



- Up to 1.8 GHz Pentium M processor
- Extreme Graphics 2 video
- High-speed DDR RAM
- CompactFlash socket
- 10/100 Ethernet
- Standard and extended temp versions
- RoHS-compliant

Highlights

High-Performance Processor

Pentium M 1.8 GHz or ULV Celeron M 1.0 GHz options.

Extreme Graphics 2 Video

Very high speed rendering and MPEG-2 support.

SODIMM Memory Socket

Accommodates up to 1 GB of DDR RAM.

On-board I/O

Two USB 2.0 ports, two COM ports (one 232/422/485 configurable), IDE interface, LPT port, audio.

TVS Protection

Enhanced ESD resistance.

CompactFlash Socket

Removable storage device has no moving parts.

Watchdog Timer

Provides hardware-level safety control for application run-away conditions.

400 MHz processor-side bus

Improved system throughput.

Embedded BIOS

OEM embedded features. Field-upgradeable. Customization available.

PC/104-Plus Form Factor

Compact module is ideal for space-constrained applications.

RoHS-compliant

Meet EU Directive 2002/95/EC.



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Overview

The Cheetah single board computer reaches a new level of sophistication for embedded product technology, integrating very high performance with an expanded feature set on the compact and rugged PC/104-Plus form factor. The advanced design of the Pentium M processor makes it suitable for a wide range of higher-end applications such as security systems, telematics, UAVs, and sophisticated communications equipment.

An impressive amount of functionality is packed into the 2-board set, including 10/100 Ethernet, two USB 2.0 ports, two COM ports, LPT, IDE, audio, and high-resolution video output. It includes a CompactFlash socket for on-board bootable media storage, TVS devices on the user I/O for enhanced ESD protection, and a watchdog timer to control application run-away conditions. The Cheetah accommodates up to 1 GB DDR system RAM in a high-retention SODIMM socket.

Like all VersaLogic products, this small, powerful SBC is designed to support OEM applications where high reliability and long-term availability are required. From application design-in to 5+ years production life, its quality and longevity provide a cost-effective, long-term solution. The Cheetah is manufactured and tested to the highest quality standards and is backed by a two year limited warranty. Customization is available in as few as 100 pieces.

Details

The Cheetah's Pentium M processor provides outstanding performance of up to 1.8 GHz while drawing less than 25 watts of power, or about half the power of desktop processors offering similar performance. The processor and chipset solution relies on three separate chips: the processor, a graphics and memory controller hub that provides fast RAM access and video output, and an I/O hub that provides PCI, IDE, USB, and audio functionality.

The Extreme Graphics 2 video built into the chipset offers outputs for LVDS flat panels and analog (CRT) monitors at resolutions up to 2048 x 1536. It supports 24-bit color, very fast rendering, and MPEG-2 decoding for full motion video. Video RAM is allocated from system memory (up to 64 MB).

With two COM ports, two USB ports (2.0), 10/100 Ethernet, LPT port, and IDE interface, the Cheetah offers more I/O options than other similar-sized SBCs. In addition, PC/104 and PC/104-Plus connectors provide support for many off-the-shelf expansion boards for added system functionality with minimal space requirements. The Cheetah also includes a number of reliability-enhancing features such as a watchdog timer and TVS devices.



The Cheetah features a General Software Embedded BIOS with OEM enhancements. The field-reprogrammable BIOS supports custom defaults and CMOS settings. Optional firmware and firmbase applications for security processes, remote booting, and other pre-OS software functions are supported. The Cheetah is compatible with a variety of popular operating systems, including Windows, QNX, VxWorks, and Linux.



Ordering Information

VL-EPM-32p Intel Pentium M 1.8 GHz (RoHS)
 VL-EPM-32t Intel Pentium M 1.0 GHz, Extended Temp. (RoHS)
 VL-EPM-32v Intel ULV Celeron M 1.0 GHz, fanless (RoHS)

Accessories

VL-CBR-0501* USB transition cable (RoHS)
 VL-CBR-0803* Audio cable, stereo in/out (RoHS)
 VL-CBR-1008* ATX power adapter cable (RoHS)
 VL-CBR-1201* SVGA connector cable (RoHS)
 VL-CBR-2010 LVDS Cable, HIROSE style (RoHS)
 VL-CBR-2011 LVDS Cable, JAE style (RoHS)
 VL-CBR-2501 Floppy connector converter (RoHS)
 VL-CBR-4405* 2 mm to 0.1" IDE adapter (RoHS)
 VL-CBR-4406* 2.5" IDE drive cable (RoHS)
 VL-CBR-8001* Primary user I/O breakout cable (RoHS)
 VL-CKR-CHEE Development cable kit (RoHS)
 VL-CDD-IDE1 IDE CD-RW, DVD-ROM drive
 VL-CFM-xxx CompactFlash module
 VL-CF-CLIP1 CompactFlash retention clip
 VL-ENCL-4 VersaTainer Ruggedized enclosure
 VL-ENCL-5 Development enclosure
 VL-FDD-144U USB floppy drive
 VL-HDD35-80 80 GB 3.5" IDE hard drive
 VL-HDW-101* Mounting standoffs, metric thread
 VL-MM5D-xxx DDR RAM module
 VL-DEV-CD-L2 Debian Linux Board Support Package

*Included in VL-CKR-CHEE cable kit



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Specifications

Specifications		
General	Processor	Pentium M or ULV Celeron M series
	Chipset	855GME
	Power Requirements	+5.0V only: 12-25W (EPM-32p)** 8-12W (EPM-32t)** 8W (EPM-32v)
	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	PC/104: footprint compatible. PC/104-Plus: supports 3.3V PCI signaling (2.2 compliant).
Mechanical	Board Size	Dual board set, 3.55" x 3.775" (90 mm x 96 mm) with 0.2" (5 mm) overhangs in the designated connector areas.
	Storage Temperature	-40° to +85°C
	Operating Temperature	0° to +60°C (EPM-32p/v) -40° to +85°C (EPM-32t)
	Vibration, Sinusoidal Sweep	2g constant acceleration from 5 to 500Hz, 20 minutes per axis, MIL-STD-202G, Method 204, Modified Condition A.
	Vibration, Random	.02g ² /Hz (5.35g rms), 15 minutes per axis, MIL-STD-202G, Method 214A, Condition A.
	Mechanical Shock	30g half-sine, 11 ms duration per axis, MIL-STD-202G, Method 213B, Condition J.
	Humidity	Less than 95%, noncondensing.
Memory	System RAM Interface	One 200-pin SODIMM socket. Up to 1 GB of 266 MHz PC2100 or 333 MHz PC2700 compatible DDR RAM.
	Flash Interface	CompactFlash socket (type I or II) with DMA support.
Video	General	Extreme Graphics 2 chip set. Uses up to 64 MB system memory. Full motion video, MPEG-2 decoder, 3-D, edge smoothing and ultra-fast rendering.
	Desktop Display Interface*	Standard analog display interface supports 24-bit color and resolutions up to 2048 x 1536.
	OEM Flat Panel Interface	LVDS flat panel interface supports 24-bit color and resolutions up to 1024 x 768.
Network Interface	Ethernet*	One 10/100 Ethernet port. Auto-detect.
	Network Boot Option	Argon Managed Boot Agent. Supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols.
Device I/O	USB*‡	Two ports USB 2.0/1.1 protocol.
	IDE Interface	Single channel PCI-based. Up to 2 IDE devices. ATA 100 compatible. (CompactFlash is on a separate channel)
	COM 1 Interface*	RS-232, 16C550 compatible. 115K baud max.
	COM 2 Interface*	RS-232/422/485, 16C550 compatible, 460K baud max.
	LPT Interface*	Bi-directional/EPP/ECP/floppy mode compatible.
	Audio	AC'97 PCI compatible. Stereo line in. Stereo line out.
	Other*	Keyboard and PS/2 mouse port.
Software	Operating Systems	Compatible with most x86 operating systems, including WinCE/XP/XPe, QNX, VxWorks, and Linux.
	BIOS	General Software's Embedded BIOS with OEM Enhancements. Field reprogrammable. Support for USB keyboard/mouse and USB boot.

*TVS protected port (Enhanced ESD protection).

**Depending on CPU speed set in CMOS setup options.

‡ Power pins on this port are protected with a self-resetting fuse.

Data represents standard operation at 25°C with 5.0V supply unless otherwise noted. Specifications are subject to change without notice. PC/104 is a trademark of the PC/104 Consortium.

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