well as softwave to allow the cassette interface to read and dump 300 baud CUTS format.
- Keyboard input direct onto card in parallel ASCII.
- Monitor performs all functions to drive ET1640 VDU as an ASCII terminal. Entry points for cursor control etc.
- The spare socket onboard is to allow the National MM57109 to be fitted which works in conjunction with the CPU to give a full floating point RPN arithmetic unit.
- Functions as a general purpose Z80 single board computer or as the heart of a fully expanded system to 64k Bytes of memory and a multitude of I/O devices.
- Plated thru solder masked printed circuit board with component screened overlay.



### Z80 6K BASIC \$19.95 SUPPLIED ON TAPE

#### SUPPORT DEVICES

##### Mother Board —

- 8 Slot
- 7.5a SCR preregulated supply for 5v lines  
→ 16v .75a  
— 16v .75a
- Actively Terminated
- Comes complete including all edge connectors and power supply components
- All components excepting power transformer and main filter Capacitor mounted on Mother Card

Case available  
September

Price \$149.50 Full assembled only

#### S100 MEMORY CARDS

##### 16k Static —

- Access time 450 ns (2MHZ only) 2114
- 16k Bytes organised in 2 x 8k Blocks individually selected to any 8k Boundary

Price kit \$299.00. All sockets supplied. Assembled and tested add \$40.00

#### 64K DYNAMIC

##### THE ZERO ONE DYNARAM

- Access time 250 ns (2MHZ or 4MHZ) 4116
- 64k Bytes organised in 4 x 16k Blocks
- Refresh completely transparent using bus signals to derive refresh allowing processor to run at full speed without wait states
- Supplied in minimum of 1 x 16k Blocks expandable by merely plugging in extra rams.

Price 16k kit \$235.00 All sockets supplied  
each 16k adds \$125.00

(Available

Sept 79)

Assembled and tested add \$60.00

#### CARDS IN DEVELOPMENT

I/O Card; with serial, parallel ports extra Ram etc  
EPROM Card; Holds 8 Roms with EPROM Programmer  
Floppy Control; Minifloppy or Floppy  
Colour VDU Card; with great graphics facilities

**All prices include freight anywhere in Australia**  
**Hours of business; Mon. to Fri.; 9am to 5pm. Sat.; 8.30am to 12 noon. Open Thurs. to 9pm.**

PRICE KIT \$199.50 2MHZ

\$211.50 4MHZ

\$22.50 Number Cruncher Option

Assembled and tested add \$50.00

#### EXORCISER DYNAMIC RAM

Available September 79, same spec as for S100 Dynaram except plugs into Motorola Exorciser Bus.

#### BOOKS

Z80 CPU Technical Description \$9.00 posted

Z80 P10 Technical Description \$5.50 posted

Z80 CTC Technical Description \$5.50 posted

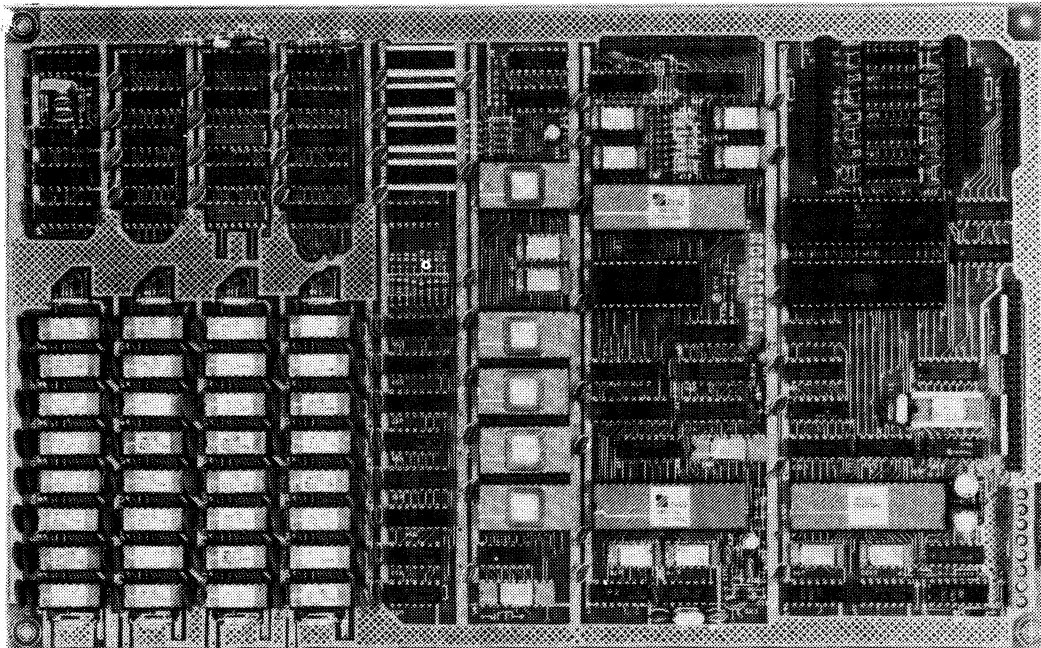
Z80 CPU Programming and Assembly \$9.00 posted  
Language Manual

CHIPS — Write for price list.

**NEW!**

**"THE BIG BOARD"  
OEM - INDUSTRIAL - BUSINESS - SCIENTIFIC  
SINGLE BOARD COMPUTER KIT!  
Z-80 CPU! 64K RAM!**

**NEW!**



**THE FERGUSON PROJECT:** Three years in the works, and maybe too good to be true. A tribute to hard headed, no compromise, high performance, American engineering! The Big Board gives you all the most needed computing features on one board at a very reasonable cost. The Big Board was designed from scratch to run the latest version of CP/M\*. Just imagine all the off-the-shelf software that can be run on the Big Board without any modifications needed! Take a Big Board, add a couple of 8 inch disc drives, power supply, and an enclosure, and you have a total Business System for about 1/3 the cost you might expect to pay.

**\$695.00** (64K KIT BASIC I/O)

SIZE: 8 1/2 x 13 3/4 IN.  
SAME AS AN 8 IN. DRIVE.  
REQUIRES: -5V @ 3 AMPS  
-12V @ 5 AMPS.

**FEATURES: (Remember, all this on one board!)**

**64K RAM**

Uses industry standard 4116 RAM'S. All 64K is available to the user, our VIDEO and EPROM sections do not make holes in system RAM. Also, very special care was taken in the RAM array PC layout to eliminate potential noise and glitches.

**Z-80 CPU**

Running at 2.5 MHZ. Handles all 4116 RAM refresh and supports Mode 2 INTERRUPTS. Fully buffered and runs 8080 software

**SERIAL I/O (OPTIONAL)**

Full 2 channels using the Z80 SIO and the SMC 8116 Baud Rate Generator. FULL RS232! For synchronous or asynchronous communication. In synchronous mode, the clocks can be transmitted or received by a modem. Both channels can be set up for either data-communication or data-terminals. Supports mode 2 Int. Price for all parts and connectors: **\$95**

**BASIC I/O**

Consists of a separate parallel port (Z80 PIO) for use with an ASCII encoded keyboard for input. Output would be on the 80 x 24 Video Display.

**24 x 80 CHARACTER VIDEO**

With a crisp, flicker-free display that looks extremely sharp even on small monitors. Hardware scroll and full cursor control. Composite video or split video and sync. Character set is supplied on a 2716 style ROM, making customized fonts easy. Sync pulses can be any desired length or polarity. Video may be inverted or true.

**FLOPPY DISC CONTROLLER**

Uses WD1771 controller chip with a TTL Data Separator for enhanced reliability. IBM 3740 compatible. Supports up to four 8 inch disc drives. Directly compatible with standard Shugart drives such as the SA800 or SA801. Drives can be configured for remote AC off-on. Runs CP/M\* 2.2.

**FOUR PORT PARALLEL I/O (OPTIONAL)**

Uses Z-80 PIO. Full 16 bits, fully buffered, bi-directional. User selectable hand shake polarity. Set of all parts and connectors for parallel I/O: **\$45**

**REAL TIME CLOCK (OPTIONAL)**

Uses Z-80 CTC. Can be configured as a Counter on Real Time Clock. Set of all parts: **\$25**

**PFM 3.0 2K SYSTEM MONITOR**

The real power of the Big Board lies in its PFM 3.0 on board monitor. PFM commands include: Dump Memory, Boot CP/M\*, Copy, Examine, Fill Memory, Test Memory, Go To, Read and Write I/O Ports, Disc Read (Drive, Track, Sector), and Search. PFM occupies one of the four 2716 EPROM locations provided. It does not occupy any of the 64K of system RAM!

**CP/M\* 2.2 FOR BIG BOARD**

The popular CP/M\* D.O.S. modified by MICRONIX SYSTEMS to run on Big Board is available for \$150.00.

**TERMS CASH CHEQUE OR BANKCARD (MIN \$100 DEP)**

**ALL PRICES PLUS TAX IF APP**

**DELIVERY 3-8 WEEKS ON ORDER**

**REGISTERED PACK & POST \$5.00**

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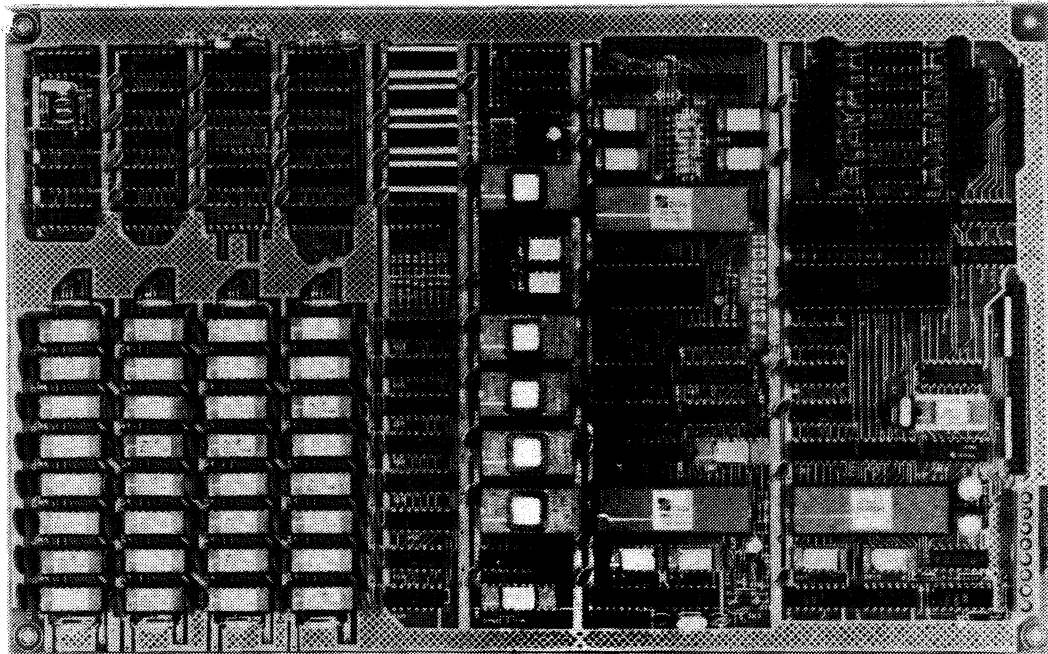
**489 7099**

**PO BOX 235**

# NEW!

## "THE BIG BOARD" OEM - INDUSTRIAL - BUSINESS - SCIENTIFIC SINGLE BOARD COMPUTER KIT! Z-80 CPU! 64K RAM!

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**\$695.00** (64K KIT BASIC I/O)

SIZE: 8 1/2 x 13 1/4 IN.  
SAME AS AN 8 IN. DRIVE.  
REQUIRES: 5V @ 3 AMPS  
12V @ .5 AMPS.

### FEATURES: (Remember, all this on one board!)

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#### FOUR PORT PARALLEL I/O (OPTIONAL)

Uses Z-80 PIO. Full 16 bits, fully buffered, bi-directional. User selectable hand shake polarity. Set of all parts and connectors for parallel I/O: **\$45**

#### REAL TIME CLOCK (OPTIONAL)

Uses Z-80 CTC. Can be configured as a Counter on Real Time Clock. Set of all parts: **\$25**

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**ALL PRICES PLUS TAX IF APP**

**REGISTERED PACK & POST \$5.00**



**RITRONICS WHOLESALE**  
425 HIGH ST., NORTHCOTE VIC  
481 1923 489 7099 PO BOX 235

Copy of manual and assembly instructions \$15. Refundable on purchase of board. Photocopy exchanged for original. Delivery ex stock.

#### Bankcard Mail Orders Welcome

Please debit my Bankcard

Bankcard No .....

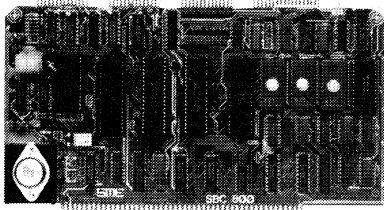
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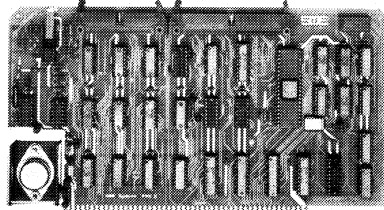
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# K-NAR COMPUTER CARDS

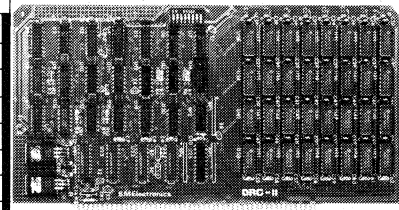
## S100 Z80 SYSTEM CARD SPECIALISTS



**SBC-800**



**FDC-II**



**DRC-II**

You know the SME Systems boards as the most powerful and technically up-to-the-minute manufactured in Australia today.

Using K-NAR's mail order system can save you dollars. Compare our prices on these high performance cards.

**SBC-800**

4Mhz Z-80 CPU, two serial RS232 ports, software programmable Baud rate gen., Centronics parallel port, 22 prog. I/O lines, real time clock (battery backed), 2K CMOS RAM, power on reset/power fail detect, battery backed as standard, etc. List Price \$495. Our Price \$395.

**SBC-400**

4Mhz Z-80 CPU, 1K Static Ram, RS232 I/O with Sync/Async, Centronics interface, 4Ch. counter/timer, Soft. Prog. Baud rate generator, 2K CP/M BIOS EPROM option. List Price \$395. Our Price \$315.

**FDC-II**

Enhanced floppy disk controller, IBM 3740 compatible, operates 5 & 8" and single/d. density drives, handles up to 4 drives, runs multi-density CP/M2.2 & MP/M 2. Vectored interrupt operation optional. List Price \$465. Our Price \$370.

**DRC-II**

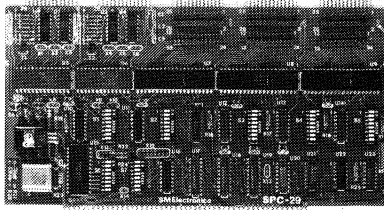
The board for multi-user installations. 64/256K dynamic RAM card, bank select, fast 4Mhz operation, on-board memory prom, dip-switch selectable boundaries, bank mode allows up to 8 boards on bus, hidden refresh, phantom disable. List Price \$600. Our Price \$475.

**CRC-48**

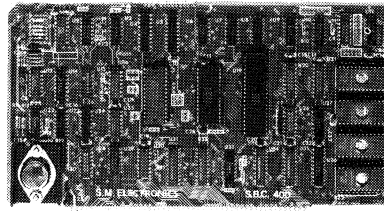
Fool-proof memory system. State-of-the-art CMOS memory card with memory protection. on board battery back-up, compatible with DRC-II, write protection enable/disable, can be used as complete EPROM card or any combination of EPROM or CMOS ram. List Price \$525. Our Price \$420.

**VDC-8024**

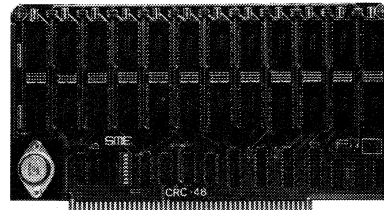
The low cost alternative to stand-alone terminal. Flexible 80x24 memory mapped video display board with full ASCII, semi graphics, Inverse & half intensity video, flicker free screen updating. Battery backed option offers diagnosis of system shut downs. List Price \$325. Our Price \$265.



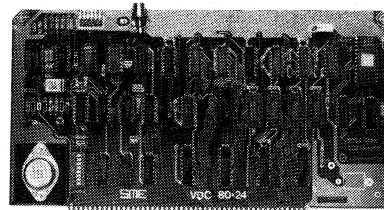
**SPC-29**



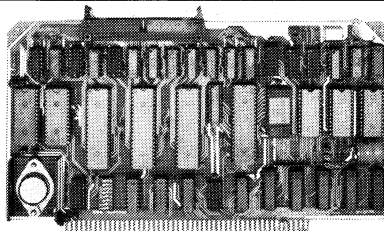
**SBC-400**



**CRC-48**



**VDC-8024**



**MPC-6 DARTBAUD**

**MPC-6 DARTBAUD**

For Multi-user systems. Multi-channel RS232 Intelligent I/O card with full I/O buffering and high level input/output drivers. 6 channels, on-board Z80 processor, software programmable baudrates, 6K buffer memory (battery backed). User programmable features for system tailoring. List Price \$725. Our Price \$575.

**SPC-29**

High performance dual serial & 9 parallel port I/O CARD, with full I/O address decoding. Switch selectable baud rates. Link patch area, programmable modes for strobed/latched I/O. List Price \$295. Our Price \$235.

**PACKAGE SPECIAL**

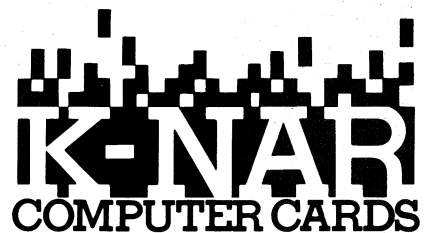
Try this for value

**SBC-800 • FDC-II • DRC-II**

& 5-slot motherboard with mini-cage.

Monitor/BIOS EPROM.

Special package price \$1425\*



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Authorised distributor of SME Systems products.

\* Prices subject to change without notice. All prices excluding tax. For retail prices add 17.5%.  
All boards fully assembled and tested and backed by 90-day guarantee.

**To K-NAR Computer Cards**

Please send me product data sheets.  
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Name  
Address

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Please include me on your new product mailing list. I am mainly interested in systems for  Hobby,  Industrial use  Education  Business  Process control  Other



# THE AUSSIE BYTE SINGLE BOARD COMPUTER

## AUSSIE BYTE FEATURES

- ★ A fully tested and proven SBC with a 4 MHz Z80A CPU running CP/M Plus (3.0) with 256K of fast dynamic RAM, 4K Monitor BIOS EPROM and DMA capability.
- ★ On-board disk controllers for up to eight 5¼ or 8 inch floppy drives, two hard disk drives, video display and keyboard controller, Hi-res 640 x 608 graphics, four serial RS232C interfaces and one parallel Centronics printer.
- ★ Access to BIOS source and operating system software at no charge to any designer. The ultimate in flexibility.
- ★ Optional MP/M supporting up to four users, voice synthesis, S100 or STD bus expansion, future 16 bit support.
- ★ All this on one 30 x 42 cm board minimising cost, complexity and risks.

## SPECIFICATIONS

The Aussie Byte board is a complete computer requiring only a power supply, disk drives, keyboard, monitor and cables. No other circuitry is needed to form a complete Z80 based computer.

The Aussie Byte measures 297 by 420 mm. Along its back

edge, four 26 way RS232C male connectors are mounted for the serial I/O and a 37 way male connector is provided for connection to a standard Centronics printer. Standard 0.1 by 0.1 pitch upright connectors are provided to connect to 8 and 5¼ inch floppy drives, to a hard disk controller, and for the bus expansion to an S100 or STD bus.

The Aussie Byte directly interfaces to both 8 and 5 inch disk drives connected via flat ribbon cables. Winchester hard disk drives are also supported with the inclusion of a WD-1002 controller and an interface cable. Both floppy and hard disk drives are supported in the CP/M implementation. For graphics applications, the graphics display controller can be placed in the 630 by 608 pixel high resolution mode. This allows quality graphics to be generated.

Expansion is catered for by the use of a "bus expansion header" connector that provides all the basic Z80 signals. This connector also provides access to the DMA controller, system clock and baud rate generators.

Other features of the Aussie Byte include a programmable tone generator, four serial channels including a modem port, parallel keyboard interface, speech synthesizer, battery backed real time clock. Power is supplied by means of an 8 way connector. Video information suitable for connection into a monochrome monitor is also available on an external connector. Power requirements are 5V at 3 amps, 12V at 1 amp and -12V at .25 amps.

When power and the required drives, monitor and keyboard are connected, the Aussie Byte will display a message to the screen indicating that it is operating. At this stage the user can press a key to enter the monitor or if left for a few seconds, the internal program will automatically load an operating system from disk. This makes the Aussie Byte particularly easy to start, requiring only switch-on and an operating system disk to be inserted in a disk drive.

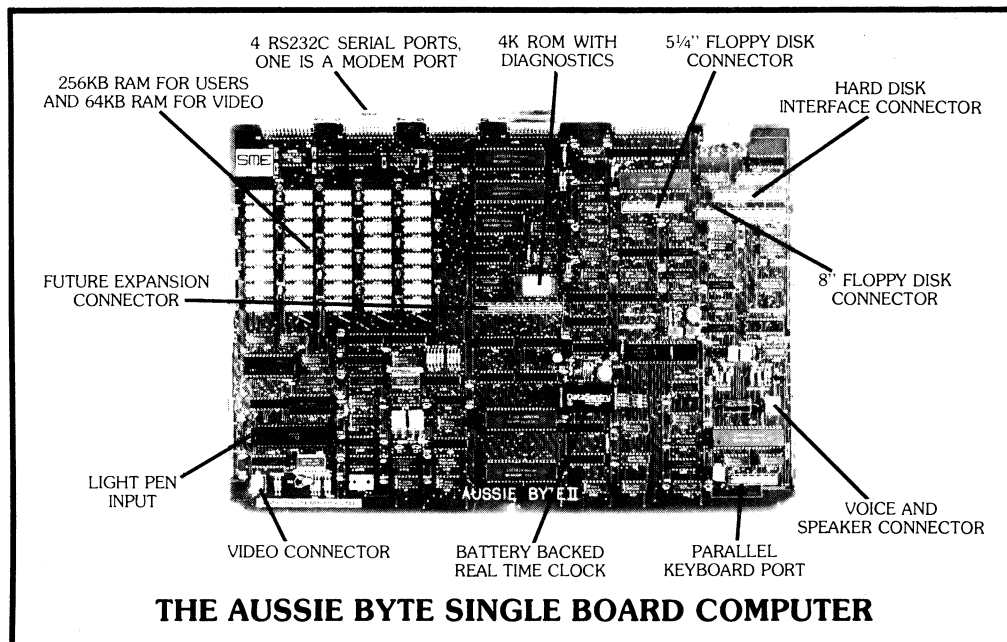
The Aussie Byte Z80 CPU has a 4K EPROM monitor program which is used for system

diagnostics and for initiating disk based operating systems. The Z80 also has 256K of dynamic RAM which is accessible through bank switching for operating systems that require large address spaces or extra RAM for buffering or cache.

The Aussie Byte has been designed for the greatest possible throughput by the use of a full complement of fully interrupt driven Z80 peripheral chips. Another powerful feature is its DMA multiplexer that enables any of the I/O devices to automatically send data to or from memory via the Z80 DMA device by using the ready lines from a selected device to control the DMA channel. This enables data and port transfer to be done in a background mode without processor intervention.

Video display is handled by a 6545 display chip and an 8002 attribute controller. These have their own separate 64K of RAM as well as a 2K CMOS RAM. ASCII characters are generated from an internal lookup table in the attribute controller.

The Aussie Byte is an advanced single board computer with many features, it is easy to implement in dedicated systems and extremely cost-effective.



THE AUSSIE BYTE SINGLE BOARD COMPUTER

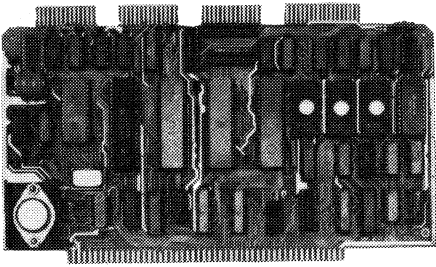
**SME**  
SYSTEMS  
THE PROBLEM SOLVERS

SME SYSTEMS PTY. LTD.  
Incorporated in Victoria  
22 QUEEN STREET, MITCHAM,  
VICTORIA, AUSTRALIA 3132  
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	EXEMPT	TAX
AUSSIE BYTE II ASS. & TESTED	1200.00	168.00
CP/M PLUS Ver. 3.00 SOFTWARE	375.00	52.50
5 1/4 DSD 1 Meg DISK DRIVE	295.00	41.30
75 W SWITCH MODE SUPPLY	125.00	17.50
KNIGHT SYSTEM METAL WORK	225.00	31.50
MONITOR 12" GREEN SCREEN	225.00	31.50
KEYBOARD—SERIAL IBM STYLE	195.00	27.30
SERIAL KEYBOARD PCB ADAPTOR	45.00	6.30

## Microcomputer News & Products

### Powerful S-100 Z-80 board from SME



SME Systems of Melbourne has announced the release of a single board S100 CPU using the Z80A processor, said to be "of unprecedented power". The new board, which can be used either alone or as the central processor of a complete computer system, will retail for under \$500 according to the manufacturers.

SME Managing Director Mike Pratt says the SBC-800 presents "an impressive array of hardware". Included as standard are two RS232C or 20mA current loop serial ports, three programmable parallel ports, a Centronics compatible printer


port, software baud rate selection, vectored interrupt handling and a four channel timer. Power-on reset, power failure detection and power-on jump features are also included.

Intended for OEMs and engineers wishing to build their own computer systems, the SBC-800 is completely designed and manufactured in Australia.

For further information on the SBC-800 contact SME Systems at 22 Queen St, Mitcham, Victoria, 3132. Phone (03) 874 3666.

### Club notes

● The Super-80 Users Group of Melbourne will hold its inaugural meeting in the front hall of the Heathmont Uniting Church, Canterbury Road, Heathmont, on June 11th at 8pm. For more information write to PO Box 57, Glenhuntly, Vic, 3163.

● The Sorcerer User's Group of South Australia has a new address. The group now meets on the 1st floor of the Commodities Exchange Building, 123 Pirie St, Adelaide, on the second Wednesday of each month. For further information write to the Secretary, Jeremy Webber, at 22 Delange Ave, Banksia Park, South Australia, 5091. 

# SBC THE NEW 800

The SBC-800 is a S100 Z80 Single Board Computer with dual serial ports, Real time clock, on board Ram & Eprom, for use as the main CPU card in a Microcomputer.

The SBC-800, a very powerful Single Board Computer, provides all of the necessary facilities needed for a standalone processor.

The heart of the board is a Z-80 Microprocessor. Running at 4 Mhz, the processor communicates with all of the SME Systems range of boards. The board includes a CTC counter timer, for generating the baud rates for the 2 serial ports on board, as well as 2 vector interrupt driven channels for off board interrupt processing, or on board timing functions.

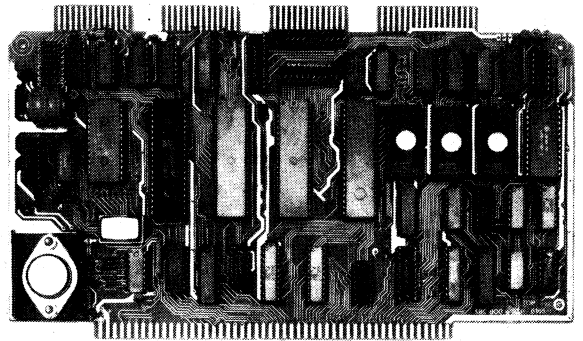
Serial I/O consists of a DART which provides 2 serial

ports which may be modems, terminals or printers. Each one of these serial ports operates independently of the other.

Parallel I/O consists of a pair of 8255, Programmable Peripheral Interfaces. The first of these devices provides all the I/O lines necessary to talk with the Centronics Port, as well as the on board Real Time Clock. The second device, provides up to 22 general purpose I/O lines which can be programmed in a number of different modes of operation.

The board also provides four 24 pin sockets for installing up to 16 Kbytes of Eprom, using 2732 devices, or 8 Kbytes of Eprom, using 2716 devices. The sockets have provision for installing 2 Kbytes of ram in up to 3 sockets, to provide 6 Kbytes of Static Ram in lieu of Eprom.

An on board, rechargeable battery, provides power for the Real Time Clock, as well as the CMOS static memory which has been fitted to the board.



Z80 S100 SINGLE BOARD COMPUTER

## FEATURES

- S100 Bus Compatible (IEEE 696)
- Z-80 Microprocessor running at 4 Mhz.
- Two Serial RS232 Communication Ports.
- Software programmable Baud rate generator.
- Parallel Centronics Printer Port.
- 22 Programmable, General Purpose I/O Lines.
- Real Time Clock, Battery backed.
- 2K CMOS ram standard, 6K option.
- Provision for up to 12K EPROM on board.
- Standby Rechargeable Battery on card.
- Power on Reset/Power Fail detect.
- Power on Jump to Monitor/Bios.
- On board memory disable.

# SBC 400

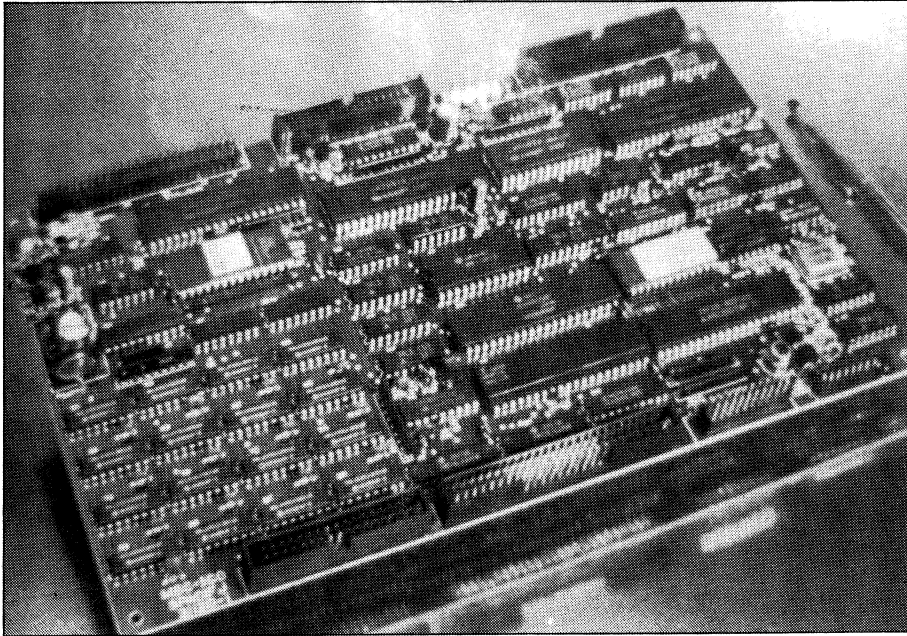
The SBC-400 is a low cost CPU card for use in a system where the power of the SME Systems SBC-800 Single Board Computer is not required.

SBC-400 price reduced from \$465 to **\$395.**

**SME**  
SYSTEMS  
S. M. ELECTRONICS

22 Queen Street,  
Mitcham, Australia, 3132. Phone: (03) 874 3666 Telex: AA 37213

## New Products...



### Single board Z80 computer

The MSC-ICO is a powerful Z80-based computer designed for industrial, business, control and consumer applications. It contains many features normally only found in multi-board machines costing much more.

The system is designed around a 4MHz Z80 CPU and has 128K of onboard RAM. One bank of 64K is devoted to CP/M and its disk cache blocks while the remaining 64K is used by the application programs.

The design includes a high speed 80 x 24 line CRT controller which supports both composite and TTL video outputs. Floppy disk controllers for 3.5, 5.25 and 8-inch drives are also supported.

Interface is via two RS232C ports and a Centronics parallel port. Additional ports are a 16-bit TTL I/O port, relays, LEDs, DACs, ADCs and many other devices.

The MSC-ICO is supplied with a fully implemented version with CP/M Plus which is compatible with CP/M 2.2 and provides access to thousands of application programs.

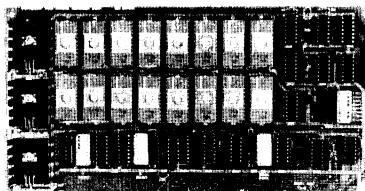
Lamron Pty Ltd, PO Box 438, Ryde, NSW 2112. Phone (02) 808 3666.





# S100 PRODUCTS

## 32K S-100 EPROM CARD PRICE CUT!



**\$99.00**

USES 2716's

Blank PC Board — \$69

ASSEMBLED & TESTED  
ADD \$49.00

### KIT FEATURES

1. Uses +5V only 2716 (2Kx8) EPROM's
2. Allows up to 32K of software on line!
3. IEEE S-100 Compatible
4. Addressable as two independent 16K blocks
5. Cromemco extended or Northstar bank select
6. On board wait state circuitry if needed
7. Any or all EPROM locations can be disabled
8. Double sided PC board, solder-masked, silk-screened
9. Gold plated contact fingers
10. Unselected EPROM's automatically powered down for low power
11. Fully buffered and bypassed
12. Easy and quick to assemble

## 64K S100 STATIC RAM

**\$499.00**  
KIT

**NEW!**

LOW POWER!

RAM OR EPROM!

BLANK PC BOARD  
WITH DOCUMENTATION  
\$119.00

SUPPORT ICs + CAPS  
\$29.00

FULL SOCKET SET  
\$19.00

FULLY SUPPORTS THE  
NEW IEEE 696 S100  
STANDARD  
(AS PROPOSED)

FOR 56K KIT \$419

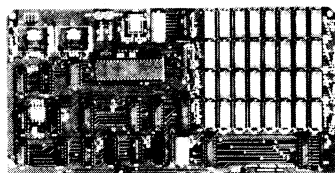
ASSEMBLED AND  
TESTED ADD \$50



### FEATURES:

- \* Uses new 2K x 8 (TMM 2016 or HM 6116) RAMs.
- \* Fully supports IEEE 696 24 BIT Extended Addressing.
- \* 64K draws only approximately 500 MA.
- \* 200 NS RAMs are standard. (TOSHIBA makes TMM 2016s as fast as 100 NS. FOR YOUR HIGH SPEED APPLICATIONS.)
- \* SUPPORTS PHANTOM (BOTH LOWER 32K AND ENTIRE BOARD).
- \* 2716 EPROMs may be installed in any of top 48K.
- \* Any of the top 8K (E000 H AND ABOVE) may be disabled to provide windows to eliminate any possible conflicts with your system monitor, disk controller, etc.
- \* Perfect for small systems since BOTH RAM and EPROM may co-exist on the same board.
- \* BOARD may be partially populated as 56K.

## 256K S-100 SOLID STATE DISK SIMULATOR! WE CALL THIS BOARD THE "LIGHT-SPEED-100" BECAUSE IT OFFERS AN ASTOUNDING INCREASE IN YOUR COMPUTER'S PERFORMANCE WHEN COMPARED TO A MECHANICAL FLOPPY DISK DRIVE.



### FEATURES:

- \* 256K on board, using + 5V 64K DRAMS.
- \* Uses new Intel 8203-1 LSI Memory Controller.
- \* Requires only 4 Dip Switch Selectable I/O Ports.
- \* Runs on 8080 or Z80 S100 machines.
- \* Up to 8 LS-100 boards can be run together for 2 Meg. of On Line Solid State Disk Storage.
- \* Provisions for Battery back-up.
- \* Software to mate the LS-100 to your CP/M\* 2.2 DOS is supplied.
- \* The LS-100 provides an increase in speed of up to 7 to 10 times on Disk Intensive Software.
- \* Compare our price! You could pay up to 3 times as much for similar boards.

BLANK PCB  
(WITH CP/M\* 2.2  
PATCHES ON DISK)  
**\$99.95**

**\$699.00**

#LS-100 (FULL 256K KIT)

ALLOW 4-6 WEEKS DELIVERY

## 64K SS-50 STATIC RAM

**\$359.00**  
(48K KIT)

**NEW!**

LOW POWER!

RAM OR EPROM!

BLANK PC BOARD  
WITH  
DOCUMENTATION  
\$119.00

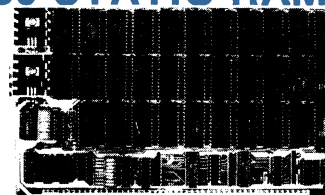
SUPPORT ICs + CAPS

FULL SOCKET SET

56K Kit \$419

64K Kit \$499

ASSEMBLED AND  
TESTED ADD \$50



### FEATURES:

- \* Uses new 2K x 8 MK58725P RAMs.
- \* Fully supports Extended Addressing.
- \* 64K draws only approximately 500 MA.
- \* 200 NS RAMs are standard. (TOSHIBA makes TMM 2016s as fast as 100 NS. FOR YOUR HIGH SPEED APPLICATIONS.)
- \* Board is configured as 3-16K blocks and 8-2K blocks (within any 64K block) for maximum flexibility.
- \* 2716 EPROMs may be installed anywhere on Board.
- \* Top 16K may be disabled in 2K blocks to avoid any I/O conflicts.
- \* One Board supports both RAM and EPROM.
- \* RAM supports 2MHZ operation at no extra charge!
- \* Board may be partially populated in 16K increments.

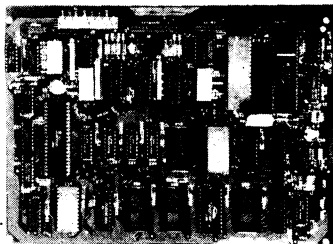
## THE NEW ZRT-80

### CRT TERMINAL BOARD!

A LOW COST Z-80 BASED SINGLE BOARD THAT ONLY NEEDS AN ASCII KEYBOARD, POWER SUPPLY, AND VIDEO MONITOR TO MAKE A COMPLETE CRT TERMINAL. USE AS A COMPUTER CONSOLE, OR WITH A MODEM FOR USE WITH ANY OF THE PHONE-LINE COMPUTER SERVICES.

### FEATURES:

- \* Uses a Z80A and 6845 CRT Controller for powerful video capabilities.
- \* RS232 at 16 BAUD Rates from 75 to 19,200.
- \* 24 x 80 standard format (60 Hz).
- \* Optional formats from 24 x 80 (50 Hz) to 64 lines x 96 characters (60 Hz).
- \* Higher density formats require up to 3 additional 2K x 8 6116 RAMS.
- \* Uses N.S. INS 8250 BAUD Rate Gen. and USART combo IC.
- \* 3 Terminal Emulation Modes which are Dip Switch selectable. These include the LSI-ADM3A, the Heath H-19, and the Beehive.
- \* Composite or Split Video.
- \* Any polarity of video or sync.
- \* Inverse Video Capability.
- \* Small Size: 6.5 x 9 inches.



BLANK PCB WITH 2716  
CHAR. ROM, 2732 MON. ROM

**\$99.00**

SOURCE DISKETTE - ADD \$20

SET OF 2 CRYSTALS-ADD \$12

# ZRT-80

WITH 8 IN.  
SOURCE DISK!

**\$189.00**

(COMPLETE KIT,  
2K VIDEO RAM)

ALLOW 4-6 WEEKS DELIVERY

## 32K S100 EPROM/STATIC RAM

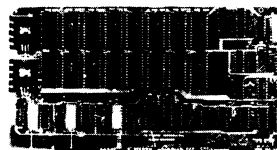
**NEW!**

FOUR FUNCTION BOARD!

**NEW!**

EPROM II  
FULL  
EPROM KIT  
\$129

A&T EPROM  
ADD \$35



BLANK  
PC BOARD  
WITH DATA  
\$69.00

SUPPORT  
IC'S  
PLUS CAPS  
\$29.00

FULL  
SOCKET SET  
\$25.00

We took our very popular 32K S100 EPROM Card and added additional logic to create a more versatile EPROM/Static RAM Board.

- FEATURES:
- \* This one board can be used in any one of four ways:
    - A. As a 32K 2716 EPROM Board
    - B. As a 32K 2732 EPROM Board (Using Every Other Socket)
    - C. As a mixed 32K 2716 EPROM/2K x 8 RAM Board
    - D. As a 32K Static RAM Board
  - \* Uses New 2K x 8 (TMM2016 or HM6116) RAM's
  - \* Fully Supports IEEE 696 Buss Standard (As Proposed)
  - \* Supports 24 Bit Extended Addressing
  - \* 200 NS (FAST!) RAM'S are standard on the RAM Kit
  - \* Supports both Cromemco and North Star Bank Select
  - \* Supports Phantom
  - \* On Board wait State Generator
  - \* Every 2K Block may be disabled
  - \* Addressed as two separate 16K Blocks on any 64K Boundary
  - \* Perfect for MP/M\* Systems
  - \* RAM Kit is very low power (300 MA typical)

**32K STATIC RAM KIT — \$199.00**

For RAM Kit A&T - Add \$40