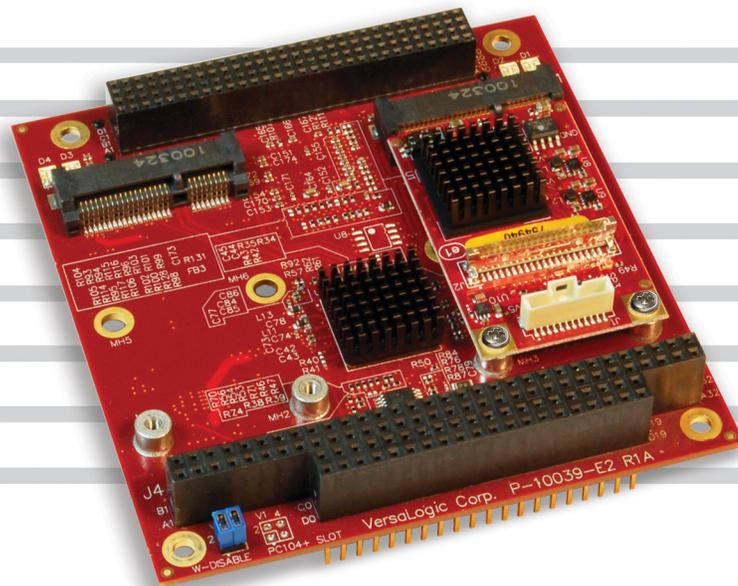# VL-EPM-V7
PC/104-*Plus*™ Video and I/O Expansion Module

Overview

The VL-EPM-V7 module provides video and I/O expansion capabilities for PC/104-*Plus* embedded systems. It provides VGA and LVDS display outputs to PC/104-*Plus* embedded systems. An on-board Mini PCIe socket accommodates plug-in modules such as A/D convertors, Ethernet, Wi-Fi modems, MIL-STD-1553, and other devices.

With a full industrial temperature rating and rugged construction, the VL-EPM-V7 is an ideal solution for embedded video applications in harsh, mobile, and/or remote environments.

This I/O board is compatible with a variety of popular x86 operating systems including Windows, Windows Embedded, and Linux.

As with all VersaLogic products, the VL-EPM-V7 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 VL-EPM-V7 provides a durable video expansion with an excellent cost of ownership.

Highlights

- **Industrial Temperature**
  -40° to +85°C operation for harsh environments.
- **Latching Connector**
  Prevents detachment failures.
- **PC/104-*Plus***
  Rugged industry-standard form factor.
- **Mini PCIe I/O expansion**
  Mini PCIe socket supports A/D convertors, Ethernet, Wi-Fi modems, MIL-STD-1553, and other plug-in devices.

- **Video Outputs**
  Analog VGA and/or LVDS (simultaneous / independent).
- **Standard Operating System Drivers (Windows, Linux)**
  No additional drivers needed.
- **MIL-STD-202G**
  Qualified for high shock / vibration environments.
- **5+ Year Production Life Guarantee**

VERSALOGIC CORPORATION

Specifications

General

General	
Board Size	PC/104 standard: 90 mm x 96 mm (3.55" x 3.78")
Power Requirements (+5V) *	Idle	Typical	Max.
	3.28W	3.33W	3.38W
Stackable Bus	PC/104-*Plus*: PCI, ISA (pass-through only)
Manufacturing Standards	IPC-A-610 Class 2 compliant
RoHs	Compliant

Environmental

Environmental		
Operating Temperature	-40° to +85°C Derate -1.1°C per 305m (1,000 ft.) above 2,300m (7,500 ft.).*	
Storage Temperature	-40° to +85°C	
Altitude	Operating *	To 15,000 ft. (4,570m)
	Storage	To 40,000 ft. (12,000m)
Cooling	None (fanless)	
Airflow Requirements	None (free air)	
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 msec. duration per axis.	

Video

Video	
Controller	Silicon Motion SM750. 2D Graphic Accelerator Video core with 128-bit 2D graphic engine. Supports a single display, two cloned displays, or two simultaneous independent displays.
VRAM	16MB DDR SDRAM (32-bit) embedded in SM750 controller.
Desktop Display Interface	Analog output (VGA). Up to 1920 x 1080 16-bit.
OEM Flat Panel Interface	Single-channel LVDS interface. Up to 1280 x 1024 18/24-bit.

Software

Software	
BIOS	On-board SPI-based video BIOS supports VESA standard graphics modes.
Operating Systems	Compatible with most x86 operating systems including Windows, Windows Embedded, and Linux.

* For extended altitude information contact VersaLogic Sales Dept.

† MIL-STD-202G shock and vibe levels are used to illustrate the ruggedness of this product in general. Testing to higher levels and/or different types of shock or vibration methods can be accommodated per the specific requirements of the application. Contact a VersaLogic Sales Engineer for further information.

Specifications are subject to change without notification. PC/104 and PC/104-*Plus* are trademarks of the PC/104 Consortium. VESA is a trademark of the Video Electronics Standards Association. All other trademarks are the property of their respective owners.

Tailor a Module to Your Exact Requirements

Product customization is available, even in low quantities. Options include conformal coating, application-specific testing, BOM revision locks, special labeling, and more.

Ordering Information

Model	VGA	LVDS	Stackable Bus	Mini PCIe Socket Support	Operating Temp.
VL-EPM-V7E	Y	Y	PC/104-Plus	1 (PCIe Signaling)	-40° to +85°C
VL-EPMp-V7E	Y	Y	PCI-104	1 (PCIe Signaling)	-40° to +85°C

Accessories

Part Number	Description
Cables	
VL-CBR-1204	VGA Interface Cable, 12-pin PicoClasp Cable to 15-pin VGA, ET, RoHS
VL-CBR-2014	LVDS to VGA Adaptor Board, ET, RoHS
VL-CBR-2015	20" 24-bit LVDS Hirose Cable, RoHS
VL-CBR-2016	20" 18-bit LVDS FPD Cable with JAE Connector, RoHS
Hardware	
VL-HDW-105	0.6" standoff package (metric thread)
VL-HDW-106	0.6" standoff package (English thread)
VL-HDW-108	Mini PCIe module hold-down screws (10) for use with 2.5 mm standoffs
Miscellaneous	
VL-HDW-203	PC/104 extractor tool (metal)

VersaLogic Mini PCIe Modules

Model	Function	Signaling
VL-MPEe-A1E	Analog input (12-bit resolution)	PCIe
VL-MPEe-A2E	Analog input (16-bit resolution)	PCIe
VL-MPEe-E3E	Gigabit Ethernet adapter	PCIe
VL-MPEe-U2E	Four Serial ports. Twelve GPIO lines	PCIe
VL-MPEe-W2E	Wi-Fi 802.11 a/b/g/n	PCIe

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

Mini PCIe Modules