AMPRO®

CoreModule™ 410

Long–life, Low–Cost 486–based PC/104 CPU

FEATURES
- 133MHz 486-based STPC® Elite Processor
- 16MB soldered SDRAM
- 1MB Flash Memory, 768KB available to user/OEM
- EIDE drive interface (ATAPI including DVD)
- Two Serial ports
- Floppy interface
- ECP/EPP Parallel port
- (8) GPIO pins
- PS/2 Keyboard and Mouse interface
- Bytewide Socket for DiskOnChip® 2000
- PC/104 interface (ISA Bus)

The CoreModule™ 410 PC/104 CPU is a low cost, headless, 486-based controller in the industry-standard PC/104 form-factor. Based on the STMicroelectronics™ 133MHz STPC® Elite processor with long lifecycle commitment, the CoreModule 410 provides full PC compatibility for the embedded market in order to leverage industry-standard operating systems and tools. Standard features include processor, 16MB soldered SDRAM memory, two RS232 serial ports (one with RS485 capability), EPP/ECP parallel port, floppy port, and DMA 33 EIDE disk interface. The CoreModule 410 also supports certain solid-state disk technology with a bytewide socket compatible with DiskOnChip® 2000 devices. In addition, 1MB Flash memory is included onboard, with 768KB available to the system OEM. This solution gives OEMs a long production life without having to migrate upward just to stay in production.

The CoreModule 410 fully complies with the PC/104 Specification, making it a natural choice for system OEMs who need a drop-in replacement for their current end-of-life 386- and 486-based PC/104 CPUs without the need for a mechanical or electrical re-design. It is also ideal for compact, size-conscious, high volume, rugged, embedded designs that need the value of a 486 processor without a fan over an extended operating temperature range of −40°C to +85°C.

Like all Ampro CoreModule boards, development with the CoreModule 410 is supported by QuickStart kits, complete Development Systems (which include power supply, video controller, and disk drives), and Board Support Packages (BSPs) for popular operating systems. Finally there is a solution to your 386 and 486 migration needs with the same high-quality, rugged, and extended temperature capabilities that you fully expect from the inventor of the PC/104 and EBX standards.

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Processor

- 133MHz STPC® Elite processor (5×86)
- Unified instruction and data cache, 8KB
- Integrated Floating Point Unit
- PC/AT compatible System Controllers
- Real Time Clock with CMOS setup; requires external 3.0 - 3.6V battery for backup
- 8KB protected flash record supports batteryless boot capability
  - Available for OEM use through Ampro BSP extensions
- System BIOS with Ampro extensions

Memory

- 100MHz, 3.3V SDRAM
- 16MB SDRAM, 64 bits wide, soldered
- 1MB Flash Memory, 768KB for OEM use
- Bytewide Socket supports DiskOnChip® 2000 bootable flash drive

Bus Interface

- 16-bit PC/104 ISA bus

I/O

- **EIDE –** Enhanced Synchronous DMA 33 IDE interface to two drives, ATAPI extensions including DVD
- **Serial –**
  - Two RS232 ports with full modem support
  - 16550-compatible with 16 byte FIFOs
  - One port configurable as RS485
- **Parallel –** EPP/ECP bi-directional
- **Floppy –** Interface to two drives
- **Keyboard/Mouse –** PS/2 interface
- **GPIO –** Eight general-purpose digital I/O pins
- **Speaker –** Standard PC speaker with 0.1 watt output
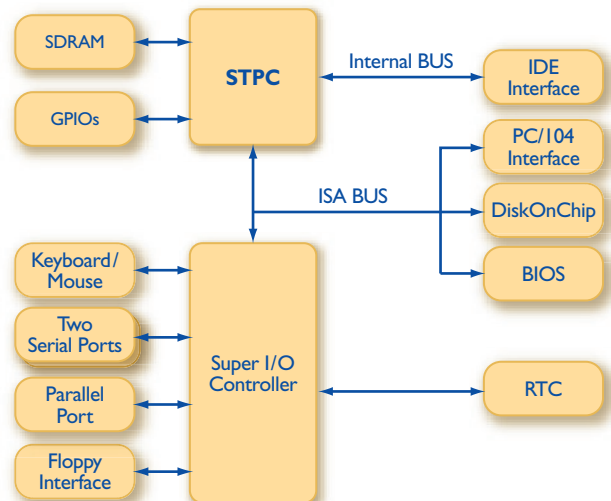
Software & Development Tools

- **OS Support –** Board Support Packages (BSPs) for popular Operating Systems – see Web site for current listings
- **BIOS –** General Software BIOS with Ampro embedded PC enhancements

Mechanical

- **Size –** 90 x 96 mm (3.6" x 3.8"); PC/104 form-factor compliant
- **Power Requirements –** 1.0A @ +5V (16MB RAM, running, fully loaded)
- **Environmental –** Operating temperature: 0° to 70°C standard; −40° to +85°C extended

CoreModule 410 Functional Diagram

ORDERING INFORMATION

MODEL	DESCRIPTION
CM2-410-Q-01	CoreModule 410, 133MHz STPC Elite CPU, 16MB RAM
CM2-410-K-11	CoreModule 410, QuickStart Kit (CM2-410-Q-01, Cable Kit, Software, Documentation)
CM2-410-K-81	CoreModule 410 Development System (CM2-410-Q-01, Software, Documentation, Development Platform with 110/220V power supply, video controller module, floppy, hard disk drive, CD-ROM, ISA backplane)
CBL-410-Q-01	CoreModule 410 Cable Kit

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