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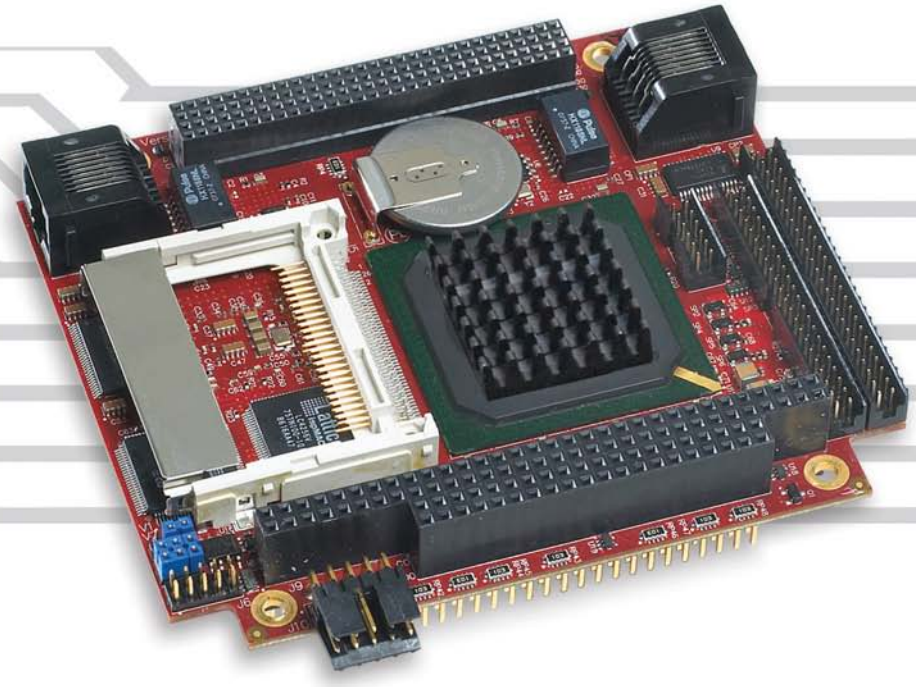
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Cougar

AMD Geode LX 800 Single Board Computer



Overview

The Cougar is a feature-rich, mid-performance single board computer that offers very low power consumption without sacrificing performance. The highly efficient AMD Geode LX 800 processor provides fanless extended temperature operation, while soldered-on memory ensures high reliability. Equipped with dual 10/100 Ethernet, USB 2.0 ports, and RS-232/422/485 COM ports, the Cougar is ideal for defense, aerospace, homeland security, medical, and other embedded computing applications.

Like all VersaLogic products, the Cougar is designed to support OEM applications where high reliability and long-term availability are required. From application design-in support, to its 15+ year production life guarantee, the Cougar provides a durable embedded computer solution with an excellent cost of ownership. The Cougar is manufactured and tested to the highest quality standards and is fully RoHS compliant. Customization is available, even in low OEM quantities.

Highlights

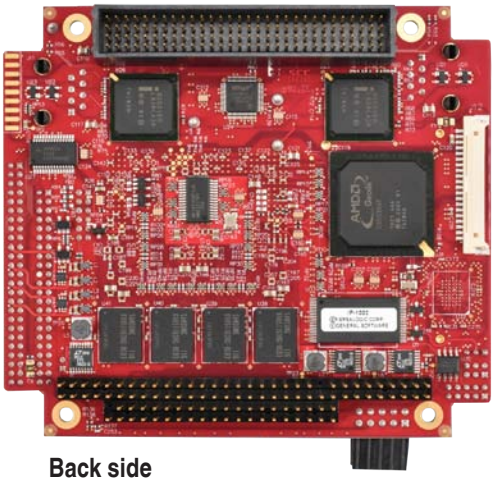
- AMD Geode LX 800 Processor
- Very low power consumption
- 256 MB soldered-on DDR memory
- Integrated video
- CompactFlash socket
- Extended temp. operation
- RoHS-compliant

VERSALOGIC CORPORATION

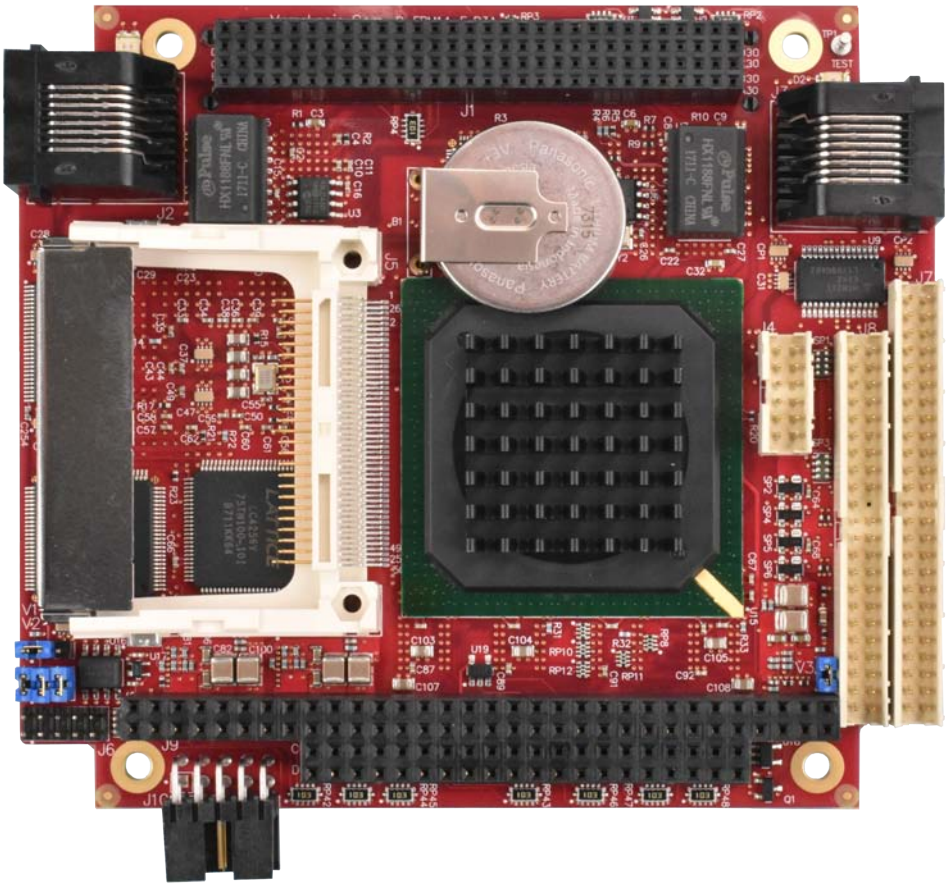
Features

1. **AMD Geode LX 800 Processor**
   800 MHz performance with ultra-low power consumption.
2. **High-performance Video**
   Analog and LVDS flat panel outputs for 18 and 24-bit displays.
3. **256 MB DDR Memory**
   Soldered-on RAM for high reliability.
4. **Network Support**
   Dual 10/100 Ethernet provides fast network access and boot ROM support.
5. **USB Ports**
   Four USB 2.0 ports provide flexible I/O options for keyboard, mouse, floppy drives, and other devices.
6. **Integrated I/O**
   Three COM ports (two RS-232, one RS-422/485) and one IDE interface.
7. **CompactFlash Socket**
   Removable non-volatile media has no moving parts and is bootable.
8. **Fanless Operation**
   No moving parts required for CPU cooling.

- **Embedded BIOS**
  OEM embedded features and firmware support. Field-upgradeable, customization available.
- **Industrial Temperature**
  -40° to +85°C operation for harsh environments.
- **PC/104-*Plus* Form Factor**
  Supports PCI and ISA expansion on a highly rugged format.
- **MIL-STD-202G**
  Qualified for high shock and vibration operation.



Back side



Modify Cougar to Your Exact Requirements

Modified COTS options are available in quantities as low as 100 pieces.

- Standard Temperature Version
- Conformal Coating
- Connector & I/O Changes
- Custom Testing
- Custom Labeling
- BGA Underfill
- BIOS Modifications
- Software and Drivers
- Revision Locks
- Custom Screening
- Application-Specific Testing
- Etc.

Specifications

General	
Board Size	PC/104-*Plus* compliant: 108 x 96 mm (4.25 x 3.78")
Weight	99 grams (3.5 oz.)
Processor	AMD Geode LX 800
Chipset	AMD Geode CS5536
Power Requirements§	4.5W
Input Voltage	5V ± 5%
System Reset and Hardware Monitors	Watchdog timeout. Voltage rail monitoring.
Stackable Bus	PC/104-*Plus*: supports 3.3V PCI signaling (2.2 compliant)
Manufacturing Standards	IPC-A-610 Class 2 modified
Regulatory Compliance	RoHS (2011/65/EU), Conflict Minerals compliant.

Environmental	
Operating Temperature	-40° to +85°C
Storage Temperature	-40° to +85°C
Airflow Requirements	Free air from -40° to +85°C
Thermal Shock	5°C/min. over operating temperature
Humidity	Less than 95%, noncondensing
Vibration, Sinusoidal Sweep	MIL-STD-202G, Method 204, Modified Condition A: 2g constant acceleration from 5 to 500 Hz, 20 min. per axis
Vibration, Random	MIL-STD-202G, Method 214A, Condition A: 5.35g rms, 5 min. per axis
Mechanical Shock	MIL-STD-202G, Method 213B, Condition G: 20g half-sine, 11 ms duration per axis

Memory	
System RAM	256 MB soldered-on DDR memory.

Video	
Interface	Integrated high-performance video. Up to 1600 x 1200 with 32-bit color. MMX™ + 3DNow!™
Desktop Display Interface*	Standard analog output. 2 mm IDC connector.
OEM Flat Panel Interface‡	18/24-bit LVDS interface. CMOS-selectable TFT panel types.

Mass Storage	
Hard Drive	ATA-5, UDMA66 interface. 44-pin 2 mm connector.
Flash	One CompactFlash socket (Type II) with DMA. Optional latching retention clip available.

Network Interface	
Ethernet‡	Dual Autodetect 10BaseT/100BaseTX ports. Horizontal RJ45 connectors.
Network Boot Option	Intel boot agent (downloadable) supports PXE protocol. Argon Managed Boot Agent (optional with royalty fee) supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols.

Device I/O	
USB‡*	Four USB 2.0/1.1 ports
COM 1/2*	RS-232. 16C550 compatible. 115 Kbps.
COM 3 Interface*	RS-422/485 selectable. 16C550 compatible. 460 Kbps.

Software	
BIOS	Phoenix Technologies Embedded BIOS with OEM enhancements. Field reprogrammable. Support for USB keyboard/mouse and USB boot. User-configurable CMOS defaults.
Operating Systems	Compatible with most x86 operating systems, including Windows, Windows Embedded, Linux, VxWorks, and QNX.

§ All power specifications represent operation at +25°C with +5V supply running Windows XP with Ethernet, keyboard, and mouse.

*TVS protected port (enhanced ESD protection).

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

Specifications are subject to change without notice. PC/104 and PC/104-Plus are trademarks of the PC/104 Consortium. CompactFlash is a trademark of SanDisk Corp. All other trademarks are the property of their respective owners.

Ordering Information

Call VersaLogic Sales at (503) 747-2261 for more information!

Model	Processor	Speed	Operating Temp.	Cooling
VL-EPM-14h	AMD Geode LX 800	500 MHz	-40° to +85°C	Fanless

Accessories

Part Number	Description
Cable Kit	
VL-CKR-COUG	EPM-14 Cougar Eval. Cable Kit. Includes VL-CBR-5011, 1008, 1201, 4405, 4406, and HDW-101.
VL-CBR-1008	Power cable, ATX to 10-pin
VL-CBR-1201	VGA interface cable, 12-pin 2 mm (latching) / 15-pin VGA
VL-CBR-2003	LPT cable, 20-pin 2 mm / DB-25F, 12"
VL-CBR-4405	IDE adapter board, 2 mm to 0.1"
VL-CBR-4406	IDE cable, 44-pin latching, 18"
VL-CBR-5011	I/O cable set and paddleboard
VL-HDW-101	Standoff package, 4x screws, 4x standoffs, 15mm, Metric thread
Cables	
VL-CBR-2010	LVDS / flat panel interface cable,18-bit (Hirose), 20"
VL-CBR-2011	LVDS / flat panel cable, 18-bit (JAE), 20"
VL-CBR-5009A	I/O ribbon cable, 50-pin to 50-pin, 18"
VL-CBR-2034	6" 20-pin (F) ATX to 24-pin (M) ATX adapter cable (use with PS-ATX12-300A)
Solid State Drives	
VL-CFM-4GB	SSD 4 GB CompactFlash
VL-CFM-2GB	SSD 2 GB CompactFlash
VL-CFM-1GB	SSD 1 GB CompactFlash
VL-CFM-1GBET	SSD 1 GB CompactFlash, industrial temperature
VL-CFM-512	SSD 512 MB CompactFlash Type1
VL-CFM-512ET	SSD 512 MB CompactFlash Type1, industrial temperature
Audio	
VL-ADR-01S	USB to Audio Adapter -25° to +85°C
Development	
VL-PS200-ATX	200W ATX-style development power supply (20+4+4-pin ATX connector)
VL-PS-ATX12-300A	ATX development power supply (requires VL-CBR-2034)
Hardware	
VL-ENCL-5C	Development enclosure
VL-HDW-203	PC/104 extractor tool (metal)
VL-CF-CLIP1	CompactFlash retention clips x10
VL-HDW-106	Standoff package, 0.6", English thread
VL-HDW-112	PC104 (ISA) Spacer
VL-HDW-113	PC104 (PCI) Spacer
VL-HDW-115	PC104 (blank) Spacer

Expansion Modules

Part Number	Description	Form Factor
Accessories		
VCM-DAS-2	Analog Input, x16 (16-bit resolution) 200kHz + Digital I/O x16	PC/104
VCM-DAS-3a	Analog Output x16 (12-bit resolution) + Digital I/O x24, industrial temperature	PC/104
Video		
VL-EPM-V7E	Video expansion module: VGA and LVDS, industrial temperature	PC/104-*Plus*
In-Stack Power Supply		
VL-EPM-PS1a	Power supply in-stack, industrial temperature	PC/104-*Plus*

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