EnCore™ 400 Embedded Processor

High-integration, low-cost 486-based embedded processor

FEATURES
- 133MHz x86-based STPC Atlas Processor
- 16-128MB SODIMM SDRAM
- 256Kbytes Flash Memory
- 33MHz PCI Bus Interface
- EIDE (2) drive interface, ATAPI including DVD
- Two Serial ports, Floppy, ECP/EPP Parallel port
- (2) USB, Fast IrDA, Keyboard/Mouse
- 10/100BaseT Ethernet Interface
- 2D CRT and TFT Flat Panel Interface
- −40° to +85°C extended temperature option

The EnCore™ 400 embedded processor is a low-cost, high-integration x86-based CPU designed to plug into your custom logic baseboard. Based on STMicroelectronics' new 133MHz STPC® Atlas™ processor, the EnCore 400 provides the functionality of a complete embedded CPU in a 100x145mm format.

As with all EnCore modules, the EnCore 400 provides two serial ports, EPP/ECP parallel port, two USB OHCI ports, PS/2 keyboard and mouse interfaces, floppy and Ultra/DMA 33/66 IDE controllers, and a 10/100BaseT Ethernet interface. EnCore 400 supports from up to 128MB SODIMM SDRAM, and interfaces to an application-specific logic board using a 33MHz PCI bus. EnCore 400 also includes a 2D graphics controller which provides both CRT and TFT flat panel video interfaces.

The EnCore 400 QuickStart Kit includes a baseboard reference design, sample baseboard and board support package for popular operating systems. Finally, the EnCore 400 meets the high quality standards and ruggedized environment, including extended temperature specifications, you would expect from the inventor of PC/104 and EBX standards.

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ENC 400

Processor

- 133MHz STPC Atlas processor (5×86)
- Unified instruction and data cache, 8KB
- Integral Floating point Unit
- **System Controllers –** Seven DMA Channels (8237 equivalent)
- Fourteen Interrupt Channels (8259 equivalent)
- Integrated Video Controller
- **Real Time Clock –** With CMOS setup; onboard replaceable battery provided
- **Configuration EEPROM –** Supports batteryless boot capability
  - 512 bits available for OEM use
- **BIOS –** System and Video BIOS with Ampro extensions in 256KB Flash Device programmable on the board
- Advanced Power Management, Doze, Standby, Suspend

Memory

- 100MHz, 3.3V SDRAM
- Socket for one SODIMM module, 144 pin
- 16-128MB SDRAM, 64 bit wide
- 256KB Flash Memory for system BIOS

Bus Interface

- 32-bit, 33MHz PCI 2.1-compliant bus supports 4 devices (1 master)

I/O – all connections to baseboard unless stated

- **EIDE –** Enhanced Ultra 33 Synchronous DMA IDE interface to two drives, ATAPI including DVD
- **Serial –** Two TTL ports, one with full modem support
- **Parallel –** ECP/EPP bidirectional port also serves as floppy drive interface
- **USB –** Four USB Open HCI ports
- **IRDA –** Fast IrDA interface
- **Keyboard/Mouse –** PS/2 interface

Network Inteface

- **Ethernet –** Intel 82559ER 10/100BaseT Ethernet (autosensing), interface and magnetics on baseboard
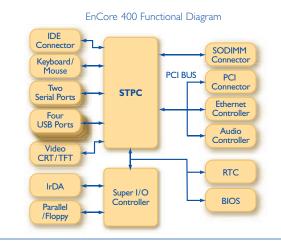
Video Interface

- Integrated Controller
- 64-bit single-cycle 100MHz 2D graphics engine
- 4MB UMA Frame Buffer
- TFT, PanelLink (Digital Video Interface-DVI) support
- Up to 256 thousand colors (18-bit)
- Programmable Flat Panel Support up to 1024×1024 resolution
- Supports 4/3 and 16/9 scan size
- Allows external TMDS transmitter for advanced flat panel interfaces
- Supports both 3.3V and 5.0V LCD panels

Software & Development Tools

- Board Support Packages for popular Operating Systems – see Web site for current listings
- General Software BIOS with Ampro extensions

Mechanical

- **Size –** 100×145mm (3.94×5.70'') form factor
- **272-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
  - 44-pin CRT and flat panel interface
  - 10-pin power and ground
- **Power Requirements(5V) –** 1.30A
- **Environmental –** Operating temperature: 0° to 70°C standard; –40° to +85°C extended.

EnCore 400 Functional Diagram

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