Reference Manual

DOC. REV. 6/19/2013

VL-MPEe-W2

Mini PCIe Wi-Fi Module

VERSALOGIC

C O R P O R A T I O N

Notice:

Product Revision Notes

Revsion 1.00 – Commercial release.

Support

The VL-MPEe-W2 support page, at **http://www.versalogic.com/private/mpeew2support.asp**, contains additional information and resources for this product including:

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

This is a private page for VL-MPEe-W2 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.

<div style="border:2px solid black; text-align:center; padding:40px;">

VersaTech KnowledgeBase

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Contents

Introduction

Description

FEATURES AND CONSTRUCTION

The VL-MPEe-W2 is an extremely small and rugged Wi-Fi module based on the industry-standard Mini PCIe module format. It provides dual-stream (2x2), dual-band, 802.11 a/b/g/n Wi-Fi operation, with Wi-Fi Direct for speeds up to 300 Mbps. The board's features include:

- Wi-Fi certifications: 802.11a, 802.11b, 802.11g, 802.11n, WMM, WPA, WPA2, and WPS Wi-Fi Direct for peer-to-peer device connections
- IEEE WLAN standards: IEEE 802.11 a/b/g/n, 802.11d, 802.11e, 802.11i, 802.11h
- Intel® My Wi-Fi Dashboard enables data sharing directly with other Wi-Fi devices without WLAN or hotspot access
- Supports seamless roaming between respective access points (802.11b, 802.11g, 802.11a/b/g, and 802.11a/b/g/n)
- Intel® vPro Technology, Intel® Active Management Technology, and Intel® PROSet/Wireless Enterprise Software for enterprise Wi-Fi client manageability, improved security, and streamlined deployment
- Industrial temperature operation
- RoHS-compliant
- Customization available

The VL-MPEe-W2 features high reliability design and construction, including voltage sensing reset circuits and self-resetting fuses on the power supplies to the user I/O connectors.

VL-MPEe-W2 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 subject to change without notification.*

Board Size:
> 30.00 mm x 26.8 mm (Mini PCIe module – half size); 1.35 mm max. bottom side

Storage Temperature:
> -40° to +85°C

Operating Temperature:
> -40° to +85°C

Power Requirements: *at +25°C running Windows 7*
> 3.3V @ 0.83W
> (supplied from the Mini PCIe socket; 1.5V not used)

Wi-Fi Certification:
> 802.11a, 802.11b, 802.11g, 802.11n, WMM, WPA, WPA2, and WPS Wi-Fi Direct for peer-to-peer device connections

IEEE WLAN Standard:
> IEEE 802.11 a/b/g/n, 802.11d, 802.11e, 802.11i, 802.11h

Roaming:
> Supports seamless roaming between respective access points (802.11b, 802.11g, 802.11a/b/g, and 802.11a/b/g/n)

Authentication Protocols:
> PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2

Encryption:
> 64-bit and 128-bit WEP, AES-CCMP, TKIP

Compliance:
> PCI, CISP, FIPS, FISMA

Mini PCIe Signal Type:
> PCIe 1.1 signals from PCIe MiniCard bus (USB and SMBus not used)

Weight: *without full-size adapter plate*
> 0.009 lbs (0.004 kg)

*See the Intel® Centrino® Advanced-N 6205 Product Brief for more information.

RoHS Compliance

The VL-MPEe-W2 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.

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-MPEe-W2 product support page below. This page provides links to component datasheets and device drivers.

VL-MPEe-W2 Support Page

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-MPEe-W2.

VersaTech KnowledgeBase

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 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-MPEE-W2 MOUNTING

The VL-MPEe-W2 is a half size Mini PCIe card and can be mounted into a half size or full size Mini PCIe site. To install the card on VersaLogic CPU boards, the module is secured into a full size site using a half-to-full size Mini PCIe adapter kit (VL-HDW-111, includes plate and two metal screws) and 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 or VersaLogic mounting hardware.

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

The figure below shows how to mount the VL-MPEe-W2 on a VersaLogic CPU board.

1. Attach the adapter plate to the VL-MPEe-W2 using the two M2.0 x 3 mm metal screws and plate provided in the adapter kit. To prevent possible damage to the base board, be sure to install the screws "up" from the board

2. Install the extended card to the base board using two screws from VL-HDW-108 or VL-HDW-110.
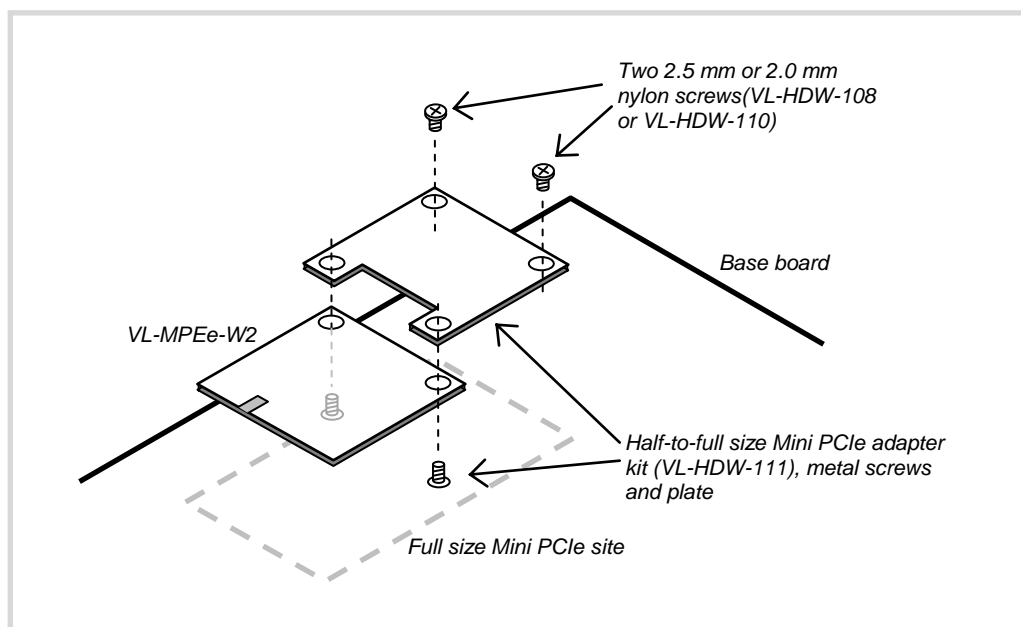

Figure 1. Mounting the VL-MPEe-W2 in a Full Size Mini PCIe Site

VL-MPEE-W2 DIMENSIONS

The VL-MPEe-W2 complies with Mini PCIe Mini Card (half size) dimensional standards. Dimensions are given below to help with pre-production planning and layout.
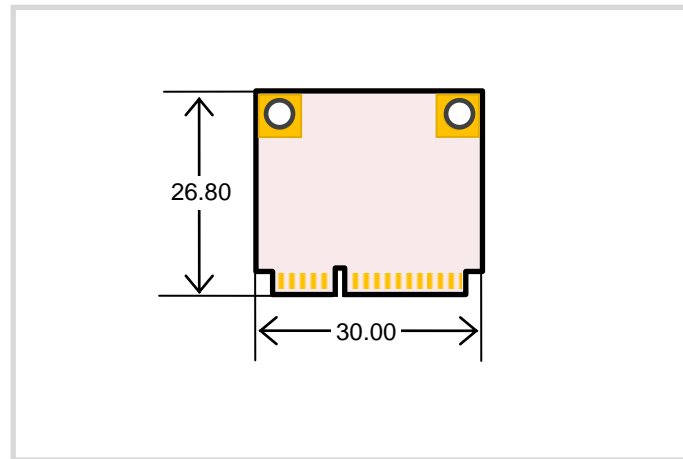

Figure 2. VL-MPEe-W2 Dimensions and Connectors
(Not to scale. All dimensions in millimeters.)

Interfaces

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Wi-Fi

The VL-MPEe-W2 is the VersaLogic part number for the Intel® Centrino® Advanced-N 6205 wireless adapter. For information on setup and operation, see the [Intel® Centrino® Advanced-N 6205 Product Brief](#) and the [Intel® Centrino® Advanced-N 6205 support page](#).

For Windows and Linux device drivers, visit the [VL-MPEe-W2 support page](#).

Antenna

A WiFi antenna (VL-CBR-ANT01) and a 12" WiFi card to bulkhead RP-SMA transition cable (VL-CBR-0201) are available from VersaLogic. For more information, contact Sales@VersaLogic.com.