

- Extremely small Mini PCIe module format
- Encrypted flash memory
- 8 to 32 GB on-board capacity
- MIL-STD-202G shock/vibe

Highlights

Mini PCIe Module Format

Small and flexible.

AES Encryption

Hardware AES encryption/decryption.

On-board Memory

Up to 32 GB Flash memory.

MIL-STD-202G

Qualified for high shock/vibration environments.

Class 3 Manufacturing (optional)

IPC-A-610 Class 3 for applications requiring extreme reliability.

Overview

The VL-MPEu-K1 is an extremely small and rugged encrypted memory 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 encrypted memory board enables embedded systems to utilize hardware AES encryption/decryption to secure data. The integrated cryptographical engine offers AES encryption with AES 128, AES 192, or AES 256 key sizes and ECB, CBC, or CTR implementation.

This encrypted memory module utilizes SMSC TrustSpan™ technology to provide a highly-flexible, low-cost, single-chip data protection solution. TrustSpan enables digital systems to securely communicate, process, and store information. The VL-MPEu-K1 utilizes an eMMC flash memory device with a managed interface that addresses potential NAND design concerns internally with error correction code (ECC), wear leveling, and bad block management technology. Handling errors internally takes the burden off the host controller and increases speed for higher system performance.

This board includes user-configurable areas of encrypted and non-encrypted memory. The non-encrypted memory block may be used as a system boot device if desired.

It also meets MIL-STD-202G specifications for shock and vibration, making it at home in harsh environments.

This encrypted memory board is compatible with a variety of popular x86 operating systems including Windows and Windows Embedded.

The module utilizes USB signaling and can be used in any system that supports USB 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.



Ordering Information

Model	Function	Operating Temp.
VL-MPEu-K1E8	Encrypted memory. 8 GB eMMC flash storage.	0° to +70°C
VL-MPEu-K1E32	Encrypted memory. 32 GB eMMC flash storage.	0° to +70°C

Accessories

Part Number	Description
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

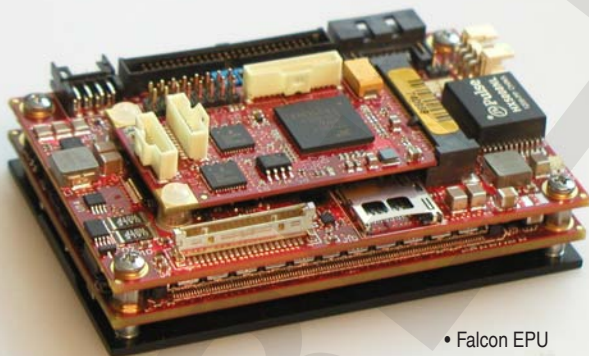
Specifications

General	Board Size	Mini PCIe module (full size): 30 mm x 50.95 mm x 2.59 mm	
	Power Requirements	3.3V @ 0.3W (supplied from the Mini PCIe socket)	
	Manufacturing Standards	Standard	IPC-A-610 Class 2 modified
		Optional	IPC-A-610 Class 3 modified
	Regulatory Compliance	RoHS	
Environmental	Mini PCIe Signal Type	USB	
	Operating Temperature	0° to +70°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	
Memory	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	
	Flash Memory	Up to 32 GB. eMMC 4.4x compliant.	
Software	Hardware Encryption	Supports AES 128, AES 192, and AES 256	
	Operating Systems	Compatible with most x86 operating systems including Windows and Windows Embedded	

* 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.



- 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-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-F1E	mSATA drive (4/16/32 GB)	SATA
VL-MPEs-S3E	SATA adapter	SATA
VL-MPEu-G2E	GPS receiver	USB