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 (-40º to +85ºC) 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 (-40º to +85ºC) 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.
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

<table>
<thead>
<tr>
<th>Model</th>
<th>RAM</th>
<th>Data Acquisition</th>
<th>USB</th>
<th>Ethernet</th>
</tr>
</thead>
<tbody>
<tr>
<td>VL-EPIC-17EA</td>
<td>256 MB</td>
<td>8</td>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td>VL-EPIC-17EB</td>
<td>512 MB</td>
<td>16</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Custom Versions</td>
<td>Up to 1 GB</td>
<td>0/8/16</td>
<td>0/4/8</td>
<td>0/16/32</td>
</tr>
</tbody>
</table>

### Accessories

#### 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)
- VL-CBR-2034: 6” 20-pin (F) ATX to 24-pin (M) ATX adapter cable (use with PS-ATX12-300A)

#### SSD
- VL-CFM-xxx: CompactFlash module (IDE)
- VL-F15-xxx: eUSB module (USB)

#### Drives
- VL-CCD-xxx: 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
- VL-PS-ATX1230-00A: ATX development power supply (requires VL-CBR-2034)

#### Hardware
- VL-CFC-CLIP1: CompactFlash retention clip
- VL-HDW-106: 0.6” standoff package (English thread)
- VL-HDW-109: eUSB hardware kit
- VL-HDW-112: PCI104 (ISA) Spacing
- VL-HDW-113: PCI104 (PCI) Spacing
- VL-HDW-115: PCI104 (blank) Spacing
- VL-HDW-201: PCI104 board extraction tool

### Environmental

- Operating Temperature: -40° to +85°C
- Storage Temperature: -40° to +85°C
- Cooling: Standard
- Humidity: Less than 95%, noncondensing
- Vibration, Sinusoidal Sweep: MIL-STD-202G, Method 204A, 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
- Airflow Requirements: Free air from -40° to +85°C
- Thermal Shock: 5°C/min. over operating temperature

### 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
- 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
- Analog Input: Up to twelve 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

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