Reference Manual

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VL-MPEs-S3

MiniPCIe SATA Adapter

VERSALOGIC
CORPORATION

W W W . V E R S A L O G I C . C O M

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Notice:

Product Revision Notes

Revsion 1.00 – Commercial release.

Support

The VL-MPEs-S3 support page, at **http://www.versalogic.com/private/mpess3support.asp**, contains additional information and resources for this product including:

- Reference Manual (PDF format)
- Data sheets and manufacturers' links for chips used in this product
- Photograph of the circuit board

This is a private page for VL-MPEs-S3 users that can be accessed only by entering this address directly. It cannot be reached from the VersaLogic homepage.

The VersaTech KnowledgeBase is an invaluable resource for resolving technical issues with your VersaLogic product.

VersaTech KnowledgeBase

Contents

Introduction 1

Description

FEATURES AND CONSTRUCTION

The VL-MPEs-S3 is an extremely small and rugged I/O module based on the industry-standard mSATA module format. It provides a single 7-pin SATA connector interfaced to the mSATA supplied port. The board's features include:

- One SATA port, compatible with SATA II rates up to 3.0 Gb/s
- Industrial temperature operation
- RoHS-compliant

The VL-MPEs-S3 features high reliability design and construction. VL-MPEs-S3 boards are subjected to 100% functional testing and are backed by a limited two-year warranty. Careful parts sourcing and US-based technical support ensure the highest possible quality, reliability, service, and product longevity for this exceptional board.

Technical Specifications

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notification.

Board Size:
   30.00 mm x 50.95 mm (mSATA / Mini PCIe standard)

Storage Temperature:
   -40° to +85°C

Operating Temperature:
   -40° to +85°C

Power Requirements:
   None

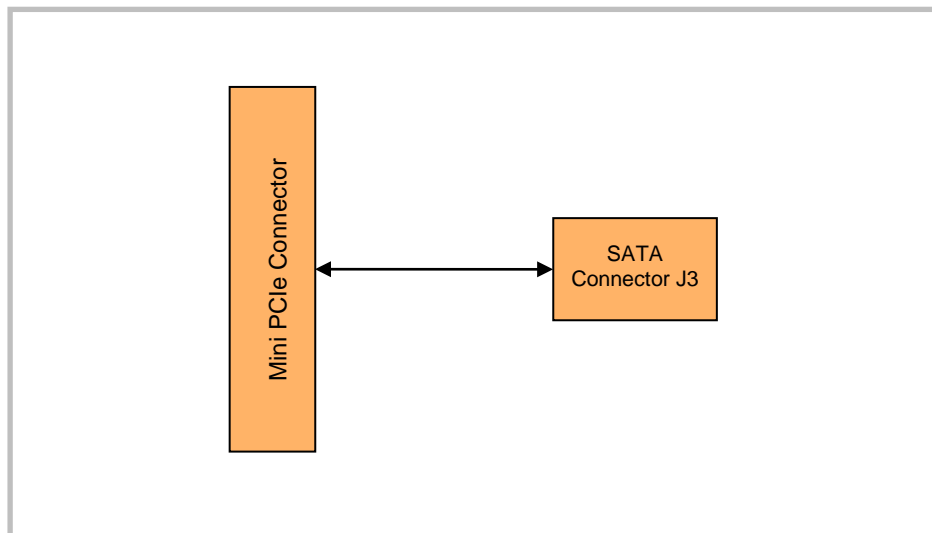**SATA Port:**
   One SATA port, up to 3 Gb/s

mSATA / Mini PCIe Signal Type:
   SATA signals from mSATA MiniCard bus (PCIe, USB, and SMBus not used)

Weight:
   0.062 lbs (0.004 kg)

Block Diagram

RoHS Compliance

The VL-MPEs-S3 is RoHS-compliant.

ABOUT ROHS

In 2003, the European Union issued Directive 2002/95/EC regarding the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment.

The RoHS directive requires producers of electrical and electronic equipment to reduce to acceptable levels the presence of six environmentally sensitive substances: lead, mercury, cadmium, hexavalent chromium, and the presence of polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) flame retardants, in certain electrical and electronic products sold in the European Union (EU) beginning July 1, 2006.

VersaLogic Corp. is committed to supporting customers with high-quality products and services meeting the European Union's RoHS directive.

Warnings

ELECTROSTATIC DISCHARGE

Warning!   Electrostatic discharge (ESD) can damage circuit boards, disk drives, and other components. The circuit board must only be handled at an ESD workstation. If an approved station is not available, some measure of protection can be provided by wearing a grounded antistatic wrist strap. Keep all plastic away from the board, and do not slide the board over any surface.

After removing the board from its protective wrapper, place the board on a grounded, static-free surface, component side up. Use an antistatic foam pad if available.

The board should also be protected inside a closed metallic antistatic envelope during shipment or storage.

Note: The exterior coating on some metallic antistatic bags is sufficiently conductive to cause excessive battery drain if the bag comes in contact with the bottom side of the board.

HANDLING CARE

Warning! Care must be taken when handling the board not to touch the exposed circuitry with your fingers.

Technical Support

If you are unable to solve a problem after reading this manual, please visit the VL-MPEs-S3 product support page below. This page provides links to component datasheets and device drivers.

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VL-MPEs-S3 Support Page
http://www.versalogic.com/private/mpess3support.asp

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The VersaTech KnowledgeBase contains a wealth of technical information about VersaLogic products, along with product advisories. Click the link below to see all KnowledgeBase articles related to the VL-MPEs-S3.

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VersaTech KnowledgeBase

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If you have further questions, contact VersaLogic Technical Support at (503) 747-2261. VersaLogic support engineers are also available via e-mail at Support@VersaLogic.com.

REPAIR SERVICE

If your product requires service, you must obtain a Returned Material Authorization (RMA) number by calling (503) 747-2261. Please provide the following information:

- Your name, the name of your company, your phone number, and your e-mail address
- The name of a technician or engineer that can be contacted if any questions arise
- Quantity of items being returned
- The model and serial number (barcode) of each item

- A detailed description of the problem
- Steps you have taken to resolve or recreate the problem
- The return shipping address

Warranty Repair   All parts and labor charges are covered, including return shipping charges for UPS Ground delivery to United States addresses.

Non-warranty Repair   All approved non-warranty repairs are subject to diagnosis and labor charges, parts charges, and return shipping fees. Please specify the shipping method you prefer and provide a purchase order number for invoicing the repair.

Note: Please mark the RMA number clearly on the outside of the box before returning.

Board Layout and Mounting

VL-MPEs-S3 MOUNTING

The VL-MPEs-S3 is a full size Mini PCIe card and needs to be mounted into a full size Mini PCIe site. On VersaLogic CPU boards, the module is secured using two nylon screws. VersaLogic supplies 2 mm nylon screws (VL-HDW-110) and 2.5 mm nylon screws (VL-HDW-108). On non-VersaLogic CPU boards, mounting might be accomplished using a latching system.

Note: Be careful not to over tighten the nylon mounting screws. Optimum tightness is 1 lbf-in (0.1 N-m).

VL-MPEs-S3 DIMENSIONS AND CONNECTORS

The VL-MPEs-S3 complies with Mini PCIe card (full size) dimensional standards. Dimensions are given below to help with pre-production planning and layout.
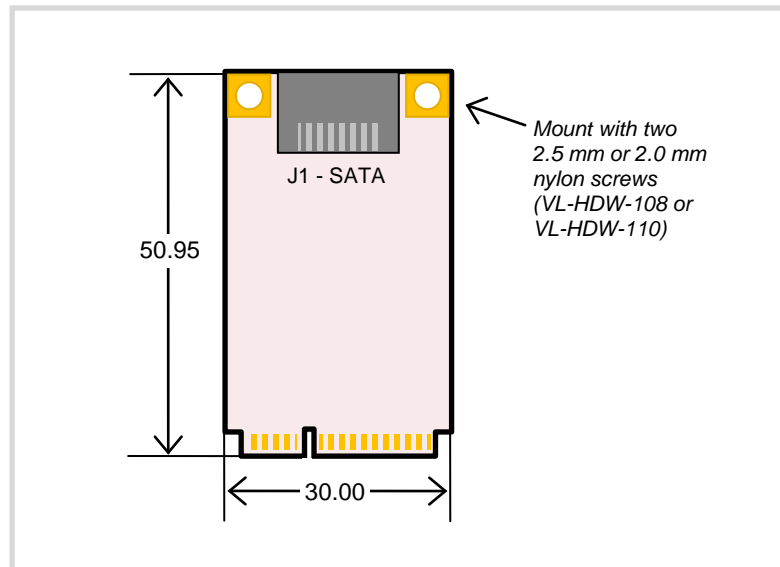

Figure 1. VL-MPEs-S3 Dimensions and Connectors
(Not to scale. All dimensions in millimeters.)

Table 1: Connector Functions and Interface Cables

Connector	Function	Mating Connector	Transition Cable	Cable Description	Page
J1	SATA II port	Latching SATA	VL-CBR-0702	20" latching SATA cable	10

SATA Port

The VL-MPEs-S3 provides one serial ATA (SATA) port via the mSATA / Mini PCIe connector, which communicates at a rate of up to 3.0 Gbps (SATA II compliant). The connector at location J1 is a SATA II-compatible right-angle connector with latching capability. Power to the SATA drive must be supplied by an external power supply.

Table 2: SATA Port Pinout

J1 Pin	Signal Name	Function
1	GND	Ground
2	TX+	Transmit +
3	TX-	Transmit -
4	GND	Ground
5	RX-	Receive -
6	RX+	Receive +
7	GND	Ground