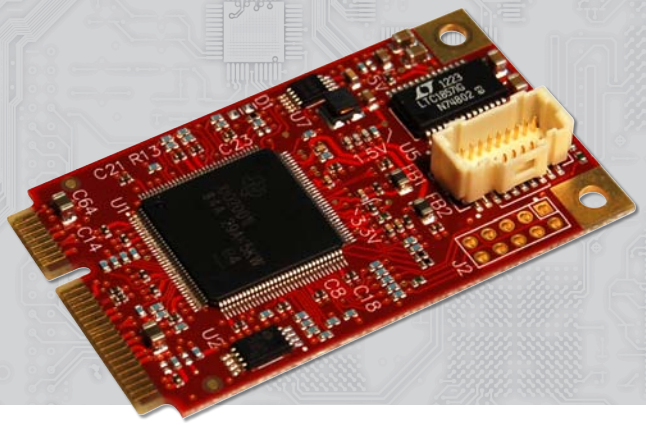
VERSALOGIC CORPORATION

Analog Input

Mini PCIe Module



- Extremely small Mini PCIe module format
- Eight analog input channels
- 12 or 16-bit resolution
- Industrial temp. (-40º to +85ºC) operation
- MIL-STD-202G shock/vibe
- Latching connector

Highlights

Mini PCIe Module Format
Small and flexible.

Analog Input
Eight single-ended/four differential channels. 12 or 16-bit resolution.

Digital I/O
Three GPIO lines.

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 Connector
Prevents detachment failures.

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

RoHS

Overview

The VL-MPEe-A1 is an extremely small and rugged analog input 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 analog board provides eight single-ended or four differential input channels. The VL-MPEe-A1 model provides 12-bit resolution, while the VL-MPEe-A2 model provides 16-bit resolution.

Operating at 100,000 samples per second, each input channel is individually configurable for an input range of 0 to 5V, -5 to +5V, 0 to +10V, and -10 to +10V.

In addition, the board provides three general purpose digital I/O lines which are independently configurable for input, output, or interrupts.

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, making it at home in harsh environments.

The VL-MPEe-A1 board is supported by 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-A1 board, the VersaAPI supports the on-board A/D channels and GPIO lines. The VersaAPI is compatible with Windows, Windows Embedded, and Linux operating systems.

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

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 FPGA customization, conformal coating, application-specific testing, BOM revision locks, special labeling, etc.

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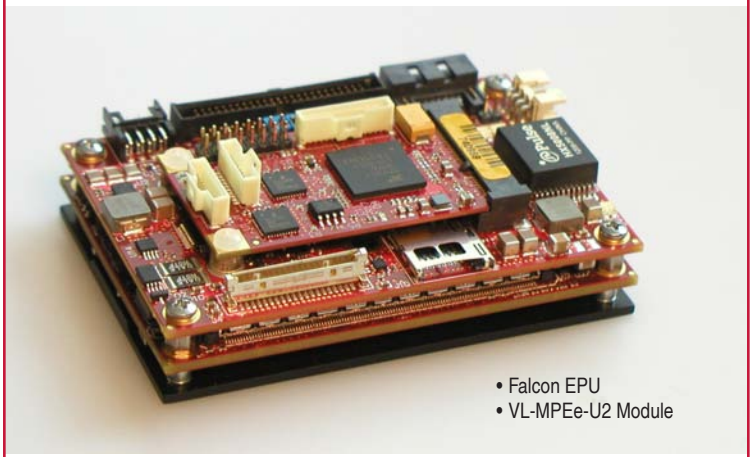
Analog Input
Mini PCIe Module

Ordering Information

Model	Function	Operating Temp.
VL-MPEe-A1E	Analog input. Eight channel. 12-bit resolution.	-40° to +85°C
VL-MPEe-A2E	Analog input. Eight channel. 16-bit resolution.	-40° to +85°C

Accessories

Part Number	Description
Cables	
VL-CBR-2004	Breakout cable and paddleboard, 20-pin
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-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
VL-MPEu-K1E	Encrypted solid-state drive (8/32 GB)	USB

Specifications

General	Board Size	Mini PCIe module (full size): 30 mm x 50.95 mm x 6.37 mm	
	Power Requirements	3.3V ±5% @ 0.45W (from 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	Analog Input	Eight single-ended or four differential pairs. 12 or 16-bit resolution (depends on model). 100 Ksps. Software-configurable per-channel input ranges of 0 to +5V, ±5V, 0 to +10V, and ±10V.	
	GPIO	Three general purpose 3.3V digital I/O lines. Each line independently configurable as input, output, or interrupt.	
Software	Drivers	Device drivers and VersaAPI included. Provides simplified I/O interface for most application languages. Supports on-board A/D channels and 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.*

09/04/13