*EBX single board computer with Pentium M processor, Extreme Graphics 2 chipset, dual Ethernet, CompactFlash socket, analog and digital I/O, and PC/104-*Plus *expansion.*

Product Overview

The Cobra belongs to a new class of embedded computers offering higher processing performance with lower power consumption, extreme graphics capability and enhanced ruggedization. The advanced design makes it suitable for a wide range of higher-end applications with demanding speed and graphics requirements, including gaming devices, information kiosks, telecommunications devices and advanced security systems. In addition, its PC architecture and small footprint make it an excellent choice for traditional embedded applications.

The system is built around the Intel Pentium M Processor and its companion chipset, the 855GME with integrated Extreme Graphics 2 and audio functions. The processor incorporates a number of power saving features and performance enhancing features such as a large 1 MB level 2 cache. The advanced graphics controller provides exceptionally sharp images, ultra-fast rendering, and smooth sequencing to produce realistic 3-D graphics and animation.

The board features two SODIMM sockets, which support up to 2 GB of system RAM. These rugged, low-profile RAM sockets provide more reliable operation in applications subject to shock and vibration. The DDR (Double Data Rate) RAM interface provides fast memory access and increased system throughput.

The Cobra also provides durability and reliability through features like latching I/O connectors, a programmable CPU temperature sensor, voltage-sensing reset circuit, watchdog timer, and long-life industrial battery. TVS (Transient Voltage Suppression) devices on the primary system I/O connections help protect the system from ESD (electrostatic discharge) damage. A self-resetting fuse on the 5V power to the keyboard, mouse and USB ports protects the board from cable or connector shorts.

Additional on-board functionality includes two Gigabit-speed Ethernet ports, four USB 2.0 ports, RS-232 and RS/422/485 COM ports, compact flash socket, digital I/O ports, counter/timers, field-reprogrammable BIOS, and optional A/D converter. Of course the PC/104-*Plus* expansion site can accept a wide variety of PC/104 and PC/104-*Plus* I/O modules for additional expansion when needed. It all adds up to a lot of computing and I/O power in a single EBX-sized board.

Like all VersaLogic products, the Cobra is designed and guaranteed for long-term availability. From application design to continuing production, it provides a cost-effective solution with low total cost of ownership. The Cobra is manufactured to the highest quality standards, and is backed with excellent technical and engineering support. Customization is available in quantities as low as 100 pieces.

Features	Benefits
Pentium M processor	Lower power consuption, higher performance
Extreme Graphics 2 video	Very high speed rendering MPG-2 support
SODIMM memory sockets	Low profile, very rugged, high capacity
Soldered-on Flash BIOS	Rugged, field-upgradable, customizable BIOS
Dual 10/100 or Gigabit Ethernet ports	High-speed networking capability
USB 2.0 ports (four)	Supports high-speed USB devices
RS-232 and RS422/485 COM ports	Two standard + two RS-422/485/232 configurable ports
TVS Protection	Enhanced ESD protection for keyboard, USB, Ethernet, etc.
CompactFlash socket	Removable storage device has no moving parts
Analog I/O option	On-board A/D option reduces need for external expansion
CPU temperature sensor	Suports software-controlled cooling options
Watchdog timer	Controls application run-away conditions
32-line TTL I/O port	On-board I/O reduces need for I/O expansion
400 MHz Processor-side bus	Improved system throughput

Specifications

General

Processor: Intel Pentium M series

Chipset: Intel 855GME

Power Requirements:
+5.0V only with 128MB RAM, keyboard, mouse, running Windows XP:
12W @ 600 MHz CMOS setup option (600 to 1600 MHz)
24.5W @ 1.6 GHz

System Reset:
Watchdog timeout
Vcc sensing (resets below 4.70V typ.).

Bus Speed:
CPU PSB: 400 MHz
PCI, PC/104-*Plus*: 33 MHz
PC/104: 8 MHz

Compatibility:
EBX: Mechanically Compatible
PC/104-*Plus* expansion: Footprint compatible, 3.3V signaling

Mechanical

Board Size: 5.75" x 8" (146.05mm x 203.2mm)

Storage Temperature: – 40° C to +85° C

Operating Temperature: 0° C to +60° C

Humidity: Less than 95%, noncondensing

Memory

DRAM Interface: Two 200-pin SODIMM sockets. Up to 1 GB of 266 MHz PC2100 or 333 MHz PC2700 compatible DDR RAM each.

Flash Interface: CompactFlash socket with mechanical latch. Type I or II supported.

Video

Video Interface: Extreme Graphics 2 chip set. LVDS and analog interface. Uses up to 64 MB system memory. Resolutions up to 2048x1536. Full motion video, MPEG-2 decoder, 3-D, edge smoothing and ultra-fast rendering.

Network Interface

Ethernet: Dual ports based on Intel 82551ER or 82541ER. Autodetect 10BaseT/100BaseTX or Autodetect 10BaseT/100BaseTX/1000BaseT ports available.*

Network Boot Option: Argon Managed Boot Agent. Supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols.

I/O

USB: Four ports USB 2.0 and 1.1 protocol.

IDE Interface: Dual channel PCI-based. Up to 4 IDE devices (including CompactFlash). ATA 100 compatible.

COM 1 - 2 Interface: RS-232, 16C550 compatible, 115K baud max.*

COM 3 - 4 Interface: RS-232/422/485, 16C550 compatible, 460K baud max.*

LPT Interface: Bi-directional/EPP/ECP/floppy mode compatible.*

Digital I/O: 32 line TTL I/O. 2 lines IRQ routable.

Counter/Timers: Two 8254 style counter/timers.

Analog I/O (Optional): 8 channel 12 bit 6 us A/D with interrupt capability.

Audio: AC '97 compatible. Stereo Line In. Stereo Line Out.

AT peripherals: Keyboard* and PS/2 mouse port.*

Software

Operating Systems: Compatibility with most X86 operating systems, including Win95/98/NT/CE/XP, QNX, VxWorks and Linux.

Board Support Packages: BSPs for many popular RTOSs. See www.VersaLogic.com for details.

BIOS: General Software's Embedded BIOS with OEM Enhancements. Field reprogrammable.

*TVS protected port.
Data represent standard operation at 25° C with 5.0V supply unless otherwise noted. Specifications are subject to change without notice.

Ordering Information

VL-EBX-12 x .... Cobra Pentium M-series SBC

x = Configuration / version. Specify one of the following:

    b   Intel Pentium M 1.6 GHz, Two 10/100 Ethernet ports
    d   Intel Pentium M 1.6 GHz, Two Gigabit Ethernet ports

Accessories

VL-CBL-0501 .... USB channel 3 & 4 transition cable**

VL-CBL-1007* .... Video adapter cable

VL-CBL-2022* .... Power adapter cable

VL-CBL-2501 .... LPT / Floppy interface cable

VL-CBL-4003* .... Hard drive connector cable

VL-CBL-8003* .... Primary breakout cable

VL-CBL-8004* .... Secondary breakout cable

VL-CKT-COBRA .... Development cable kit

VL-ENCL-5 .... Development enclosure

VL-FDD-144 .... 3.5" Floppy drive

VL-HDD35-xx .... 3.5" IDE hard disk drive

VL-HDW-101* .... Metric standoff package

VL-HDW-201 .... PC/104 extractor tool

VL-HDW-301 .... Analog input chip, 0 to +60° C

VL-MM5D-xxx .... DDR RAM module

VL-PS200-ATX .... Development power supply

* Included in VL-CKT-COBRA cable kit
** Connects to VL-CBL-8003 paddle board