



- PCIe Mini Card socket
- Full industrial temperature operation
- MIL-STD-202G shock/vibe

## Highlights

### PCIe Mini Card Socket

Supports Wi-Fi modems, GPS receivers, MIL-STD-1553, solid-state storage, and other plug-in devices.

### Industrial Temperature

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

### MIL-STD-202G

Qualified for high shock/vibration environments.

### SUMIT-micro Form Factor

Small footprint board expands any SUMIT™-based system.

## Overview

The VL-EPHs-P1 expansion module provides Mini PCIe socket expansion for any SUMIT-based embedded system. With a small footprint, simplified interface, and extensive ruggedization, the cost-effective VL-EPHs-P1 provides versatile PCI Express® Mini Card expansion for small form factor embedded systems.

As with all VersaLogic products, the VL-EPHs-P1 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-EPHs-P1 provides a durable embedded computer solution with an excellent cost of ownership. The VL-EPHs-P1 is fully RoHS compliant.

## Details

The VL-EPHs-P1 expansion module is a 90 mm x 32 mm (3.54" x 1.26") SUMIT-micro format card that utilizes the PCIe and USB lanes of the SUMIT-A connector to provide a Mini PCIe socket for embedded system expansion. The card mounts to the top of the SUMIT stack and is secured via two mounting holes using standard hardware standoffs.

The versatile PCIe Mini Card socket accommodates plug-in Wi-Fi modems, GPS receivers, MIL-STD-1553, solid-state storage, and other plug-in devices. The VL-EPHs-P1 is compatible with full-sized Mini PCIe cards and supports both USB and PCIe connectivity. Half-sized Mini PCIe cards can be supported by special order. Four on-board LEDs provide Activity status for the Mini Card socket.

Designed for full industrial temperature (-40° to +85°C) operation, the rugged VL-EPHs-P1 meets MIL-STD-202G specifications for mechanical shock and vibration for use in harsh environments.

Product customization is available, even in low OEM quantities. Customization options include conformal coating, revision locks, custom labeling, customized testing and screening, etc.



VL-EPHs-P1E (Top)

### Ordering Information

| Model       | Mini PCIe Sockets | Operating Temp. | Stackable Bus |
|-------------|-------------------|-----------------|---------------|
| VL-EPHs-P1E | 1                 | -40° to +85°C   | SUMIT         |

### Accessories

| Part Number            | Description                                 |
|------------------------|---|
| <b>Cables</b>          |   |
| VL-CBR-0201            | Wi-Fi antenna interface cable               |
| <b>Mini PCIe Cards</b> |   |
| VL-WD10-CBN            | 802.11g/n Wi-Fi transceiver module          |
| <b>Hardware</b>        |   |
| VL-HDW-105             | 0.6" standoff package (metric thread)       |
| VL-HDW-106             | 0.6" standoff package (English thread)      |
| VL-HDW-107             | Mini PCIe card hardware kit (metric thread) |
| <b>Miscellaneous</b>   |   |
| VL-CBR-ANT-01          | 802.11n Wi-Fi antenna                       |

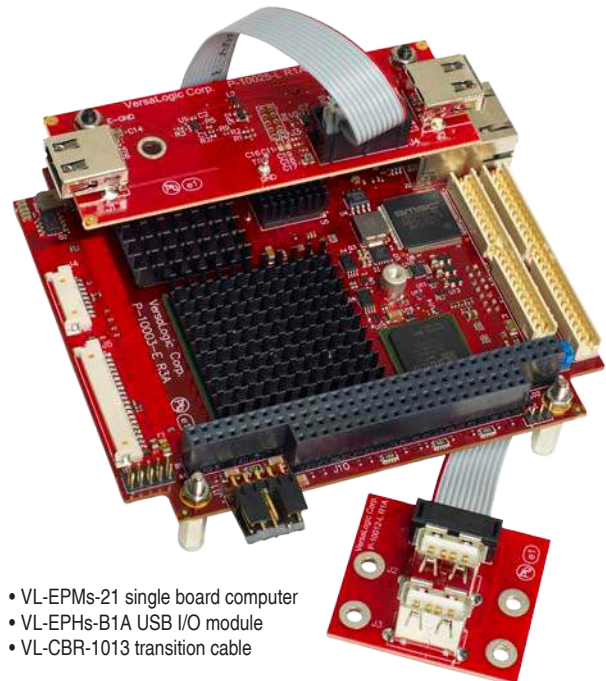
| SUMIT Resources          |         |         |
|--------------------------|---------|---------|
| Form Factor: SUMIT-micro |         |         |
|                          | SUMIT-A | SUMIT-B |
| PCIe x1                  | 1       |         |
| PCIe x4                  |         |         |
| USB                      | 1       |         |
| ExpressCard              | -       |         |
| LPC                      | -       |         |
| SPI/μWire                | -       |         |
| SMBus/I <sup>2</sup> C   | -       |         |
| +12V                     | -       |         |
| +5V                      | ✓       |         |
| +5V <sub>ab</sub>        | -       |         |
| +3.3V                    | -       |         |

### SPECIFICATIONS

|                         |                             |   |       |
|-------------------------|-----------------------------|---|-------|
| <b>General</b>          | Board Size                  | SUMIT-micro: 32 mm x 90 mm (1.26" x 3.54")  |       |
|                         | Power Requirements (+5V)*   | With PCIe Wi-Fi (Idle)  | 1.25W |
|                         |                             | With PCIe Wi-Fi (Max.)  | 1.65W |
|                         | Stackable Bus               | SUMIT (top of stack only)   |       |
| RoHS                    | RoHS (2002/95/CE) compliant |   |       |
| <b>Environmental</b>    | Operating Temperature       | -40° to +85°C   |       |
|                         | Storage Temperature         | -40° to +85°C   |       |
|                         | Airflow Requirements        | None (free air within operating temperature range)  |       |
|                         | 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   |       |
| <b>Mini PCIe Socket</b> | General                     | Mini PCIe socket supports Wi-Fi modems, GPS receivers, MIL-STD-1553, non-volatile flash data storage, and other plug-in modules |       |
|                         | Compatibility               | Compatible with full- and half-sized Mini PCIe cards. Supports USB and PCIe signaling. PCIe 1.1 transfer rate of 2.5 GT/s max.  |       |
|                         | Status Indicators           | On-board LEDs indicate card status for socket   |       |

\* Power specifications represent typical power draw at +25°C with +5V supply running Windows XP with an Intel 5300 Wi-Fi Link card. Maximum power is measured during file transfer over Wi-Fi. Results will vary depending upon Mini PCIe card in use.

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- VL-EPMs-21 single board computer
- VL-EPHs-B1A USB I/O module
- VL-CBR-1013 transition cable