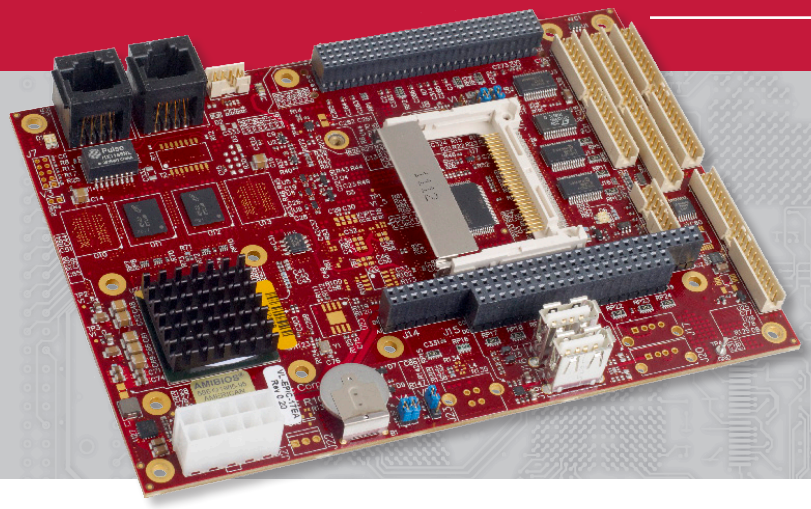
VERSALOGIC CORPORATION

NEWT

EPIC Single Board Computer



- DMP Vortex86DX processor
- Soldered-on RAM (up to 1 GB)
- Full industrial temperature operation
- Fanless operation
- MIL-STD-202G shock/vibe
- Fast Ethernet (1 or 2 ports)
- Analog and Digital I/O
- USB 2.0 (up to 4 ports)
- Serial I/O (4 ports)
- IDE interface
- Flash storage
- SPX™ I/O expansion

Highlights

EPIC Form Factor
Industry-standard format with PC/104-*Plus* expansion.

DMP Vortex86DX Processor
800 MHz performance. Very low power consumption.

Network
Single or dual Ethernet with remote boot support. Optional latching connectors.

Analog + Digital I/O
On-board data acquisition. Up to 16 analog inputs, 8 analog outputs, and 32 digital I/O lines.

RAM
Up to 1 GB soldered-on RAM.

USB
Up to four USB ports support keyboard, mouse, and other devices.

COM
Four on-board serial ports.

Hard Drive
IDE interface with support for two devices.

Flash Memory
CompactFlash® socket or eUSB interface for plug-in flash storage.

Industrial Temperature
-40° to +85°C operation for harsh environments.

Fanless
No moving parts required for CPU cooling.

MIL-STD-202G
Qualified for high shock/vibration environments.

SPX Expansion
Add low cost analog, digital, or CANbus modules.

Overview

The Newt is an economical single board computer (SBC) featuring extensive I/O capabilities, very low power consumption, and fanless operation over the full industrial temperature (-40° to +85°C) range. The Newt takes advantage of DMP's Vortex86DX System on Chip (SoC) for 800 MHz performance with only 3.6W typical power draw. Based on the industry-standard EPIC form factor (4.5 x 6.5 inches), this SBC is an excellent solution for industrial and medical applications with substantial I/O requirements.

The Newt is designed for headless applications (no video output), or it may be used with add-on video expansion modules.

Like all VersaLogic products, the Newt is designed to support OEM applications where high reliability and long-term availability are required. From application design-in support, to its 5+ year production life guarantee, the Newt provides a durable embedded computer solution with an excellent cost of ownership. The Newt is fully RoHS compliant.

Details

Driven by a DMP Vortex86DX System on Chip (SoC), the Newt provides 800 MHz performance. The 32-bit CPU integrates memory and I/O controller hub functions to provide an x86-compatible single-chip solution with very low power consumption.

Basic on-board features include single or dual Ethernet with network boot capability, up to 1 GB soldered-on DDR2 RAM, up to four USB ports, four serial ports, IDE controller with support for two devices, CompactFlash socket or eUSB interface (optional) for removable flash storage, and three general purpose timers. On-board data acquisition features include up to sixteen analog inputs, up to eight analog outputs, and thirty-two digital I/O lines. An industry-standard PC/104-*Plus* expansion site provides plug-in access to a wide variety of industry-standard expansion modules from numerous vendors. The SPX expansion interface provides low-cost plug-in expansion for additional analog, digital, and CANbus I/O.

Designed for full industrial temperature (-40° to +85°C) operation, the rugged Newt board meets MIL-STD-202G specifications for mechanical shock and vibration. Latching Ethernet connectors (optional) provide additional ruggedization for use in extremely harsh environments. Transient voltage suppression (TVS) devices on critical I/O ports provide enhanced electrostatic discharge (ESD) protection for the system.

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RoHS

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The Newt features an American Megatrends (AMI) BIOS with OEM enhancements. The field-reprogrammable BIOS supports custom defaults, remote/network booting, and other application functions. Newt is compatible with a variety of popular x86 operating systems including Windows, Windows Embedded, Linux, VxWorks, and QNX.

Product customization is available, even in low OEM quantities. Customization options include soldered-on RAM capacity (128 MB to 1 GB), CompactFlash and/or eUSB flash memory interface, standard RJ45 or latching Ethernet connectors, variable I/O capabilities (USB, A/D, D/A, DIO, Ethernet, etc.), bolt-on heat plate, conformal coating, revision locks, custom labeling, customized testing and screening, etc.

Ordering Information

Model	RAM	Data Acquisition			USB		Ethernet	
		A/D	D/A	DIO	Host	eUSB	Ports	Connector
VL-EPIC-17EA	256 MB	8	4	32	3	Y	1	RJ45
VL-EPIC-17EB	512 MB	16	8	32	4	N	2	RJ45
Custom Versions	Up to 1 GB	0/8/16	0/4/8	0/16/32	0–4	Y/N	0–2	RJ45 / Ruggedized

Accessories

Part Number	Description
Cable Kit	
VL-CKR-NEWT	Development cable kit
VL-CBR-2022	ATX power adapter cable
VL-CBR-4004	Paddleboards for analog and digital I/O
VL-CBR-4405	IDE adapter board
VL-CBR-4406	IDE cable
VL-CBR-5009	Primary breakout cable
VL-HDW-105	0.6" standoff package (metric thread)
Cables	
VL-CBL-1010	S-Video and TV Out cable
VL-CBR-0804	12" Latching Ethernet Adapter Cable
VL-CBR-1201	12-pin 2 mm latching / 15-pin VGA adapter
VL-CBR-1401	Cable assembly for (2) SPX modules
VL-CBR-1402	Cable assembly for (4) SPX modules
VL-CBR-2010	20" 18-bit LVDS flat panel (Hirose)
VL-CBR-2011	20" 18-bit LVDS flat panel (JAE)
SSD	
VL-CFM-xxx	CompactFlash module (IDE)
VL-F15-xxx	eUSB module (USB)
Drives	
VL-CDD-xxxx	CD-RW/DVD-ROM drive (IDE)
VL-HDD35-xxx	3.5" hard drive (IDE)
Expansion Modules	
EPM-VID-3	Video expansion module
VL-SPX-x	SPX expansion module
Development	
VL-ENCL-5C	Development enclosure
VL-PS200-ATX	200W ATX-style development power supply
Hardware	
VL-CF-CLIP1	CompactFlash retention clip
VL-HDW-106	0.6" standoff package (English thread)
VL-HDW-109	eUSB hardware kit
Miscellaneous	
VL-HDW-201	PC/104 board extraction tool

Specifications

General	Board Size	EPIC standard: 115 mm x 165 mm (4.5" x 6.5")			
	Processor	DMP Vortex86DX SoC. 800 MHz. 256K L2 cache.			
	Power Requirements (+5V)*	Model	Idle	Typical	Max
		VL-EPIC-17EA	2.6W	3.3W	4.0W
		VL-EPIC-17EB	3.1W	3.8W	4.5W
	System Reset & Hardware Monitors	Major voltage rails monitored. Watchdog timer with programmable timeout.			
	Stackable Bus	PC/104-*Plus*: PCI, ISA			
	Other I/O Expansion	VersaLogic SPX interface			
	RoHS	RoHS (2002/95/CE) compliant			
Environmental	Operating Temperature	-40° to +85°C			
	Storage Temperature	-40° to +85°C			
	Cooling	Standard	Heatsink (fanless)		
		Optional	Bolt-on heat plate		
	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 minutes per axis			
	Vibration, Random	MIL-STD-202G, Method 214A, Condition A: 5.35g rms, 5 minutes per axis			
	Mechanical Shock	MIL-STD-202G, Method 213B, Condition G: 20g half-sine, 11 ms duration per axis			
Memory	System RAM	Standard	256 MB or 512 MB		
		Optional	128 MB or 1 GB		
		Soldered-on DDR2 SDRAM			
Video	General	None. Use EPM-VID-3 or similar video module for development.			
Mass Storage	Hard Drive	ATA/66 IDE interface supports two devices			
	Flash	Standard	CompactFlash Type II with DMA (IDE signaling)		
		Optional	eUSB (USB signaling)		
Network Interface	Ethernet †	Standard	RJ45 connectors		
		Optional	Latching headers		
		Up to two autodetect 10BaseT/100BaseTX ports. On-board status LEDs and external LED header.			
	Network Boot Option	Argon Managed Boot Agent (optional with royalty fee) supports PXE, RPL, NetWare, TCP/IP (DHCP, BOOTP) remote boot protocols.			
Device I/O	USB †‡	Up to four host (depending on model) USB 1.1/2.0 ports			
	COM 1/2 Interface †	RS-232. 16C550 compatible. 115 Kbps.			
	COM 3/4 Interface †	RS-232/422/485 selectable. 16C550 compatible. 115 Kbps.			
	Analog Input	Up to sixteen channels. 12-bit. Single-ended. 100 Ksps. 0 to +4.096V.			
	Analog Output	Up to eight channels. 12-bit. Single-ended. 100 Ksps. 0 to +4.096V.			
	Digital I/O	Up to thirty-two TTL I/O lines (3.3V). Independently configurable.			
	Counter/Timers	Three general-purpose 8254 timers			
	Other	PS/2 keyboard and mouse ports			
Software	BIOS	American Megatrends (AMI) BIOS with OEM enhancements			
	Operating Systems	Compatible with most x86 operating systems including Windows, Windows Embedded, Linux, VxWorks, and QNX			

** Power specifications represent operation at +25°C with +5V supply running Windows XP with Ethernet, keyboard, and mouse. Typical power computed as the mean value of Idle and Maximum power specifications. Maximum power is measured with 95% CPU utilization.*

† TVS protected port (enhanced ESD protection)

‡ Power pins on this port are overload protected

Specifications are subject to change without notification. DMP and Vortex are trademarks of DMP. CompactFlash is a trademark of SanDisk Corp. SPX is a trademark of VersaLogic Corp. All other trademarks are the property of their respective owners.

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