Zykronix
INCORPORATED

AMD Elan 400, up to 100 MHz

On-board VESA Bus Flat Panel VGA controller

8 MB of EDO DRAM, expandable to 72 MB

Three serial ports (16550)

One parallel port (IEEE 1284)

Support for Windows CE, 95 and DOS

Supports for up to two IDE drives

Floppy controller supporting 2.8 MB floppy drives

ISA mezzanine connector for ISA expansion

Less than 2.5 watts power consumption

-25° to +70° C operating temperature range

Two year warranty

Monster
IV

The Little Monster IV (LM IV) is a high-performance, AMD SC400 (Am486) Processor-based Single Board Computer in a very small, versatile form factor.

The Zykronix 16-bit ISA bus allows the LM IV to drive up to 8 Mezzanine ISA peripheral boards.

The LM IV has an impressive array of on-board functions including Flat Panel VGA controller, IDE, 3 serial ports and 2 PCMCIA sockets. The LM IV is fully PC software compatible.

- **AMD SC400, 33MHz, 66MHz, 100MHz**

- **On-board Local Bus Flat Panel VGA controller**

- **Up to 64 Mbytes EDO DRAM**

- **Three serial ports (16550)**

- **One parallel port (IEEE 1284)**

- **Support for Windows CE, 95 and DOS**

- **IDE supports up to 2 Enhanced IDE drive**

- **Floppy controller supporting 2.8 Mbytes floppy drives**

- **ISA mezzanine connector for ISA bus expansion**

- **Two-year warranty**

Main Features:
AMD Elan SC400 Microcontroller
The LM IV is uses the new AMD Elan SC400 Microcontroller in a BGA package. The Elan SC400 Microcontroller combines a 32-bit, low-voltage 486 CPU with a complete set of PC/AT compatible peripherals, along with the power management features required for battery operation.

Cache Memory
The Elan SC400 Microcontroller contains 8 Kbytes of internal Level 1 (L1) cache memory.

Memory
8 Mbytes of EDO DRAM is included on LM IV. For expansion, the LM IV supports 72-pin SO-DIMM DRAM modules for increased ruggedness. Extended Data Out (EDO) DRAM is used for high performance. Total capacity is 64 Mbytes DRAM.

On-Board Peripherals
The LM IV contains many standard on-board peripherals making it a very powerful Single Board Computer. In addition to the standard keyboard, three serial (16550) ports and one IEEE-1284 parallel port, it also contains an IDE controller, a floppy controller, flat panel Super VGA controller and PCMCIA with two sockets. A watchdog timer for critical applications is also included.

Serial I/O
The LM IV supports three asynchronous serial ports. RS-232-compatible drivers are used to drive the serial interfaces. All three serial ports are compatible with the 16550 UART.

Parallel Port
The LM IV provides a bi-directional EPP and ECP compatible parallel port that is IEEE-1284 compliant. The parallel port can be used for printer interfacing, keypad interfacing, or general-purpose digital I/O.

IDE Interface
The on board National PC87306 provides IDE controller. Supports up to 2 disk drives.

Floppy Interface
An on-board floppy disk controller provides support for any 3.5" or 5.25" floppy drive.

Keyboard
The LM IV supports any standard AT/PS/2 style keyboard.

Software
The LM IV comes standard with SystemSoft BIOS. The BIOS is user configurable to boot an operating system residing on a floppy disk, a hard drive or a PCMCIA device. The flexibility of the BIOS allows the LM IV to operate like a PC in many configurations. The LM IV supports popular PC operating systems such as Windows 95 and Windows CE.

Specifications:

Processing

AMD ELAN SC400 Microcontroller
> Up to 100 MHz processing power
> 8K synchronous level 1 cache

8MByte expandable to 64MBytes on board EDO DRAM
> 32 bit wide DRAM interface
> 72 pin SO-DIMM connector for field memory expansion

Stackable ISA
> 16 bit horizontal stacking ISA Bus

Flash BIOS with protection
> 256Kbytes Flash chip
> Holds BIOS, POST, multiple Video BIOS
> > Boot Block protection
> > Upgradable from floppy

Real Time Clock
> Battery backup
> Battery life of 2 years - removable standard battery

Watchdog
> Programmable as OFF, or in 1.6 seconds

Onboard PCMCIA

Dual PCMCIA Controller
> Compliant with PCMCIA 2.1
> Single or Dual slots
> ATA disk operation
> Type I, II, III compatibility

I/O

IDE controller
Supports up to two IDE drives
Up to 13 Mbytes/Sec. transfer in DMA mode
Up to 8 Mbytes/Sec. transfer in PIO
Fully compliant with ATA

Super I/O Systems
Three serial ports, with full modem control
Power management controls
Fully compatible with 16550A
FIFO on each port
One port may be IrDA capable
System may be "wakened up" from ring indicator

One bi-directional parallel port
DMA capable
EPP capable
ECP (IEEE 1284 level 2) compliant

Floppy Disk Controller
DMA control
Support for 3.5" and 5.25" drives

16 Bit General Purpose digital I/O Port
Programmable direction for each bit
Programmable drive type for each bit
Back-drive protection

Video

Chips & Technology 65550 on the VESA bus
Simultaneous Flat Panel and CRT Support
2MBytes video memory
Windows Graphics Acceleration
64 bit graphics engine
Transparent BitBLT
Flat Panels up to 1024 x 768 resolution
Power management support
Power sequencing controls for flat panel displays

Power

Advanced Power Management
Major subsystems may be powered down
System Management Interrupts for power control
SMB bus for power system

On-board Power supply
5V only operation
Polarity protection
Over-current Protection

Operating Environment

Temperature & Humidity
-25 to +70 °C operating temperature range

-40 to +80 °C non-operating temperature range

8 to 85 % Relative Humidity range

26 °C maximum wet bulb temperature

20 °C maximum rate of change of temperature per hour
(Maximum rate of change of temperature must be less than that which causes condensation)

Shock & Vibration
3G Vibration from 50 Hz to 1 kHz
100G Shock

Board Dimensions

PCB Dimension 4" X 7" / 100mm X 178-mm

Reliability & MTBF

Highly reliable construction and <u>very low cost</u>
>40,000 hours (MIL-HDBK-217F)
8 layer PCB construction with full power and ground planes
MTTR: 5 minutes (based on board replacement)

Ordering Information

The LM IV with 66 MHz AMD SC400 processor, 16 Mbytes EDO DRAM,
Three serial ports, Two PCMCIA sockets and Video would be ordered as:
LM IV-P2M1V2S2T2F3B1

Choose one option from each category:

CPU options:
P1	33 MHz AMD 5X86 processor
P2	66 MHz AMD 5X86 processor
P3	100 MHz AMD 5X86 processor

Memory options:
M1	8 Mbytes EDO DRAM
M2	16 Mbytes EDO DRAM
M3	32 Mbytes EDO DRAM
M4	64 Mbytes EDO DRAM

Video options:
V1	No VGA on board
V2	C& T 65550 w/2 Mbytes RAM

Serial port options:
S1	1 serial ports
S2	3 serial ports

PCMCIA socket options:
F1	No PCMCIA sockets
F2	One PCMCIA socket
F3	Two PCMCIA sockets

BIOS options:
B1	Normal SystemSoft BIOS
B2	Windows CE BIOS

Note: *Contact Zykronix regarding custom configurations and special order options.*

Warranty
Two years with an optional 5-year extension.
Call Zykronix for full warranty information