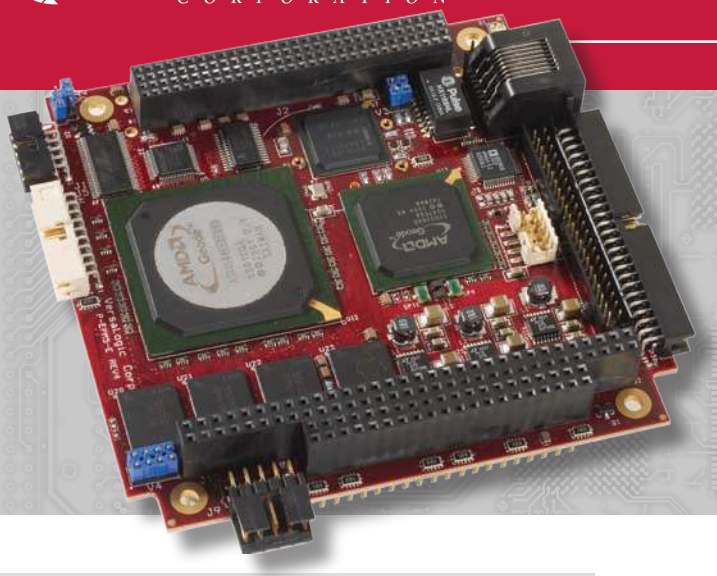
VERSALOGIC CORPORATION

PUMA

PC/104-*Plus* Single Board Computer



- Low power AMD Geode™ GX 500 processor
- 256 MB soldered-on DDR RAM
- Integrated video
- PC/104-*Plus* expansion
- CompactFlash socket
- RoHS-compliant

Highlights

PC/104-*Plus* Form Factor
Provides PC/104 and PC/104-*Plus* expansion on a compact, highly rugged format.

AMD Geode GX 500 Processor
366 MHz performance with low power draw.

High-performance Video
Analog and LVDS flat panel outputs for 18 and 24-bit displays.

Network Support
10/100 Ethernet provides fast network access and boot ROM support.

4 USB Ports
Multiple USB ports provide flexible I/O options for keyboard, mouse, floppy drives, and other devices.

Integrated I/O
Three COM ports (one RS-232, two RS-422/485), one IDE interface, and one LPT port with SPP and enhanced modes.

TVS Protection
Enhanced ESD resistance.

CompactFlash Socket
Removable storage media has no moving parts and supports bootable media.

Fanless Operation
No moving parts required for CPU cooling.

Power Management
Suspend-to-RAM support allows extreme power savings during system standby.

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

Embedded BIOS
OEM embedded features and firmware support. Field-upgradeable. Customization available.

Overview

The Puma is an extremely compact and rugged single board computer that combines a high degree of functionality with low power requirements and no moving parts. The inherent ruggedness of the Puma's PC/104 size combined with the low power AMD Geode GX 500 processor make this board a great fit for portable devices, vehicular/aircraft controls, medical electronics, and many other OEM applications.

The Puma has an impressive list of on-board features, including integrated high-performance video with flat panel support, 10/100 Ethernet, four USB ports, three COM ports, LPT port, and an IDE interface. A CompactFlash socket provides bootable media storage, and TVS devices provide enhanced ESD protection on user I/O ports. The Puma includes 256 MB of soldered-on, high-speed RAM for optimum application performance.

Like all VersaLogic products, this small and efficient 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. Customization is available on as few as 100 pieces. The Puma is manufactured and tested to the highest quality standards, is compliant with RoHS regulations, and is backed by a two year limited warranty.

Details

The Puma features the AMD Geode GX 500 processor, which offers excellent performance while drawing only one watt of power. This highly-integrated processor provides extremely fast on-board transfers (6 GB per second), high-speed memory access, and integrated high-performance video with LVDS flat panel support.

The Puma can operate as a stand-alone SBC or can be combined with specialized PC/104 or PC/104-*Plus* I/O boards for additional functionality. Pass-through connectors for the PC/104 and PC/104-*Plus* interfaces provide support for many off-the-shelf I/O boards and also provide an interface for custom baseboards that may be larger than the Puma.

The Puma includes several features to support the reliable operation of the board in the field, including TVS devices and self-resetting fuses on USB port power pins. The TVS devices provide enhanced ESD protection for the analog video output, USB, COM, LPT, and Ethernet ports.

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RoHS

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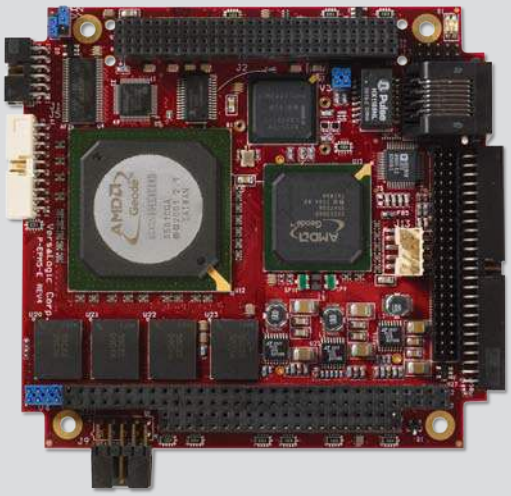
PUMA

PC/104-*Plus* Single Board Computer

The board features a General Software Embedded BIOS with OEM enhancements and power management. The suspend-to-RAM power management feature allows extremely low power usage between sessions. This field-reprogrammable BIOS supports custom defaults and the addition of firmware and firmbase applications for security processes, remote booting, and other pre-OS software functions. The Puma is compatible with a variety of popular operating systems, including Windows, Windows Embedded, Linux, and VxWorks.



Ordering Information

VL-EPM-5g ..... AMD Geode GX 500, 366 MHz, Standard Temp.
VL-EPM-5h ..... AMD Geode GX 500, 333 MHz, Extended Temp.

Accessories

VL-CBR-0803 ..... Audio cable, stereo in/out (RoHS)
VL-CBR-1008 ..... ATX power adapter cable (RoHS)*
VL-CBR-1201 ..... Analog video interface cable (RoHS)*
VL-CBR-2003 ..... LPT interface cable (RoHS)*
VL-CBR-2010 ..... LVDS/FPD interface cable (Hirose) (RoHS)
VL-CBR-2011 ..... LVDS/FPD interface cable (JAE) (RoHS)
VL-CBR-4404 ..... 44-pin 2 mm IDE cable (RoHS)
VL-CBR-4405 ..... 1" connector IDE adapter board (RoHS)*
VL-CBR-4406 ..... IDE cable (RoHS)*
VL-CBR-5009A ..... 18" I/O ribbon cable (RoHS)
VL-CBR-5010 ..... I/O cable set (RoHS)*
VL-CDD-IDE1 ..... CD-RW, DVD-ROM drive
VL-CF-CLIP1 ..... CompactFlash retention clip
VL-CFM-xxxx ..... CompactFlash module
VL-CKR-PUMA ..... Development cable kit (RoHS)
VL-DEV-CD-L3 ..... Debian Linux Board Support Package
VL-ENCL-4 (VersaTainer) ..... Ruggedized enclosure
VL-ENCL-5c ..... Development enclosure
VL-FDD-144U ..... USB floppy drive
VL-HDD35-xxx ..... 3.5" IDE hard drive
VL-HDW-101 ..... Mounting standoffs, metric thread*
VL-XCC104A ..... 64-pin, 8-bit, PC/104 spacer (RoHS)
VL-XCC104B ..... 40-pin, 16-bit, PC/104 spacer (RoHS)
VL-XCC104P ..... 120-pin, 32-bit, PC/104-Plus spacer (RoHS)

** Included in VL-CKR-PUMA Cable Kit*

Specifications

General	Processor	AMD Geode GX 500
	Chipset	AMD Geode CS5536
	Power Requirements	+5V ±5% @1A (5W) typ. operating +5V ±5% @160 mA (800 mW) typ. standby
	System Reset	Watchdog timout VCC sensing (resets below 4.7V typ.)
	Compatibility	PC/104: footprint compatible. PC/104-*Plus*: supports 3.3V PCI signaling (2.1 compliant). RoHS: compliant.
Mechanical	Board Size	3.55" x 3.78" (90 mm x 96 mm) with 0.20" connector overhangs in the designated connector areas
	Storage Temperature	-40° to +85°C
	Operating Temperature	0° to +60°C (VL-EPM-5g) -40° to +85°C (VL-EPM-5h)
	Thermal Shock	5°C/min. over operating temperature
	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
	Humidity	Less than 95%, noncondensing
Memory	System RAM	256 MB Soldered-on DDR SDRAM
	Flash Interface	High-retention CompactFlash socket. Type I or II supported.
Video	General	Integrated high-performance video. Up to 1280 x 1024 with 24-bit color. MMX™ + 3D Now!™
	Desktop Display Interface*	Standard analog output. 2 mm IDC connector.
	OEM Flat Panel Interface	18/24-bit LVDS interface. CMOS-selectable TFT panel types.
Network Interface	Ethernet*	Autodetect 10BaseT/100BaseTX port. Right angle connector.
	Network Boot Option	Firmware-based Argon Managed Boot Agent. Supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols
Device I/O	USB*‡	4 USB 2.0 ports
	IDE Interface	ATA-5, UDMA66 interface. 44-pin 2 mm connector.
	COM 1 Interface*	RS-232 compatible, standard PC serial connector. 115 Kbps.
	COM 2 Interface	N/A
	COM 3 & 4 Interface*	RS-422/485 selectable. 460 Kbps.
	LPT Interface*	Standard PC parallel port. 2 mm 20-pin latching connector. SPP and enhanced modes supported.
	Audio	AC'97 stereo line in/out
	Other	Floppy, mouse, and keyboard support provided via USB
Software	Operating Systems	Compatible with most x86 operating systems, including Windows, Windows Embedded, Linux, and VxWorks
	BIOS	General Software's Embedded BIOS with OEM enhancements. Field reprogrammable. User-configurable CMOS defaults.

**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 +5V supply unless otherwise noted. Specifications are subject to change without notification. PC/104 is a trademark of the PC/104 Consortium.

06/08/10