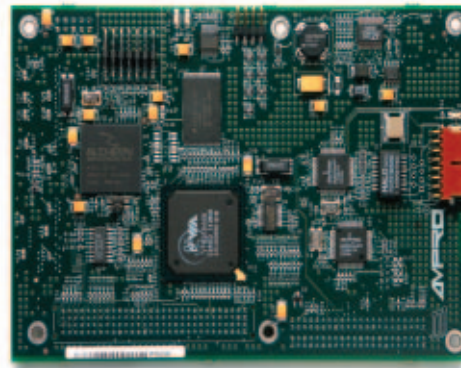# EnCore™ M3 Embedded Processor

High-integration, high-performance, low-power, MIPS32™-based embedded processor

FEATURES

- 400MHz Alchemy™ Au1500 from AMD, a MIPS32™-based Embedded Processor
- 16 - 256MB SODIMM SDRAM
- 2MB Flash Memory
- 66MHz PCI Bus interface
- EIDE (2) drive interface
- Two Serial ports, Floppy, ECC/EPP Parallel port
- (2) USB, Fast IrDA, PS/2 Keyboard / Mouse, AC97 Sound
- Two 10/100BaseT Ethernet interfaces
- EJTAG interface

The EnCore™ M3 module is a low-power, high-performance, high-integration MIPS32-compatible embedded processor module based on Ampro's new EnCore Platform. Like all EnCore products, it is designed to mate with a custom, application-specific logic board. Using a 400MHz Alchemy™ Au1500 processor from AMD rated at 480 Dhrystone MIPS, the typical power consumption of an entire EnCore M3 module is less than 4 watts.

As with all EnCore modules, the EnCore M3 provides the functionality of a complete embedded CPU subsystem in a small, 100×145mm format. It includes two 10/100 BaseT Ethernet controllers and an AC97 audio interface. It supports up to 256MB SODIMM SDRAM and provides 2MB Flash, two serial ports, two USB ports, enhanced Ultra 33/66/100 Synchronous DMA IDE interface to two drives, floppy disk controller, PS/2 keyboard and mouse ports, IrDA port and an ECP/EPP bidirectional parallel port.

The EnCore M3 QuickStart Kit includes a baseboard reference design, sample baseboard and board support packages for popular embedded operating systems. Finally, the EnCore M3 meets the high quality standards and ruggedized environment, including extended temperature specifications that you would expect from the inventor of PC/104 and EBX standards.

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ENC M3

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Processor

- 400MHz Alchemy Au1500 MIPS32 processor from AMD
- 16KB instruction cache, 16KB data cache
- VIA VT82C686 South Bridge with Super I/O

Memory

- 100 MHz, 3.3V PC100 SDRAM
- Socket for one SODIMM module, 144 pin
- 16-256MB SODIMM SDRAM, 32-bit wide
- 2MB Flash

Bus Interface

- 32-bit, 66MHz PCI 2.1-compliant bus supports 4 devices (4 masters)

I/O — all connections to baseboard unless stated

- **EIDE –** Enhanced Ultra 33/66/100 Synchronous DMA IDE interface to two drives, ATAPI extensions including DVD
- **Serial –** Two TTL ports, one with full modem support
  - Console/debug port
- **Parallel –** ECP/EPP bidirectional port also serves as floppy drive interface
- **USB –** Two USB Host interfaces: USB v. 1.1 and Open HCI; supports slave USB controllers
- **IrDA –** Fast IrDA interface
- **Keyboard/Mouse –** PS/2 interface
- **Audio –** AC97 CODEC on the baseboard

Network Interface

- **Ethernet Port 1 –** 10/100 BaseT Ethernet (autosensing), interface and magnetics on the baseboard
- **Ethernet Port 2 –** 10/100 BaseT Ethernet (autosensing), interface and magnetics on the EnCore embedded processor

Software & Development Tools

- YAMON™ monitor/debugger/bootloader
- MIPS EJTAG Rev. 2.5 connection
- Board Support Packages for popular Operating Systems – see web site for currently supported OS
- Flash programming, downloading and debug through EJTAG – see web site for current supported tools

Mechanical

- **Size –** 100×145mm (3.94×5.70'')
- **228-Pin Interface –**
  - Industry-standard 120-pin PCI bus interface via PC/104-Plus compatible connector
  - 88-pin I/O interface (2×44-pin connectors) for serial, parallel, sound, USB, keyboard, mouse, IrDA and utility
  - 10-pin Ethernet
  - 10-pin power and ground
- **Power Requirements** (w/64MB RAM, 100% Loaded)
  - 0.77A@3.3V
  - 0.22A@5V
- **Environmental –** Operating temperature: 0° to 70°C standard; –40° to +85°C extended.

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EnCore M3 Functional Diagram

DS-ENCM3 5K 1002