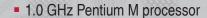


# CHEETAH

### PC/104-Plus Single Board Computer



- Extreme Graphics 2 video
- High-speed DDR RAM
- CompactFlash socket
- 10/100 Ethernet
- Extended temp. operation
- RoHS-compliant



# **Highlights**

#### **High-performance Processor**

Pentium M 1.0 GHz performance with low power draw.

#### **Extreme Graphics 2 Video**

Very high speed rendering and MPEG-2 support.

#### **SO-DIMM 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

#### 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.

# **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 SO-DIMM 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 1.0 GHz while drawing less than 12 watts of power. 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.







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#### PC/104-Plus Single Board Computer

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-32t ...... Intel Pentium M 1.0 GHz, Extended Temp. (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)
	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)
	Development cable kit (RoHS)
VL-CDD-IDE1	IDE CD-RW, DVD-ROM drive
VL-CF-CLIP1	CompactFlash retention clip
	VersaTainer Ruggedized enclosure
	Development enclosure
VL-FDD-144U	USB floppy drive
VL-HDD35-xxx	3.5" IDE hard drive
	Mounting standoffs, metric thread
	DDR RAM module
VL-DEV-CD-L2	Debian Linux Board Support Package

<sup>\*</sup>Included in VL-CKR-CHEE cable kit

Specifications		
General	Processor	Intel Pentium M
	Chipset	855GME
	Power Requirements	+5.0V only:
		12W (EPM-32t)
	System Reset	Watchdog timeout
	Due Casad	VCC sensing (resets below 4.70V typ.) CPU PSB: 400 MHz
	Bus Speed	PCI, PC/104- <i>Plus</i> : 33 MHz
		PC/104: 8 MHz
	Compatibility	PC/104: footprint compatible.
	' <i>'</i>	PC/104-Plus: supports 3.3V PCI
		signaling (2.2 compliant).
Mechanical	Board Size	Dual board set, 3.55" x 3.78" (90 mm x
		96 mm) with 0.2" (5 mm) overhangs in
	Ctorogo Tomporoturo	the designated connector areas40° to +85°C
	Storage Temperature	-40° to +85°C (EPM-32t)
	Operating Temperature Vibration, Sinusoidal Sweep	2g constant acceleration from 5 to 500Hz,
	Vibration, Sinusoldar Sweep	20 minutes per axis, MIL-STD-202G,
		Method 204, Modified Condition A
	Vibration, Random	.02g2/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 SO-DIMM 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
	T Idon micridoc	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
	Dealth Divide Interferent	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	Ethernet*	10/100 Ethernet port. Auto-detect.
Interface	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.
	00M41444	(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,
	JOWI Z IIIIOIIAUG	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,
	BIOS	VxWorks, and Linux. General Software's Embedded BIOS
	D100	with OEM Enhancements. Field
		reprogrammable. Support for USB
		keyboard/mouse and USB boot.
	anced ESD protection).	keypoard/mouse and USB boot.

<sup>\*</sup>TVS protected port (Enhanced ESD protection).

Data represents standard operation at  $25^{\circ}\mathrm{C}$  with 5.0V supply unless otherwise noted. Specifications are subject to change without notice. PC/104 is a trademark of the PC/104 Consortium.

06-08-10

<sup>‡</sup> Power pins on this port are protected with a self-resetting fuse.