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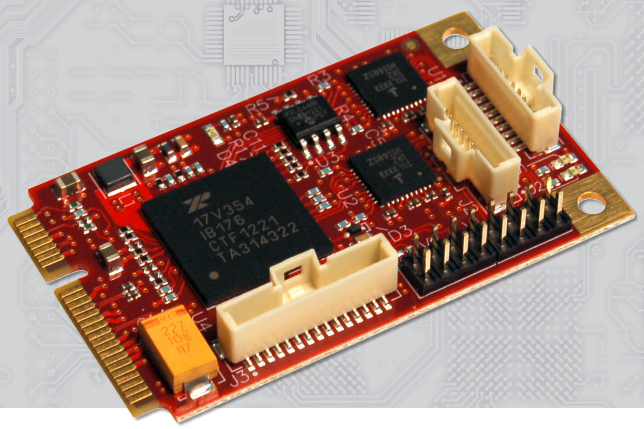
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Find the *Versalogic VL-MPEe-U2E* at our website: ***Click HERE***

VERSALOGIC CORPORATION

# Serial + GPIO

## Mini PCIe Module



- Extremely small Mini PCIe module format
- Four RS-232/422/485 ports
- Twelve general purpose I/O lines
- Three indicator LEDs
- Industrial temp. (-40º to +85ºC) operation
- MIL-STD-202G shock/vibe
- Latching connectors

## Highlights

**Mini PCIe Module Format**
Small and flexible.

**Serial I/O**
Four serial ports that support RS-232, RS-422, and RS-485 interfaces.

**Digital I/O**
Twelve general purpose I/O lines.

**User LEDs**
Two user LEDs for use with GPIO pins.

**Application Programming Interface**
Simplifies software development

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

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

**Latching Connectors**
Prevents detachment failures.

**Class 3 Manufacturing** (optional)
IPC-A-610 Class 3 for applications requiring extreme reliability.

RoHS

## Overview

The VL-MPEe-U2 is an extremely small and rugged I/O module based on the industry-standard Mini PCIe module format. Unlike typical I/O expansion boards, Mini PCIe allows additional I/O functions to be added to a system with almost no increase in overall system / package size. Mini PCIe modules provide a simple, economical, and standardized way to add I/O functions to embedded computer products.

## Details

In a very small package, this board provides four serial ports, twelve general purpose I/O lines, and three indicator LEDs.

This serial plus GPIO module provides a traditional serial I/O interface for legacy communication. The serial ports operate in 4-wire mode with auto-direction control and baud rates up to 400 Kbps. Each port can be independently configured (hard jumpered) for RS-232, RS-422, or RS-485 operation.

The twelve GPIO lines are independently configurable as an input or output. GPIO inputs can be set for normal or inverted level, and optionally set to generate an interrupt. GPIO outputs can be set to be normal HIGH or LOW state, or open drain.

The on-board indicator LEDs include one power indicator and two user LEDs that can be jumpered to GPIO pins.

This rugged product is designed and tested for full industrial temperature operation (-40º to +85ºC). It also meets MIL-STD-202G specifications for shock and vibration. Latching connectors provide additional ruggedization, making it at home in harsh environments.

The VL-MPEe-U2 board includes device drivers and the VersaAPI Application Programing Interface. The VersaAPI includes pre-defined calls to send or retrieve data from the on-board I/O ports. These calls greatly simplify development of the user code needed to access these ports. On the VL-MPEe-U2 board, the VersaAPI supports the on-board GPIO lines. The VersaAPI is compatible with Windows, Windows Embedded, and Linux operating systems.

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

The module utilizes PCIe signaling and can be used in any system that supports PCIe signaling at the Mini PCIe socket.

It is manufactured to IPC-A-610 Class 2 standards. Class 3 versions are available for extremely-high-reliability applications.

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

# Serial + GPIO

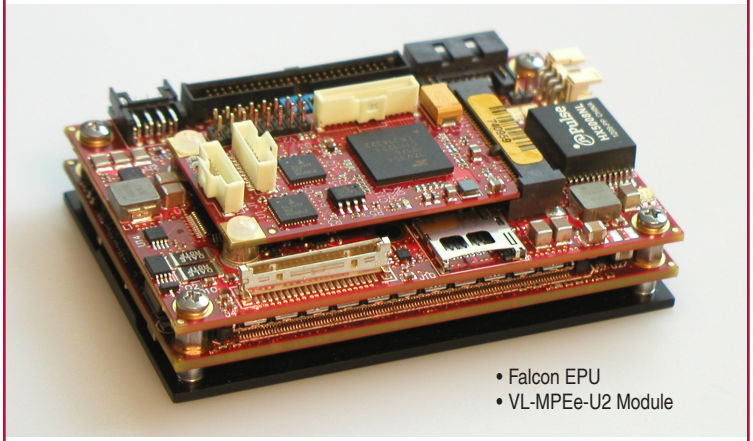
## Mini PCIe Module

## Ordering Information

| Model | Function | Operating Temp. |
|---|---|---|
| VL-MPEe-U2E | Four serial ports. Twelve GPIO lines. | -40° to +85°C |

## Accessories

| Part Number | Description |
|---|---|
| **Cables** | |
| VL-CBR-1014 | 12" dual-channel serial cable. Latching 10-pin connector to dual D-sub (9-pin). |
| VL-CBR-1502 | 12" GPIO cable and paddleboard with 15-position screw terminal |
| **Hardware** | |
| VL-HDW-108 | Mini PCIe module hold-down screws (10) for use with 2.5 mm standoffs |
| VL-HDW-110 | Mini PCIe module hold-down screws (10) for use with 2.0 mm standoffs |



- Falcon EPU
- VL-MPEe-U2 Module

## Other 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-FW1 | 1394 Firewire Module, Industrial Temp. | PCIe |
| VL-MPEe-E3E | Gigabit Ethernet adapter | PCIe |
| VL-MPEe-W2E | Wi-Fi 802.11 a/b/g/n | PCIe |
| VL-MPEs-F1E | mSATA drive (4/16/32 GB) | SATA |
| VL-MPEs-S3E | SATA adapter | SATA |
| VL-MPEu-G2E | GPS receiver | USB |

## Specifications

| | | | |
|---|---|---|---|
| **General** | Board Size | Mini PCIe module (full size): 30 mm x 50.95 mm x 6.39 mm | |
| | Power Requirements | 3.3V ±5% @ 0.25W (supplied by the Mini PCIe socket) | |
| | Manufacturing Standards | Standard | IPC-A-610 Class 2 modified |
| | | Optional | IPC-A-610 Class 3 modified |
| | Regulatory Compliance | RoHS | |
| | Mini PCIe Signal Type | PCI Express Base Specification, Rev 2.0 | |
| **Environmental** | Operating Temperature | -40° to +85°C | |
| | 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 | |
| **Device I/O** | COM 1/2/3/4 Interface | RS-232/422/485 selectable. 16C550 compatible. 400 Kbps max. | |
| | GPIO | Twelve general purpose I/O lines | |
| | LEDs | One power indicator. Two user LEDs. | |
| **Software** | Drivers | Device drivers and VersaAPI included. Provides simplified I/O interface for most application languages. Supports on-board GPIO lines. Compatible with Windows, Windows Embedded, and Linux operating systems. | |

* *Extended altitude specifications available upon request*

† *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. PCI Express is a registered trademark of the PCI-SIG. All other trademarks are the property of their respective owners.*

03/16/16

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