1 Introduction

The VI800A-PoE is a plug in accessory for the VM800P Plus module, which is used to develop and demonstrate the functionality of the FT800 Embedded Video Engine, EVE.

This module behaves as a SPI to Ethernet bridge on the VM800P Plus module with the additional option of providing a 5V, 1.8A power pin derived from the Ethernet port.

1.1 Features

- Connects to the VM800P Plus module using an SPI slave interface
- SPI slave interface is converted to an Ethernet interface compliant with IEEE 802.3 10BASE-T and 802.3u 100BASE-TX
- Power over Ethernet (PoE) supplies 5V DC at 1.8A. May be used to power VM800P module. Conforms to IEEE 802.3af
- VI800A-PoE module is powered from the VM800P module (3V3 supply)
- 6 LEDs to indicate Ethernet status. (2 integrated in the RJ45 connector)
- RJ45 connector

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied. Future Technology Devices International Ltd will not accept any claim for damages howsoever arising as a result of use or failure of this product. Your statutory rights are not affected. This product or any variant of it is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH United Kingdom. Scotland Registered Company Number: SC136640
2 Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI800A-PoE</td>
<td>VI800A Power over Ethernet module, plug in accessory for the VM800P Plus module</td>
</tr>
</tbody>
</table>

Table 2-1 – Ordering information
# Table of Contents

1 Introduction ........................................................................................................... 1  
1.1 Features ............................................................................................................ 1

2 Ordering Information ............................................................................................. 2

3 Hardware Description ............................................................................................ 4  
3.1 VI800A Power over Ethernet module ............................................................... 4
3.2 Physical Descriptions .......................................................................................... 5  
  3.2.1 Dimensions .................................................................................................... 5
  3.2.2 VI800A Power over Ethernet Connectors ...................................................... 6
  3.2.3 VI800A Power over Ethernet Components .................................................... 7

4 Board Schematics .................................................................................................. 8

5 Hardware Setup Guide ........................................................................................... 9
  5.1 Power Configuration ........................................................................................... 9

6 Contact Information ............................................................................................... 10

Appendix A – References ......................................................................................... 11
  Document References ............................................................................................. 11

Appendix B - List of Figures and Tables ................................................................. 12
  List of Figures ......................................................................................................... 12
  List of Tables .......................................................................................................... 12

Appendix C – Revision History ................................................................................... 13
3 Hardware Description

Please refer to section 3.2.2 for connector settings.

3.1 VI800A Power over Ethernet module

The VI800A-PoE module is designed to connect directly with the VM800P Plus module.

The main functions of the VI800A-PoE module are as follows:

- Plug in accessory board for the VM800P Plus module.
- Interface to the VM800P Plus board as a SPI slave device.
- Connects with an external Ethernet interface.
- Contains 6 LEDs (2 integrated in RJ45 connector).
- Powered by the VM800P Plus board
- 5V @1.8A power available from Power over Ethernet (PoE)
3.2 Physical Descriptions

3.2.1 Dimensions

The VI800A-PoE module dimension is illustrated in Figure 3-2 and Figure 3-3.

Figure 3-2 – VI800A-PoE module Top view

Figure 3-3 – VI800A-PoE module Bottom view
3.2.2 VI800A Power over Ethernet Connectors

Connectors and jumpers are described in the following sections.

- **CN1 - RJ45**
  
  This is a standard Ethernet connector with integrated LEDs and output for PoE.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>O</td>
<td>Ethernet data TX+ output</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td>O</td>
<td>Ethernet data TX- output</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>I</td>
<td>Ethernet data RX+ input</td>
</tr>
<tr>
<td>4</td>
<td>POWER</td>
<td>PWR</td>
<td>Power (36-57V)</td>
</tr>
<tr>
<td>5</td>
<td>POWER</td>
<td>PWR</td>
<td>Power (36-57V)</td>
</tr>
<tr>
<td>6</td>
<td>RX-</td>
<td>I</td>
<td>Ethernet data RX- input</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>

  **Table 3-1 – CN1 Pinout**

- **CN2 - Plug in Interface**
  
  This is the interface where the control and data signals from the VM800P boards are routed. There are also power and ground pins on this interface. This interface is used to connect the VI800A-PoE board to the VM800P Plus board.

  **Note:**
  
  This connector should be connected to J6 of the VM800P Plus board.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SCK</td>
<td>I</td>
<td>SPI Clock input</td>
</tr>
<tr>
<td>2</td>
<td>MOSI</td>
<td>I</td>
<td>SPI Master Out Slave in</td>
</tr>
<tr>
<td>3</td>
<td>MISO</td>
<td>O</td>
<td>SPI Master In Slave out</td>
</tr>
<tr>
<td>Pin No.</td>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>4</td>
<td>SS</td>
<td>I</td>
<td>SPI Chip select, active low</td>
</tr>
<tr>
<td>5</td>
<td>INT0</td>
<td>O</td>
<td>Interrupt output, active low</td>
</tr>
<tr>
<td>6</td>
<td>IO6</td>
<td>I</td>
<td>Daughter reset input, active low</td>
</tr>
<tr>
<td>7</td>
<td>AD4</td>
<td>IO</td>
<td>Address/Data Line 4</td>
</tr>
<tr>
<td>8</td>
<td>AD5</td>
<td>IO</td>
<td>Address/Data Line 5</td>
</tr>
<tr>
<td>9</td>
<td>3V3</td>
<td>P</td>
<td>3.3V power supply</td>
</tr>
<tr>
<td>10</td>
<td>5V</td>
<td>P</td>
<td>5V power supply</td>
</tr>
<tr>
<td>11</td>
<td>GND</td>
<td>P</td>
<td>Ground</td>
</tr>
<tr>
<td>12</td>
<td>RST#</td>
<td>I</td>
<td>Reset, active low</td>
</tr>
<tr>
<td>13</td>
<td>AD1</td>
<td>IO</td>
<td>Address/Data Line 1</td>
</tr>
<tr>
<td>14</td>
<td>NC</td>
<td>NA</td>
<td>Not Connected</td>
</tr>
<tr>
<td>15</td>
<td>ETH_INT#</td>
<td>O</td>
<td>Interrupt out, active low</td>
</tr>
<tr>
<td>16</td>
<td>AD2</td>
<td>IO</td>
<td>Address/Data Line 2</td>
</tr>
</tbody>
</table>

Table 3-2 – CN2 Pinout

- **JP1- Power from PoE**
  Jumper connection fitted when power source is from PoE.

### 3.2.3 VI800A Power over Ethernet Components

- **U1 – W5100**
  This converts the SPI signals from the VM800P Plus board to Ethernet signals. The interface is IEEE 802.3 10BASE-T and 802.3u 100BASE-TX compliant.

- **U2 – AG9705-2BR**
  Power over Ethernet PWR module. This module takes an input from the Ethernet port and outputs 5V @ 1.8A and conforms to IEEE 802.3af

- **CN1 – LPJ0514GENL**
  The RJ45 Ethernet connector to connect the Ethernet cable with 2 integrated indicator LEDs.
  The green LED indicates if a link is established or not. If illuminated the link is good.
  The yellow LED indicates the link speed. Illuminated is 100Base-TX and unlit is 10Base-T

- **LED1 – LED4**
  Indicates the status of the Ethernet transmission.
  LED1: This is the FDX LED. It is yellow in colour.
  LED2: This is the collision LED. It is yellow in colour
  LED3: This is the RX LED. It is green in colour
  LED4: This is the TX LED. It is green in colour
4 Board Schematics

Figure 4-1 – VI800A-PoE Schematics
5 Hardware Setup Guide

5.1 Power Configuration

The board could be powered from PoE or the VM800P Plus board from the setting of JP1. The CN2 connector on the VI800 PoE board should be connected to the J6 connector of the VM800P Plus board as shown in the Figure 5-1.

Figure 5-1 – VI800A-PoE module connected to VM800P Plus module
6  Contact Information

Head Quarters – Singapore

Bridgetek Pte Ltd
178 Paya Lebar Road, #07-03
Singapore 409030
Tel: +65 6547 4827
Fax: +65 6841 6071

E-mail (Sales)  sales.apac@brtchip.com
E-mail (Support)  support.apac@brtchip.com

Branch Office – Taipei, Taiwan

Bridgetek Pte Ltd, Taiwan Branch
2 Floor, No. 516, Sec. 1, Nei Hu Road, Nei Hu District
Taipei 114
Taiwan, R.O.C.
Tel: +886 (2) 8797 5691
Fax: +886 (2) 8751 9737

E-mail (Sales)  sales.apac@brtchip.com
E-mail (Support)  support.apac@brtchip.com

Branch Office - Glasgow, United Kingdom

Bridgetek Pte. Ltd.
Unit 1, 2 Seaward Place, Centurion Business Park
Glasgow G41 1HH
United Kingdom
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

E-mail (Sales)  sales.emea@brtchip.com
E-mail (Support)  support.emea@brtchip.com

Branch Office – Vietnam

Bridgetek VietNam Company Limited
Lutaco Tower Building, 5th Floor, 173A Nguyen Van Troi,
Ward 11, Phu Nhuan District,
Ho Chi Minh City, Vietnam
Tel: 08 38453222
Fax: 08 38455222

E-mail (Sales)  sales.apac@brtchip.com
E-mail (Support)  support.apac@brtchip.com

Web Site

http://brtchip.com/

Distributor and Sales Representatives

Please visit the Sales Network page of the Bridgetek Web site for the contact details of our distributor(s) and sales representative(s) in your country.

System and equipment manufacturers and designers are responsible to ensure that their systems, and any Future Technology Devices International Ltd (FTDI) devices incorporated in their systems, meet all applicable safety, regulatory and system-level performance requirements. All application-related information in this document (including application descriptions, suggested FTDI devices and other materials) is provided for reference only. While FTDI has taken care to assure it is accurate, this information is subject to customer confirmation, and FTDI disclaims all liability for system designs and for any applications assistance provided by FTDI. Use of FTDI devices in life support and/or safety applications is entirely at the user’s risk, and the user agrees to defend, indemnify and hold harmless FTDI from any and all damages, claims, suits or expense resulting from such use. This document is subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Neither the whole nor any part of the information contained in, or the product described in this document, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH, United Kingdom. Scotland Registered Company Number: SC136640
Appendix A – References

Document References

VM800P datasheet: VM800P Plus board
FT800 datasheet: FT800_Embedded_Video_Engine
FT800 software programming guide: FT800_Programmer_Guide

FT800 sample application notes:
AN_246_VM800CB_SampleAPP_Arduino_Introduction
AN_332_VI800A_POE_SampleApp
Appendix B - List of Figures and Tables

List of Figures

Figure 3-1 – VI800A-PoE module ........................................................................................................4
Figure 3-2 – VI800A-PoE module Top view ......................................................................................5
Figure 3-3 – VI800A-PoE module Bottom view ................................................................................5
Figure 3-4 – VI800A-PoE module Side view ....................................................................................6
Figure 4-1 – VI800A-PoE Schematics ................................................................................................8
Figure 5-1 – VI800A-PoE module connected to VM800P Plus module ..............................................9

List of Tables

Table 2-1 – Ordering information ..................................................................................................2
Table 3-1 – CN1 Pinout ...................................................................................................................6
Table 3-2 – CN2 Pinout ...................................................................................................................7
## Appendix C – Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Changes</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version 1.0</td>
<td>Initial Release</td>
<td>2014-10-14</td>
</tr>
<tr>
<td>Version 1.1</td>
<td>Updated Release</td>
<td>2014-10-20</td>
</tr>
<tr>
<td>Version 1.2</td>
<td>Dual branding to reflect the migration of the product to the Bridgetek name – logo changed, copyright changed, contact information changed</td>
<td>2016-09-15</td>
</tr>
</tbody>
</table>