CM2-4GE

CoreModule™/4GE • *High integration PC/104™ single board system with onboard Ethernet interface*

ETHERNET 10BASET (TWISTED PAIR)

RS485 SERIAL CONNECTOR

POWER CONNECTOR

486DX4 PROCESSOR

PC/104 BUS

UTILITY CONNECTOR

FLOPPY INTERFACE

SERIAL PORT 2

EXPANSION DRAM MODULE CONNECTOR

IDE INTERFACE

ONBOARD DRAM

BYTEWIDE SOCKET

7104635A

PARALLEL PORT

SERIAL PORT 1
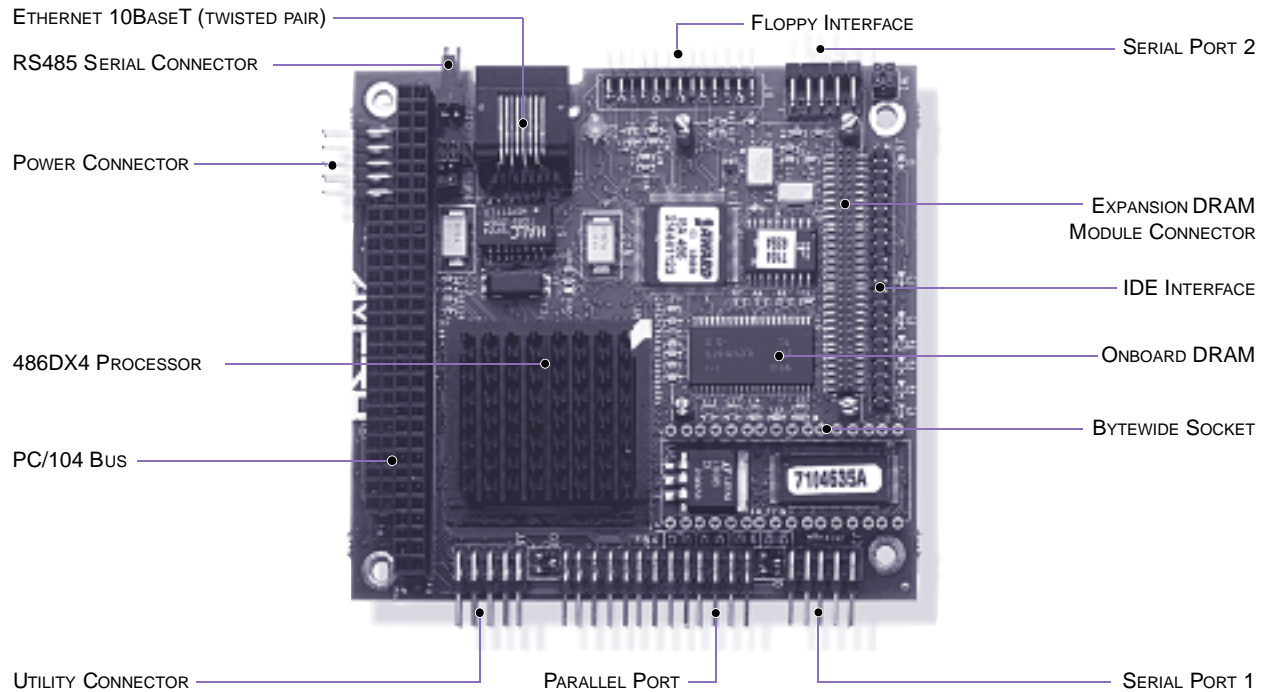
The CoreModule/4GE, along with the CoreModule/4GV, is the first of Ampro's new family of high integration PC/104 CPUs. These modules pack 486 processing power together with all standard embedded PC product features—including CPU and memory subsystems, communications ports and disk interfaces—plus key additional features into less than 14 square inches of board space. This high level of integration allows a single module to serve a wide range of embedded applications.

ETHERNET INTERFACE

The CoreModule/4GE combines core CPU features with a 10Base-T (twisted pair) Ethernet interface based on the popular SMC 91c96 Ethernet controller. The module implements the Carrier Sense, Multiple Access/Collision Detect (CSMA/CD) protocol defined by the IEEE 802.3 (ANSI 8802-3) Ethernet standard and operates at 10 megabits per second. An Ethernet boot ROM may be installed in the board's onboard bytewide socket for direct network boot-up, eliminating the requirement for a local disk drive.

The interface is supported by a broad range of commercial and real-time operating systems, and is commonly used in conjunction with TCP/IP, NFS, and other popular networking protocols.

EMBEDDED READY

The CoreModule/4GE is designed from the ground up to meet the demands of embedded systems through its compact design, low power consumption, wide operating temperature range, and high reliability. An extensive set of embedded PC BIOS enhancements ensures robust operation in unpredictable real-world environments.

As the "computing engine" in an OEM system, the CoreModule/4GE can be used as a macrocomponent plugged into a proprietary application board, or can be combined with PC/104 expansion products to form compact, highly integrated control subsystems.

Full compatibility with PC hardware and software standards assures seamless integration with a wide range of off-the-shelf expansion modules, operating systems, application software and peripheral devices.

CM2-4GE

SPECIFICATIONS

PC MOTHERBOARD FUNCTIONS

CPU	• Auctor Maple integrated processor (486DX4 compatible), 100 MHz
MEMORY	• 16 Mbytes onboard DRAM, expandable to 32, 48, or 64 Mbytes via socketed DRAM module
SYSTEM CONTROLLERS	• 7 DMA channels (8237 equivalent)
	• 14 interrupt channels (8259 equivalent)
	• 3 programmable counter/timers (8254 equivalent)
	• PC/AT compatible keyboard port
	• Speaker port with 0.1W drive
REAL TIME CLOCK	• Real time clock with CMOS RAM (146818 equivalent); requires external 3.0 - 3.6V battery
	• Battery-free operation option
BIOS	• Award ROM-BIOS with Ampro embedded PC enhancements

ADDITIONAL ONBOARD FUNCTIONS

SERIAL	• Two RS232 serial ports with full handshaking
	• One port supports RS485 serial option
	• Both ports implemented using 16C550 equivalent with 16 byte data FIFOs
PARALLEL	• Parallel printer port with bi-directional data lines
IDE	• Supports 1 or 2 IDE disk drives
FLOPPY	• Standard floppy port; supports 1 or 2 drives
	• Uses 2 mm cable connector (adapter for standard 0.1 inch cable available separately)
BYTEWIDE SOCKET	• Supports DiskOnChip2000™ or DiskOnChip Millennium bootable flash drive
	• Supports up to 128KB EPROM, +5V flash EPROM, or NOVRAM memory device
CONFIGURATION EEPROM	• 2K bit configuration EEPROM
	• 512 bits available for OEM use (supported through Ampro enhanced BIOS services)
WATCHDOG TIMER	• Utilizes real time clock alarm function
	• Timeout triggers hardware reset or non-maskable interrupt

ETHERNET INTERFACE

CONTROLLER	• SMC 91c96 Ethernet controller
TOPOLOGY	• Ethernet bus, using CSMA/CD
	• 10Base-T (twisted pair) network connection via onboard RJ45 connector
OPERATION	• 10Mbits/second transfer speed
	• Complies with IEEE 802.3 (ANSI 8802-3) Ethernet network standard
	• Includes link status LED indicator
	• EEPROM provided for Ethernet configuration and node address storage
	• Network boot ROM supported via onboard bytewide socket
	• Wide operating system support including Microsoft Windows 95/98/NT, DOS, QNX, VxWorks, etc.

MECHANICAL

SIZE	• 3.6 x 3.8 x 0.9 in. (90 x 96 x 23 mm) (Includes PC/104 bus stackthrough pins. Please refer to PC/104 specification for stacking and other dimensions.)
BUS	• 16-bit PC/104 bus
POWER	• Requirements (typical 100 MHz with 16 MBytes RAM): +5V +/- 5% — Active: 4W
ENVIRONMENTAL	• Operating temperature: 0° to 70° C standard; contact factory for extended temperature options.
	• Storage temperature: −55° to +85° C
	• 5% to 95% relative humidity, non-condensing
	• Weight: 3.2 oz. (91 gm.)

AMPRO®