VERSALOGIC CORPORATION

CHEETAH

PC/104-*Plus* Single Board Computer

- 1.0 GHz Pentium M processor
- 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 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.

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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RoHS

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CHEETAH

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)
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-xxx ..... 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*

Specifications

General	Processor	Intel Pentium M
	Chipset	855GME
	Power Requirements	+5.0V only: 12W (EPM-32t)
	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 3.78" (90 mm x 96 mm) with 0.2" (5 mm) overhangs in the designated connector areas.
	Storage Temperature	-40° to +85°C
	Operating Temperature	-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 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 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*	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).*
‡ 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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