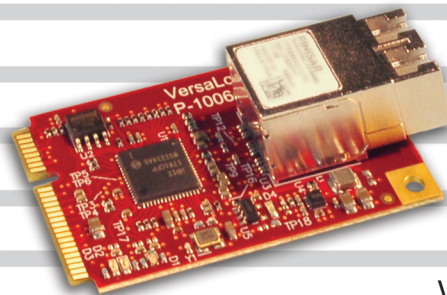


# Ethernet Over Fiber Expansion

## Mini PCIe Module



VL-MPEe-E4

Actual Size!

## Overview

The VL-MPEe-E4 is an extremely small and rugged module for connecting Gigabit Ethernet Over Fiber optic cables. This industry-standard Mini PCIe module provides an easy and economical way to add a fiber-based Ethernet interface to embedded computer systems.

Ethernet over fiber offers an extremely dependable, highly secure Ethernet connection that operates over a much longer distance than copper. Where security matters, a fiber optic connection excels. Fiber optic cables have no electromagnetic signature, making them very difficult to tap compared to wired connections.

This module supports one bi-directional Ethernet channel using industry standard fiber optic cables with LC connectors. It is designed to be rugged and robust for use in industrial and military applications. The module features a wide operating temperature range (-40° to +85°C) and a metal housing around the transceiver to guard against electromagnetic interference.

The E4 board is compatible with a variety of popular operating systems including Windows, Windows Embedded, and Linux.

As with all VersaLogic products, the VL-MPEe-E4 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-MPEe-E4 provides a durable I/O expansion with an excellent cost of ownership.

## Highlights

- **Ethernet Over Fiber Optics**  
Bi-directional Gigabit Ethernet. Latching multi-mode LC connector.
- **Mini PCIe Module Format**  
Small and flexible.
- **Uses Standard Ethernet OS Drivers**  
Typically no additional software needed.
- **Industrial Temperature**  
-40° to +85°C operation for harsh environments.
- **PCle Signaling**  
Compatible with Mini PCIe sockets.
- **MIL-STD-202G**  
Qualified for high shock and vibration environments.
- **Latching Connector**  
Prevents detachment failures.
- **Class 3 Manufacturing (optional)**  
IPC-A-610 Class 3 for applications requiring extreme reliability.
- **5+ Year production life guarantee**

# Ethernet Over Fiber Expansion

Product Data Sheet

Mini PCIe Module

## Specifications

General	
<b>Board Size</b>	Mini PCIe module (full size): 30 mm x 57.95 mm x 10.2 mm (1.81 x 2.28 x 0.40").
<b>Power Requirements</b>	3.3V ±5% @ 0.7W Typical (supplied by the Mini PCIe socket).
<b>Manufacturing Standards</b>	IPC-A-610 Class 2 and optional IPC-A-610 Class 3.**
<b>Regulatory Compliance</b>	RoHS (2011/65/EU).
<b>Mini PCIe Signal Type</b>	PCI Express Base Specification, Rev 1.1.

Environmental	
<b>Operating Temperature</b>	-40° to +85°C Derate -1.1°C per 305m (1,000 ft.) above 2,300m (7,500 ft.)* The ambient air surrounding the MPEe-E4 must be at or below +85°C.
<b>Storage Temperature</b>	-40° to +85°C
<b>Altitude</b>	Operating * To 4,570m (15,000 ft.) Storage To 12,000m (40,000 ft.)
<b>Thermal Shock</b>	5°C/min. over operating temperature.
<b>Humidity</b>	Less than 85%, noncondensing.
<b>Vibration, Sinusoidal Sweep †</b>	MIL-STD-202G, Method 204, Modified Condition A: 2g constant acceleration from 5 to 500 Hz, 20 min. per axis.
<b>Vibration, Random †</b>	MIL-STD-202G, Method 214A, Condition A: 5.35g rms, 5 min. per axis.
<b>Mechanical Shock †</b>	MIL-STD-202G, Method 213B, Condition G: 20g half-sine, 11 msec. duration per axis.

Device I/O	
<b>Ethernet Interface</b>	Intel i210-IS 10/100/1000 Ethernet Media Access Controller.
<b>Fiber Optic Connectors</b>	Dual LC fiber optic connector.
<b>Fiber Optic Signaling</b>	850nm multi-mode optical data transceiver, Maximum cable length: OM1 (300 meters) or OM2 (550 meters).

Software	
<b>Drivers</b>	Compatible with most operating systems including Windows, Windows Embedded, and Linux.

\* For extended altitude information contact VersaLogic Sales.

\*\* Contact VersaLogic Sales.

† 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 VersaLogic Sales 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.

## Modify a Module to Your Exact Requirements

COT's modifications are available in quantities as low as 100 pieces. Options include conformal coating, application-specific testing, BOM revision locks, special labeling, and more.

## Ordering Information

Model	Function	Operating Temp.
VL-MPEe-E4E	Gigabit Ethernet Over Fiber Module	-40° to +85°C

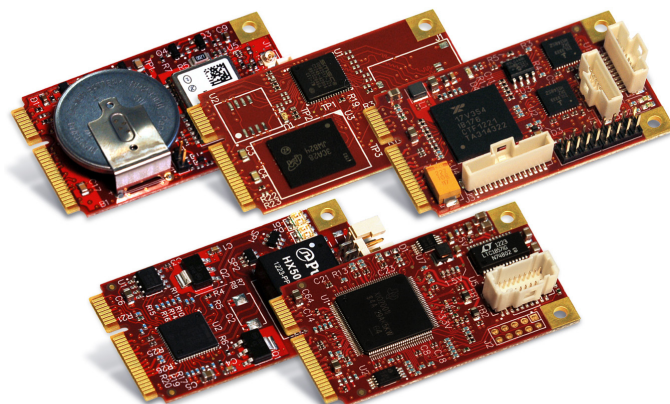
## Accessories

Part Number	Description
<b>PC/104 Mini PCIe Carrier Adapters</b>	
VL-EPM-P2E	PC/104-Plus to Dual Mini PCIe socket adapter.
VL-EPMP-P2E	PCI-104 to Dual Mini PCIe socket adapter.
<b>Cables</b>	
VL-CBR-0204	Duplex short LC Multimode OM1 Fiber Optic cable, 5 m.
<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.

## 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-E3E	Gigabit Ethernet adapter.	PCIe
VL-MPEe-U2E	Four Serial ports. Twelve GPIO lines.	PCIe
VL-MPEe-V5E	Video Display Adapter. VGA and LVDS interfaces.	PCIe
VL-MPEe-FW1	1394 Firewire Module, industrial temperature.	PCIe
VL-MPEs-F1Exx	mSATA drive (4/16/32 GB).	SATA
VL-MPEs-S3E	SATA adapter.	SATA
VL-MPEu-G2E	GPS receiver.	USB
VL-MPEu-G3E	Advanced GPS receiver.	USB

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



Mini PCIe Modules