



- Extremely small Mini PCIe module format
- mSATA flash memory storage
- Industrial temp. (-40° to +85°C) operation
- MIL-STD-202G shock/vibe

## Highlights

### Mini PCIe Module Format

Small and flexible.

### Flash Memory

Non-volatile storage up to 32 GB.

### Industrial Temperature Operation

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

### MIL-STD-202G

Qualified for high shock/vibration environments.

## Overview

The VL-MPEs-F1 is an extremely small and rugged mSATA 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 up to 32 GB of plug-in flash data storage for almost any embedded system.

This non-volatile memory drive provides high-capacity data storage. The drive has an intelligent internal controller which manages interface protocols, data storage, and retrieval. The wear leveling mechanism assures an equal usage of the Flash memory cells to maximize the longevity of the device. The hardware BCH-code ECC detects and corrects internal errors. The voltage detector and power-loss management features prevent data corruption after power-down.

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

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

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

This 3rd party product has been selected and tested for compatibility with VersaLogic products, compliance with VersaLogic ruggedness requirements, and is backed by VersaLogic's product warranty, world-class technical support, and 5-year lifecycle guarantee.



### Ordering Information

Model	Function	Operating Temp.
VL-MPEs-F1E4	mSATA drive, 4 GB	-40° to +85°C
VL-MPEs-F1E16	mSATA drive, 16 GB	-40° to +85°C
VL-MPEs-F1E32	mSATA drive, 32 GB	-40° to +85°C

### Accessories

Part Number	Description
<b>Hardware</b>	
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

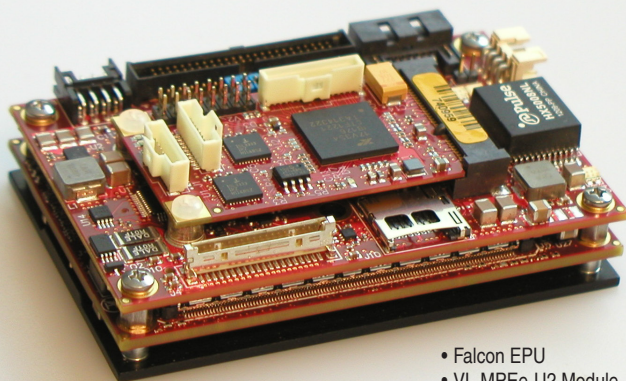
### Specifications

General	Board Size	Mini PCIe module (full size): 29.85 mm x 50.8 mm x 3.3 mm
	Power Requirements	3.3V ±5% @ 1.39W (supplied from the Mini PCIe socket)
	Regulatory Compliance	RoHS
	Mini PCIe Signal Type	SATA Rev 2.6 – 3 Gbit/s (1.5 Gbit/s compatible)
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 90%, 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	Rotating Drives / Flash / Solid-State Drives	mSATA up to 32 GB. SLC NAND Flash. Hardware ECC. Wear leveling. SATA signaling. Bootable.
	Burst Transfer	Up to 300 MB/s
	Sustained Write	Up to 95 MB/s
	Sustained Read	Up to 120 MB/s
Software	Operating Systems	Compatible with most x86 operating systems including Windows, Windows Embedded, and Linux

\* Extended altitude specifications available upon request

† MIL-STD-202G shock and vibrate 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.



- 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-U2E	Quad serial plus twelve GPIOs	PCIe
VL-MPEe-W2E	Wi-Fi 802.11 a/b/g/n	PCIe
VL-MPEs-S3E	SATA adapter	SATA
VL-MPEu-G2E	GPS receiver	USB