

## Introduction

The PIC32 WFI32 2.0 Curiosity Board enables the user to evaluate and demonstrate the functionality of the PIC32MZ2051W104132 System-on-Chip (SoC) and the WFI32E03 Wi-Fi® Module with up to 200 MHz CPU clock frequency. The PIC32 WFI32 2.0 Curiosity Board is a development platform that supports rapid prototyping using on-chip Microcontroller Unit (MCU) peripherals. This board offers integrated programming/debugging features using the PICkit™ On- Board (PKOB3) debugger. The PIC32 WFI32 2.0 Curiosity Board supports a variety of applications, such as Internet of Things (IoT) and other Wi-Fi-enabled applications.

## Features

- Certified WFI32E03PC: Wi-Fi Single Band (2.4 GHz) Module Mounted on the WFI32E03 Carrier Board
- One mikroBUS™ Socket to Expand Functionality Using MikroElektronika™ Click Boards
- Support for Multiple Microchip Ethernet PHY Daughter Boards
- Two User LEDs
- One User Configurable Switch
- One Reset Switch
- One GPIO Expansion Header
- On-Board Temperature Sensor
- 20-Pin Xplained Pro (XPRO) Header
- 32-Mb External SPI Flash Memory
- PICkit On-Board 3 (PKOB3) Support
- In-Circuit Serial Programming™ (ICSP™) Header for External Debugger, Such as MPLAB® ICD 5, MPLAB PICkit 4, MPLAB PICkit 5 and MPLAB Snap
- On-Board 32 KHz Secondary Oscillator Mounted on the WFI32E03 Carrier Board

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# 1. Quick References

## 1.1 Reference Documentation

For further details, refer to the following:

- *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet* ([DS70005425](#))
- *PIC32MZ W1 Software User's Guide* ([DS50003034](#))
- *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-based Security Accelerator Errata* ([DS80000912](#))
- *MPLAB® XC32 C/C++ Compiler User's Guide* ([DS50001686](#))
- *MPLAB® X IDE User's Guide* ([DS50002027](#))
- *MPLAB® Snap In-Circuit Debugger Information Sheet* ([DS50002787](#))
- *Universal Serial Bus Specification and Associated Documents* ([www.usb.org/](http://www.usb.org/))
- *mikroBUS™ Specification* ([www.mikroe.com/mikrobus](http://www.mikroe.com/mikrobus))

## 1.2 Hardware Prerequisites

- PIC32 WFI32 2.0 Curiosity Board kit
- Any of the following in-circuit debugger or programmers:
  - MPLAB Snap
  - MPLAB PICKit 4/MPLAB PICKit 5
  - MPLAB ICD 5

## 1.3 Software Prerequisites

- MPLAB Integrated Development Environment (MPLAB X IDE) tool (version 6.20 or later)
- MPLAB XC32 compiler (version 4.00 or later)
- MPLAB Snap ([PG164100](#))
- [Out of Box \(OOB\) demo](#)

## 1.4 Acronyms/Abbreviations

**Table 1-1.** Acronyms/Abbreviations

| Acronyms             | Abbreviations                  |
|----------------------|--------------------------------|
| ADC                  | Analog-to-Digital Converter    |
| BOM                  | Bill of Material               |
| CAN                  | Controller Area Network        |
| CVD                  | Capacitive Voltage Divider     |
| DNP                  | Do Not Populate                |
| GPIO                 | General Purpose Input Output   |
| I <sup>2</sup> C/I2C | Inter-Integrated Circuit       |
| ICD                  | In-Circuit Debugger            |
| ICSP™                | In-Circuit Serial Programming™ |
| IoT                  | Internet of Things             |
| JTAG                 | Joint Test Action Group        |
| LDO                  | Low-Dropout                    |
| LED                  | Light Emitting Diode           |

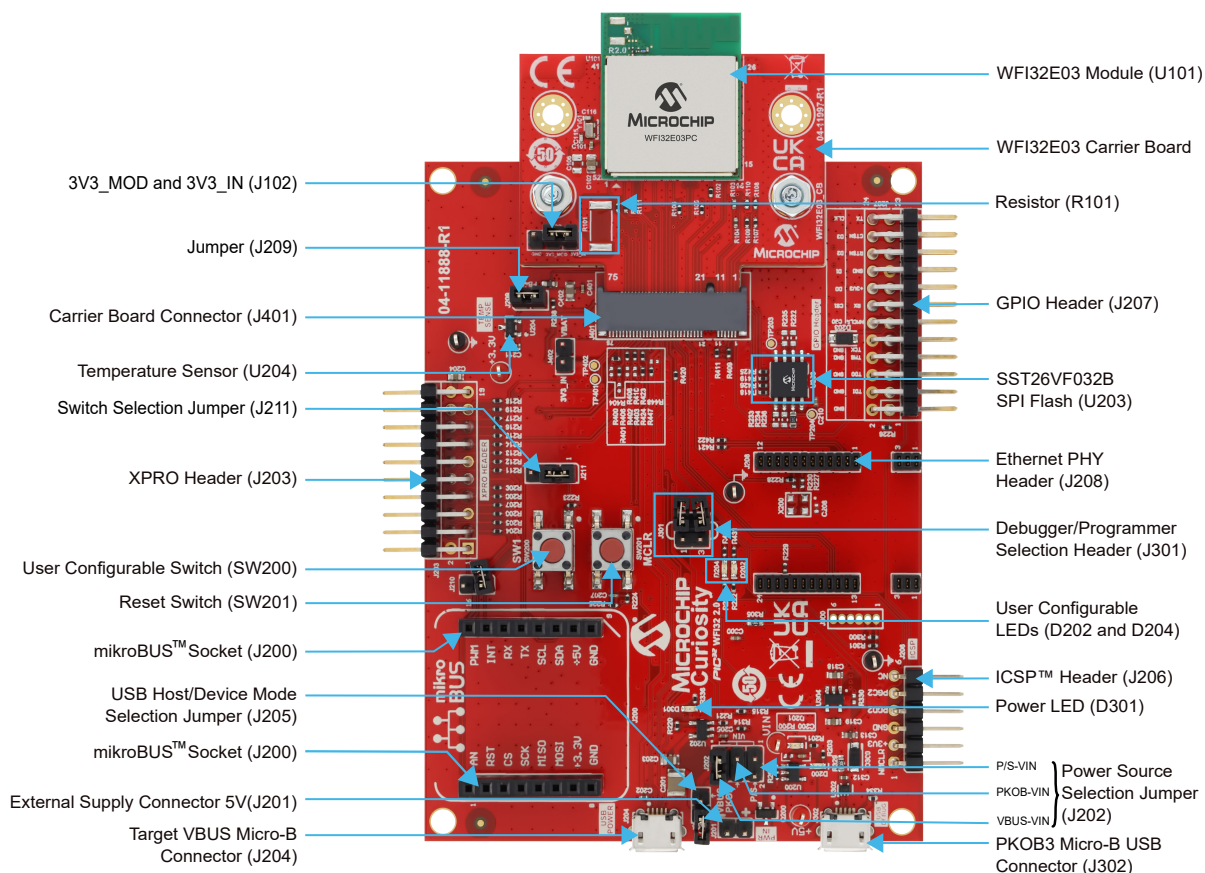
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| Acronyms | Abbreviations                               |
|----------|---------------------------------------------|
| MCU      | Microcontroller Unit                        |
| NC       | Not Connected                               |
| OOB      | Out of Box                                  |
| OTG      | On-The-Go                                   |
| PCB      | Printed Circuit Board                       |
| PKOB3    | PICKit™ On-Board 3                          |
| PPS      | Peripheral Pin Select                       |
| PTA      | Packet Traffic Arbitration                  |
| PWM      | Pulse Width Modulation                      |
| RMII     | Reduced Media Independent Interface         |
| RTCC     | Real Time Clock and Calendar                |
| RX       | Receiver                                    |
| SCL      | Serial Clock                                |
| SDA      | Serial Data                                 |
| SMD      | Surface Mount Device                        |
| SoC      | System-on-Chip                              |
| SPI      | Serial Peripheral Interface                 |
| TX       | Transmitter                                 |
| UART     | Universal Asynchronous Receiver-Transmitter |
| USB      | Universal Serial Bus                        |
| XPRO     | Xplained PRO Expansion Header               |

## 2. Kit Overview

The PIC32 WFI32 2.0 Curiosity Board contains a WFI32E03PC Module mounted on the carrier board. All the signals from the module are brought onto the Curiosity board, where they are connected to on-board peripherals or terminated onto headers for rapid prototyping or evaluation.

Figure 2-1. PIC32 WFI32 2.0 Curiosity Board (EV67T15A)



### 2.1 Kit Contents

The PIC32 WFI32 2.0 Curiosity Board kit contains the following:

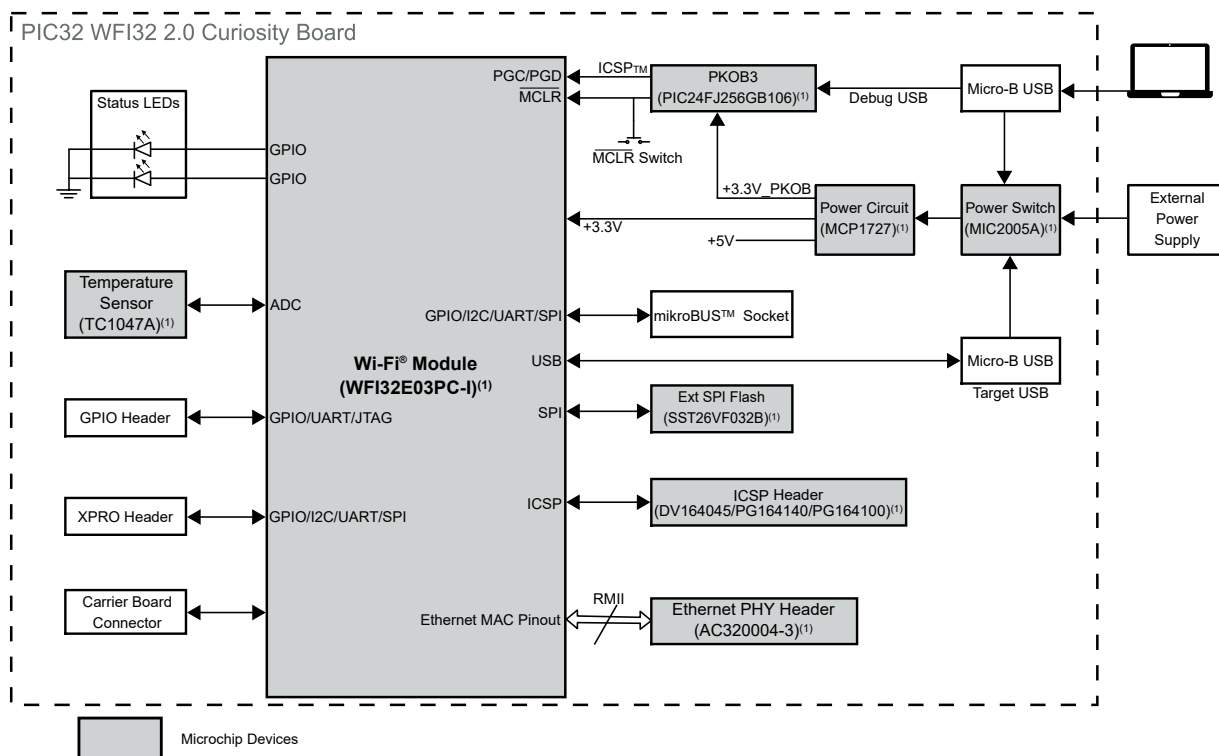
- PIC32 WFI32 2.0 Curiosity Board that contains a WFI32E03PC module mounted on a WFI32E03 Carrier Board
- USB Type-A male to Micro-B USB cable

**Note:** If any of the above items are missing in the kit, go to [support.microchip.com](http://support.microchip.com) or contact your local Microchip sales office. A list of Microchip office for sales and services is provided on the last page of this document.

### 3. Hardware

This chapter describes the hardware features of the PIC32 WFI32 2.0 Curiosity Board.

**Figure 3-1.** PIC32 WFI32 2.0 Curiosity Board Block Diagram



**Note:**

- Using Microchip’s total system solution, which includes complementary devices, software drivers and reference designs, is highly recommended to ensure the proven performance of the PIC32 WFI32 2.0 Curiosity Board. For more details, go to [support.microchip.com](http://support.microchip.com) or contact your local Microchip Sales office.

**Table 3-1.** Microchip Components Used in PIC32 WFI32 2.0 Curiosity Board

| S.No. | Designator       | Manufacturer Part Number | Description                                                          |
|-------|------------------|--------------------------|----------------------------------------------------------------------|
| 1     | U200, U202, U304 | MIC2005A-1YM5-TR         | MCHP Analog Power Switch 5.5V 500 mA MIC2005A-1YM5-TR SOT-23-5       |
| 2     | U203             | SST26VF032B-104I/SM      | MCHP Memory Serial Flash SST26VF032B-104I/SM SOIJ-8                  |
| 3     | U204             | TC1047AVNBTR             | MCHP Analog Temperature Sensor -40°C to +125°C TC1047AVNBTR SOT-23-3 |
| 4     | U300             | PIC24FJ256GB106T-I/PT    | MCHP MCU 16-BIT 32 MHz 256 kB 16 kB PIC24FJ256GB106-I/PT TQFP-64     |
| 5     | U301             | 25LC256T-E/SN            | MCHP Memory Serial EEPROM 256k SPI 25LC256-E/SN SOIC-8               |
| 6     | U303             | MCP1727T-ADJE/MF         | MCHP Analog LDO 0.8V-5V MCP1727T-ADJE/MF DFN-8                       |
| 7     | U101             | WFI32E03PC               | Wi-Fi® Module with 2 MB Flash, PCB antenna and Trust&Go              |

#### 3.1 Power Supply

The following are the list of sources to power the PIC32 WFI32 2.0 Curiosity Board:

- External supply connector 5V (J201)

- PKOB3 Micro-B USB connector (J302)
- Target V<sub>BUS</sub> Micro-B connector (J204)

The following table lists the power supply source details and its jumper positions.

**Table 3-2.** Power Supply Sources

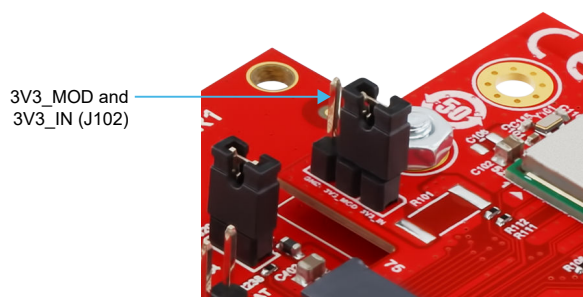
| Power Input                                      | Description                                                                         | Jumper Position (J202) <sup>(1)</sup> |
|--------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|
| External supply connector 5V (J201)              | Connect the PIC32 WFI32 2.0 Curiosity Board to an external 5V power supply          | P/S-VIN (2-1)                         |
| PKOB3 Micro-B USB connector (J302)               | Connect the Type-A male to micro-B USB cable to the USB debug port for power supply | PKOB-VIN (4-3)                        |
| Target V <sub>BUS</sub> Micro-B connector (J204) | Connect the Type-A male to micro-B USB cable to the USB power port for power supply | V <sub>BUS</sub> -VIN (6-5)           |

**Note:**

1. Power source selection jumper (J202) in Figure 3-3

The following figure illustrates the jumper positions that power the PIC32 WFI32 2.0 Curiosity Board.

**Figure 3-2.** Jumper Configuration for Power Input

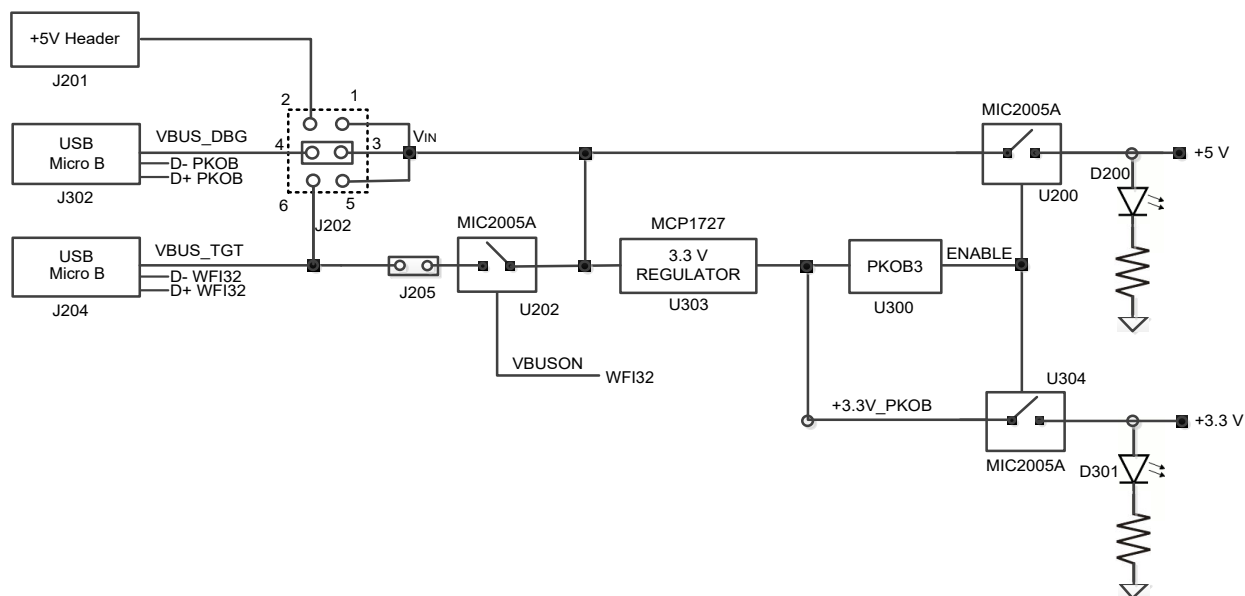


**Note:** Ensure that the 3V3\_MOD and 3V3\_IN (J102) are connected on the WFI32E03 carrier board.

Use the jumper (J202) to select the voltage source for the Curiosity board. The MCP1727 voltage regulator generates a +3.3V power supply for the MCU. PKOB3 turns on the board power (+5V and +3.3V rails) by driving the TARGET\_POWER\_ENABLE signal high to enable the MIC2005A switches (U200 and U304).



**Figure 3-3. Power Tree Diagram**



## 3.2 Debugger/Programmer Selection

By default, the external debugger is selected using (J301) jumper settings for the programming pins (PGEC2 and PGED2) of the WFI32E03 module. Table 3-3 lists the details of the debugger/programmer selection using the (J301) header.

**Note:** Use an external debugger such as MPLAB ICD 5, MPLAB PICkit 4, MPLAB PICkit 5 or MPLAB Snap for the best programming and debugging experience.

The PIC32 WFI32 2.0 Curiosity Board has an on-board debugger (PKOB3) based on the PIC24FJ256GB106 MCU. The on-board debugger enables the user to power, program and debug through the PKOB3 Micro-B USB connector (J302).

**Table 3-3. Debugger/Programmer Selection Header**

| Header Position (J301) <sup>(1)</sup> | Debugger Used | Description                                                                                                            |
|---------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------|
| Pins 1-2 and 3-4 shorted              | On-board      | Selects the on-board debugger                                                                                          |
| Pins 1-2 and 3-4 open                 | External      | Selects the external debugger (for more details, refer to the 3.3. In-Circuit Serial Programming (ICSP) Header (J206)) |

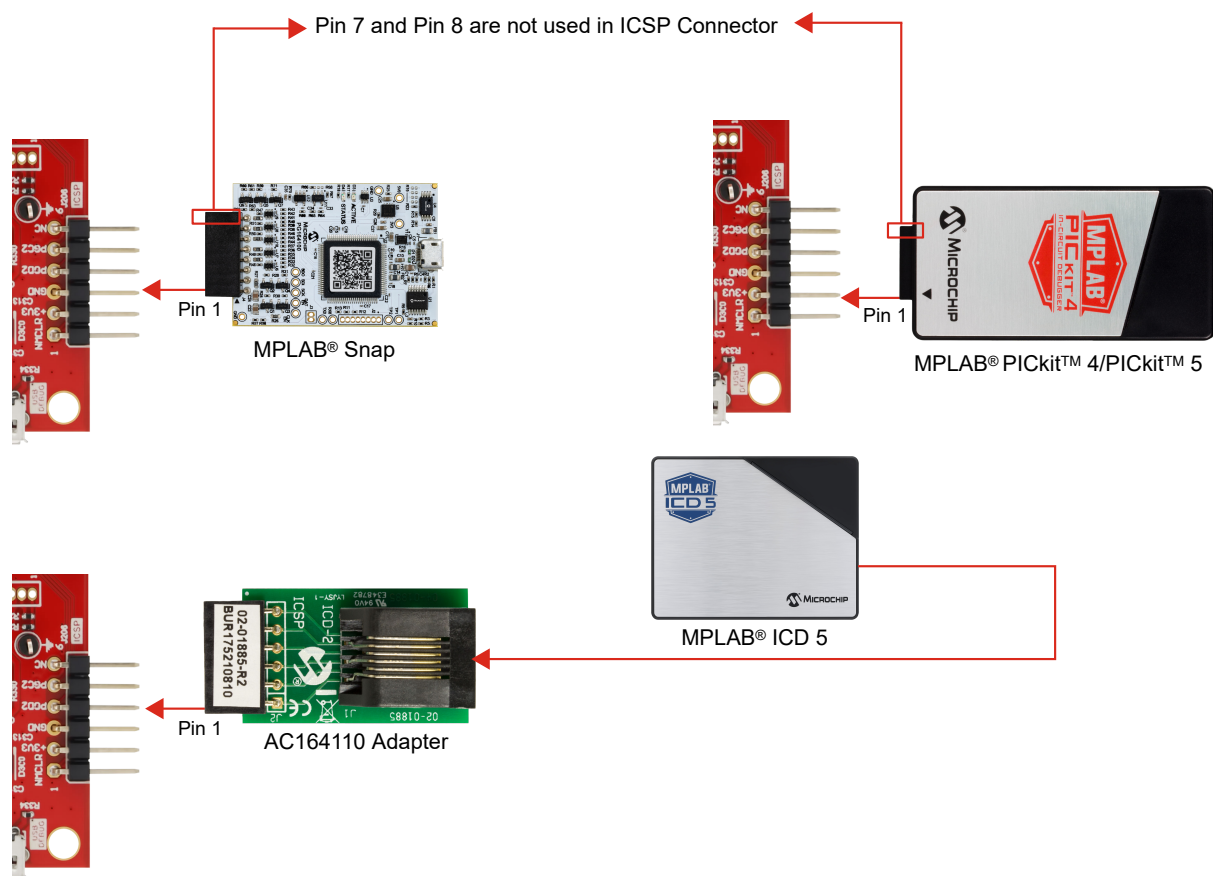
**Note:**

1. Jumper (J301) in Figure 2-1

## 3.3 In-Circuit Serial Programming (ICSP) Header (J206)

The ICSP header (J206) is a 6-pin staggered header. It allows in-circuit emulation and debugging using Microchip's in-circuit emulator tools, and it allows direct programming of the WFI32E03 module. The ICSP header supports external debuggers, such as MPLAB ICD 5, MPLAB PICkit 4, MPLAB PICkit 5 and MPLAB Snap. Use the standard ICSP header to connect an MPLAB programmer or debugger to the PIC32 WFI32 2.0 Curiosity Board. The following figure illustrates the connection between the ICSP header, external debuggers and the PIC32 WFI32 2.0 Curiosity Board.

Figure 3-4. Connection Diagram



The following table provides the pin details and descriptions of the ICSP header:

Table 3-4. ICSP Header Pin Description

| Pin Number | Pin on ICSP™ Header | Pin Description of ICSP Header | Pin on WFI32E03 Module <sup>(1)</sup>       |
|------------|---------------------|--------------------------------|---------------------------------------------|
| J206-1     | MCLR                | Reset pin                      | MCLR                                        |
| J206-2     | 3V3                 | 3.3V power supply              | NC                                          |
| J206-3     | GND                 | Ground                         | GND                                         |
| J206-4     | PGD                 | ICSP programming data          | PGD2/AN5/CVD5/CVDR5/CVDT2/RTCC/<br>RPB5/RB5 |
| J206-5     | PGC                 | ICSP programming clock         | PGC2/AN4/CVD4/CVDR4/CVDT3/RPB4/RB4          |
| J206-6     | NC                  | Not connected                  | NC                                          |

**Notes:**

1. For more details on the WFI32E03 pins, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.
2. Use an external debugger such as MPLAB ICD 5, MPLAB PICKit 4, MPLAB PICKit 5 or MPLAB Snap for the best programming and debugging experience.

### 3.4 USB Connectivity

The WFI32E03 module has an integrated USB peripheral that supports both Low-speed and Full-speed modes. This feature enables the user to implement USB functionality through the Target V<sub>BUS</sub>

Micro-B connector (J204) on the PIC32 WFI32 2.0 Curiosity Board. Connect the board using any one of these modes:

- Device mode:
  - a. Connect the host PC to the Target  $V_{BUS}$  Micro-B connector (J204) using a USB Type-A male cable to Micro-B male USB cable.
  - b. Use the (J202) jumper to select the required power source for the board. For more information, see [Table 3-2](#).  
**Note:** Do not place the jumper on the (J205) connector.
- Host mode:
  - a. Connect the USB device to the Target  $V_{BUS}$  Micro-B connector (J204) using a USB Type-A female cable to Micro-B male USB cable.  
**Note:** USB Type-A female cable to Micro-B male USB cable is not available in the kit.
  - b. Place a jumper in the (J205) header to drive the  $V_{BUS}$  line in the Host mode.
  - c. Use the (J202) jumper to select the power source either from the debug USB connector (J302) or the external 5V input (J201).

**Note:** It is recommended to add a resistor on the customer application board for  $V_{BUS}$  signal as recommended in the data sheet. For more details, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.

### 3.5 mikroBUS Socket (J200)

A mikroBUS socket (J200) expands the functionality of the PIC32 WFI32 2.0 Curiosity Board using the MikroElektronika click adapter boards.

The mikroBUS socket (J200) consists of following interfaces:

- Two 1x8 female headers with Serial Peripheral Interface (SPI)
- Inter-Integrated Circuit (I<sup>2</sup>C)
- Universal Asynchronous Receiver-Transmitter (UART)
- Reset (GPIO)
- Pulse Width Modulation (PWM)
- Analog and interrupt lines
- 3.3V, 5V and ground power lines

The following table provides the pinout details of the mikroBUS socket (J200):

**Table 3-5.** mikroBUS Socket Pinout Details (J200)

| Pin Number | Pin on mikroBUS™ Socket | Pin Description of mikroBUS Socket          | Pin on WFI32E03 Module <sup>(1, 3)</sup> |
|------------|-------------------------|---------------------------------------------|------------------------------------------|
| J200-1     | AN                      | Analog input                                | AN14/ANN0/CVD14/CVDR14/RPA14/RA14        |
| J200-2     | RST                     | Reset                                       | TMS/AN6/CVD6/CVDR6/CVDT1/RPB6/RB6        |
| J200-3     | CS                      | SPI Chip Select                             | TDO/AN7/CVD7/CVDR7/CVDT0/RPB7/RB7        |
| J200-4     | SCK                     | SPI Clock                                   | SCK2/RPA11/RA11                          |
| J200-5     | MISO                    | SPI Host Input Client Output <sup>(2)</sup> | PTA_WLAN_ACTIVE/RPK5/RK5                 |
| J200-6     | MOSI                    | SPI Host Input Client Input <sup>(2)</sup>  | BT_CLK_OUT/RPK4/RK4                      |
| J200-7     | +3.3V                   | 3.3V power                                  | NC                                       |
| J200-8     | GND                     | Ground                                      | GND                                      |
| J200-9     | GND                     | Ground                                      | GND                                      |
| J200-10    | +5V                     | 5V power                                    | NC                                       |
| J200-11    | SDA                     | I2C Data                                    | SDA1/RPA5/RA5                            |

.....continued

| Pin Number | Pin on mikroBUS™ Socket | Pin Description of mikroBUS Socket | Pin on WFI32E03 Module <sup>(1, 3)</sup> |
|------------|-------------------------|------------------------------------|------------------------------------------|
| J200-12    | SCL                     | I2C Clock                          | SCL1/RPA4/RA4                            |
| J200-13    | TX                      | UART transmit                      | PTA_BT_ACTIVE/RPK7/RK7                   |
| J200-14    | RX                      | UART receive                       | TDI/PGD4/AN9/CVD9/CVDR9/RPB9/RB9         |
| J200-15    | INT                     | Hardware interrupt                 | PTA_BT_PRIOR/RPK6/RK6                    |
| J200-16    | PWM                     | PWM output                         | ANA0/RPB12/RB12                          |

**Notes:**

1. For more details on the WFI32E03 pins and PTA signals, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.
2. Traditional Serial Communication Interface Documentation uses the terminology “Master” and “Slave”. The equivalent Microchip terminology used in this document is “Host” and “Client”, respectively.
3. These are Peripheral Pin Select (PPS) pins and can be configured for any of the supported peripheral functions based on the end user application.

### 3.6 Switches

The following switches are available on the PIC32 WFI32 2.0 Curiosity Board:

- User-configurable switch ([SW200](#))
- Reset switch ([SW201](#)) – Connected with  $\overline{\text{MCLR}}$  signal of the WFI32E03 module

In the Idle state, the level of the user-configurable switch is pulled high (+3.3V). After pressing the switch, it drives the I/O line to low (GND).

**Table 3-6.** Switches Pin Description

| Switch Name | Pin on WFI32E03 Module            | Description                      |
|-------------|-----------------------------------|----------------------------------|
| SW1         | AN17/CVD17/CVDR17/INT0/RPA10/RA10 | User configurable switch (SW200) |
| MCLR        | MCLR                              | Reset switch (SW201)             |

**Note:** By default, the SW200 switch is connected to the switch input. Use the ([J211](#)) jumper to configure the board to the switch or external interrupt through XPRO based plugins.

### 3.7 LEDs

The on-board LEDs are categorized into two types:

- Power LEDs:
  - VIN Green ([D201](#))
  - 5V Green ([D200](#))
  - +3.3V Green ([D301](#))
- User configurable LEDs:
  - Red LED ([D202](#))
  - Green LED ([D204](#))

The following table provides details about the list of LEDs that the user can turn ON or OFF while using the connected GPIO pins:

**Table 3-7.** LEDs Pin Description

| Pin on the WFI32E03 Module | Description                             | Function       |
|----------------------------|-----------------------------------------|----------------|
| RPK1/RK1                   | Remappable peripheral/PORTK digital I/O | Red LED (D202) |

.....continued

| Pin on the WFI32E03 Module | Description                             | Function         |
|----------------------------|-----------------------------------------|------------------|
| RPK3/RK3                   | Remappable peripheral/PORTK digital I/O | Green LED (D204) |

### 3.8 Ethernet PHY Header (J208)

The PIC32 WFI32 2.0 Curiosity Board includes headers to mount different Ethernet PHY daughter boards to implement a complete Ethernet node for networking. The PIC32 WFI32 2.0 Curiosity Board uses the LAN8720A PHY daughter board (AC320004-3) as an example to demonstrate the Ethernet functionality.

**Table 3-8.** Ethernet PHY Daughter Board

| Daughter Board              | Part Number                |
|-----------------------------|----------------------------|
| LAN8720A PHY daughter board | <a href="#">AC320004-3</a> |

The Microchip LAN8720A PHY daughter board is populated with a small footprint RMII 10/100 Ethernet transceiver (LAN8720A). This daughter board enables Ethernet communication with a variety of Microchip development boards.

The following table lists the pin details and descriptions of the Ethernet PHY daughter board:

**Table 3-9.** Ethernet PHY Daughter Board Header Pin Description

| Pin Number | Pin on Ethernet PHY Daughter Board | Pin Description of Ethernet PHY Daughter Board | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|------------|------------------------------------|------------------------------------------------|------------------------------------------|
| (J208)-1   | TX_EN                              | Ethernet Transmit Enable                       | CVDT11/ETXEN/RPC13/RC13                  |
| (J208)-2   | TXD0                               | Ethernet Transmit Data 0                       | CVDT13/ETXD0/RPC15/RC15                  |
| (J208)-3   | TXD1                               | Ethernet Transmit Data 1                       | CVDT12/ETXD1/RPC14/RC14                  |
| (J208)-4   | NC                                 | Not connected                                  | NC                                       |
| (J208)-5   | NC                                 | Not connected                                  | NC                                       |
| (J208)-6   | GND                                | Ground                                         | GND                                      |
| (J208)-7   | XTALI                              | Clock output                                   | NC                                       |
| (J208)-8   | CLK_IN                             | Clock input                                    | ETH_CLK_OUT/CVDT10/RPC12/RC12            |
| (J208)-9   | GND                                | Ground                                         | GND                                      |
| (J208)-10  | +3V3                               | Input power supply                             | NC                                       |
| (J208)-11  | NC                                 | Not connected                                  | NC                                       |
| (J208)-12  | NC                                 | Not connected                                  | NC                                       |
| (J208)-13  | NC                                 | Not connected                                  | NC                                       |
| (J208)-14  | NC                                 | Not connected                                  | NC                                       |
| (J208)-15  | RXD1                               | Ethernet Receive Data 1                        | CVDT8/ERXD1/RPC10/RC10                   |
| (J208)-16  | RXD0                               | Ethernet Receive Data 0                        | CVDT9/ERXD0/RPC11/RC11                   |
| (J208)-17  | RX_ER                              | Ethernet Receive Error                         | CVDT7/ERXERR/RPC9/RC9                    |
| (J208)-18  | CRS_DV                             | Ethernet RX Data Valid Input                   | CVDT14/ERXDV/RPK12/RK12                  |
| (J208)-19  | MDC                                | Ethernet Management Data Clock Output          | CVDT16/EMDC/RPK14/RK14                   |
| (J208)-20  | MDIO                               | Ethernet Management Data Input Output          | CVDT15/EMDIO/RPK13/RK13                  |
| (J208)-21  | INT                                | Interrupt output                               | PTA_BT_PPIO/RPK6/RK6                     |
| (J208)-22  | RST                                | System Reset                                   | AN14/ANN0/CVD14/CVDR14/RPA14/RA14        |
| (J208)-23  | NC                                 | Not connected                                  | NC                                       |

.....continued

| Pin Number | Pin on Ethernet PHY Daughter Board | Pin Description of Ethernet PHY Daughter Board | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|------------|------------------------------------|------------------------------------------------|------------------------------------------|
| (J208)-24  | NC                                 | Not connected                                  | NC                                       |

**Notes:**

- These are Peripheral Pin Select (PPS) pins that can be configured for any of the supported peripheral functions based on the end user application.
- For more details on the WFI32E03 pins and PTA signals, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.

### 3.9 GPIO Header (J207)

The PIC32 WFI32 2.0 Curiosity Board provides a header (J207) to access the unused WFI32E03 GPIO pins. The  $\overline{\text{MCLR}}$  Reset signal is also available on GPIO header (J207).

The following table lists the details of the GPIO header:

**Table 3-10.** GPIO Header Pin Description

| Pin Number | Pin on GPIO Header       | Pin Description of GPIO Header | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|------------|--------------------------|--------------------------------|------------------------------------------|
| J207-1     | GND                      | Ground                         | GND                                      |
| J207-2     | GND                      | Ground                         | GND                                      |
| J207-3     | TDI                      | JTAG test data                 | TDI/PGD4/AN9/CVD9/CVDR9/RPB9/RB9         |
| J207-4     | GND                      | Ground                         | GND                                      |
| J207-5     | TDO                      | JTAG test data output          | TDO/AN7/CVD7/CVDR7/CVDT0/RPB7/RB7        |
| J207-6     | GND                      | Ground                         | GND                                      |
| J207-7     | TMS                      | JTAG Test mode select input    | TMS/AN6/CVD6/CVDR6/CVDT1/RPB6/RB6        |
| J207-8     | GND                      | Ground                         | GND                                      |
| J207-9     | TCK                      | JTAG test clock                | TCK/PGC4/AN8/CVD8/CVDR8/RPB8/RB8         |
| J207-10    | GND                      | Ground                         | GND                                      |
| J207-11    | $\overline{\text{MCLR}}$ | Reset pin                      | $\overline{\text{MCLR}}$                 |
| J207-12    | NC                       | Not connected                  | NC                                       |
| J207-13    | U1RX                     | UART1 receive input            | U1RX/RA8                                 |
| J207-14    | NC                       | Not connected                  | NC                                       |
| J207-15    | +3.3                     | VCC                            | NC                                       |
| J207-16    | NC                       | Not connected                  | NC                                       |
| J207-17    | GND                      | Ground                         | GND                                      |
| J207-18    | NC                       | Not connected                  | NC                                       |
| J207-19    | NC                       | Not connected                  | NC                                       |
| J207-20    | NC                       | Not connected                  | NC                                       |
| J207-21    | NC                       | Not connected                  | NC                                       |
| J207-22    | NC                       | Not connected                  | NC                                       |
| J207-23    | U1TX                     | UART1 transmit output          | U1TX/RA9                                 |
| J207-24    | NC                       | Not connected                  | NC                                       |

.....continued

| Pin Number | Pin on GPIO Header | Pin Description of GPIO Header | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|------------|--------------------|--------------------------------|------------------------------------------|
|------------|--------------------|--------------------------------|------------------------------------------|

**Notes:**

- These are PPS pins that can be configured for any of the supported peripheral functions based on the end user application.
- For more details on the WFI32E03 pins, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.

### 3.10 XPRO Header (J203)

The PIC32 WFI32 2.0 Curiosity Board provides the XPRO header (J203) to have a pin-to-pin compatibility for XPRO boards. The following table provides details of the XPRO header pins:

**Table 3-11. XPRO Header Pin Description**

| Pin Number | Pin on XPRO Header      | Pin Description of XPRO Header                                                | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|------------|-------------------------|-------------------------------------------------------------------------------|------------------------------------------|
| J203-1     | ID <sup>(3)</sup>       | Communication line to the ID chip on an extension board                       | PTA_BT_PRIOR/RPK6/RK6                    |
| J203-2     | GND                     | Ground                                                                        | GND                                      |
| J203-3     | ADC(+)                  | Analog-to-Digital converter, alternatively positive part of differential ADC  | TMS/AN6/CVD6/CVDR6/CVDT1/RPB6/RB6        |
| J203-4     | ADC(-)                  | Analog-to-Digital converter, alternatively negative part of differential ADC  | AN14/ANN0/CVD14/CVDR14/RPA14/RA14        |
| J203-5     | GPIO1                   | General purpose I/O                                                           | ANA0/RPB12/RB12                          |
| J203-6     | GPIO2                   | General purpose I/O                                                           | PTA_BT_PRIOR/RPK6/RK6                    |
| J203-7     | PWM(+)                  | Pulse width modulation, alternatively positive part of differential PWM       | TCK/PGC4/AN8/CVD8/CVDR8/RPB8/RB8         |
| J203-8     | PWM(-)                  | Pulse width modulation, alternatively negative part of differential PWM       | ANN1/CVD15/CVDR15/RPA13/RA13             |
| J203-9     | IRQ/GPIO <sup>(4)</sup> | Interrupt request line and/or general purpose I/O                             | AN17/CVD17/CVDR17/INT0/RPA10/RA10        |
| J203-10    | SPI_SS_B/GPIO           | Client select for SPI and/or general purpose I/O <sup>(5)</sup>               | USBID/AN2/CVD2/CVDR2/CVDT5/RPB2/RB2      |
| J203-11    | I2C_SDA                 | Data line for I2C1 interface                                                  | SDA1/RPA5/RA5                            |
| J203-12    | I2C_SCL                 | Clock line for I2C1 interface                                                 | SCL1/RPA4/RA4                            |
| J203-13    | UART_RX                 | Receiver line of target device UART                                           | TDI/PGD4/AN9/CVD9/CVDR9/RPB9/RB9         |
| J203-14    | UART_TX                 | Transmitter line of target device UART                                        | PTA_BT_ACTIVE/RPK7/RK7                   |
| J203-15    | SPI_SS_A                | Client select for SPI. This pin must be preferably unique <sup>(5)</sup>      | TDO/AN7/CVD7/CVDR7/CVDT0/RPB7/RB7        |
| J203-16    | SPI_MOSI                | Host-out, client-in line of serial peripheral interface (SPI2) <sup>(5)</sup> | BT_CLK_OUT/RPK4/RK4                      |
| J203-17    | SPI_MISO                | Host-in, client-out line of serial peripheral interface (SPI2) <sup>(5)</sup> | PTA_WLAN_ACTIVE/RPK5/RK5                 |
| J203-18    | SPI_SCK                 | Clock for serial peripheral interface (SPI2)                                  | SCK2/RPA11/RA11                          |
| J203-19    | GND                     | Ground                                                                        | GND                                      |
| J203-20    | VCC                     | Power for extension board                                                     | NC                                       |

.....continued

| Pin Number                                                                                                                                                                                              | Pin on XPRO Header | Pin Description of XPRO Header | Pin on WFI32E03 Module <sup>(1, 2)</sup> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------|------------------------------------------|
| <b>Notes:</b>                                                                                                                                                                                           |                    |                                |                                          |
| 1. These are PPS pins that can be configured for any of the supported peripheral functions based on the end user application.                                                                           |                    |                                |                                          |
| 2. For more details on the WFI32E03 pins and PTA signals, refer to the <i>PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)</i> .             |                    |                                |                                          |
| 3. A jumper must be mounted on the (J210) connector to use the ID feature.                                                                                                                              |                    |                                |                                          |
| 4. A jumper must be mounted on the (J211) connector pin2 and pin3 to use this feature.                                                                                                                  |                    |                                |                                          |
| 5. Traditional Serial Communication Interface Documentation uses the terminology “Master” and “Slave”. The equivalent Microchip terminology used in this document is “Host” and “Client”, respectively. |                    |                                |                                          |
| 6. The user must not use XPRO-based touch boards and on-board temperature sensor (U204) simultaneously.                                                                                                 |                    |                                |                                          |

### 3.11 Temperature Sensor (U204)

Connect an analog output from the temperature sensor (Microchip TC1047A, U204) to one of the analog pins (ANN1/CVD15/CVDR15/RPA13/RA13) of the module's ADC channel.

**Notes:**

1. Short the (J209) jumper to enable the temperature sensor.
2. The user must not use XPRO-based touch boards and on-board temperature sensor (U204) simultaneously.

### 3.12 Serial Flash (U203)

The PIC32 WFI32 2.0 Curiosity Board has an on-board 32-Mb external SST26VF032B SPI Flash (U203) memory for storage of data. The following table describes the details of the serial Flash pin connection:

**Table 3-12.** Serial Flash Pin Description

| Pin Number                                                                                                                                                                  | Pin on Serial Flash (SST26VF032B) | Pin Description of Serial Flash | Pin on WFI32E03 Module <sup>(1)</sup> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------|---------------------------------------|
| U203-1                                                                                                                                                                      | $\overline{CE}$                   | Chip Enable                     | $\overline{SPITCS}$ /RPA1/RA1         |
| U203-2                                                                                                                                                                      | SO                                | Serial Data Output for SPI mode | SDI1/RPC7/RC7                         |
| U203-3                                                                                                                                                                      | $\overline{WP}$                   | Write-Protect                   | Not Connected                         |
| U203-4                                                                                                                                                                      | VSS                               | Ground                          | GND                                   |
| U203-5                                                                                                                                                                      | SI                                | Serial Data Input for SPI mode  | SDO1/RPC8/RC8                         |
| U203-6                                                                                                                                                                      | SCK                               | Serial Clock                    | SCK1/RPC6/RC6                         |
| U203-7                                                                                                                                                                      | $\overline{HOLD}$                 | Hold                            | Not Connected                         |
| U203-8                                                                                                                                                                      | VDD                               | Input power supply              | NC                                    |
| <b>Note:</b>                                                                                                                                                                |                                   |                                 |                                       |
| 1. For more details on the WFI32E03 pins, refer to the <i>PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)</i> . |                                   |                                 |                                       |

### 3.13 Carrier Board Interface

The WFI32E03 module is connected to the carrier board connector (J401). The following table lists the pinout details of the (J401) connector:

**Table 3-13.** Carrier Board Interface Pin Description

| Pin Number | Pin on Carrier Board | Pin Description on Carrier Board | Pin on WFI32E03 Module <sup>(1)(2)</sup> |
|------------|----------------------|----------------------------------|------------------------------------------|
| J401-1     | MCLR                 | Reset                            | MCLR                                     |



.....continued

| Pin Number | Pin on Carrier Board     | Pin Description on Carrier Board                                                                                | Pin on WFI32E03 Module <sup>(1)(2)</sup> |
|------------|--------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------|
| J401-2     | PTA_WLAN_ACTIVE/RPK5     | Wi-Fi® and Bluetooth® coexistence/remappable peripheral/PORTK digital I/O                                       | PTA_WLAN_ACTIVE/RPK5/RK5                 |
| J401-3     | PTA_BT_PRIOR/RPK6        | Wi-Fi and Bluetooth coexistence/remappable peripheral/PORTK digital I/O                                         | PTA_BT_PRIOR/RPK6/RK6                    |
| J401-4     | PTA_BT_ACTIVE/RPK7       | Wi-Fi and Bluetooth coexistence/remappable peripheral/PORTK digital I/O                                         | PTA_BT_ACTIVE/RPK7/RK7                   |
| J401-5     | BT_CLK_OUT/RPK4          | Bluetooth clock out (26 MHz)/remappable peripheral/PORTK digital I/O                                            | BT_CLK_OUT/RPK4/RK4                      |
| J401-6     | SDI1/RPC7                | SPI1 serial data input/remappable peripheral/PORTC digital I/O                                                  | SDI1/RPC7/RC7                            |
| J401-7     | GND                      | Ground                                                                                                          | GND                                      |
| J401-8     | CVDT7/ERXERR/RPC9        | ADC CVD controller TX output/Ethernet receive error input/remappable peripheral/PORTC digital I/O               | CVDT7/ERXERR/RPC9/RC9                    |
| J401-9     | SDO1/RPC8                | SPI1 serial data output/remappable peripheral/PORTC digital I/O                                                 | SDO1/RPC8/RC8                            |
| J401-10    | CVDT16/EMDC/RPK14        | ADC CVD controller TX output/Ethernet management data clock output/remappable peripheral/PORTK digital I/O      | CVDT16/EMDC/RPK14/RK14                   |
| J401-11    | SCK1/RPC6                | SPI1 serial clock/remappable peripheral/PORTC digital I/O                                                       | SCK1/RPC6/RC6                            |
| J401-12    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-13    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-14    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-15    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-16    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-17    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-18    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-19    | NC                       | Not connected                                                                                                   | NC                                       |
| J401-20    | CVDT15/EMDIO/RPK13       | ADC CVD controller TX output/Ethernet management data bi-directional IO/remappable peripheral/PORTK digital I/O | CVDT15/EMDIO/RPK13/RK13                  |
| J401-21    | SPI1CS/RPA1              | SPI1 client select/chip select/frame sync/remappable peripheral/PORTA digital I/O                               | SPI1CS/RPA1/RA1                          |
| J401-22    | CVDT14/ERXDV/RPK12       | ADC CVD controller TX output/Ethernet RX data valid input/remappable peripheral/PORTK digital I/O               | CVDT14/ERXDV/RPK12/RK12                  |
| J401-23    | CVDT13/ETXD0/RPC15       | ADC CVD controller TX output/Ethernet transmit nibble data output/remappable peripheral/PORTC digital I/O       | CVDT13/ETXD0/RPC15/RC15                  |
| J401-24    | GND                      | Ground                                                                                                          | GND                                      |
| J401-25    | CVDT12/ETXD1/RPC14       | ADC CVD controller TX output/Ethernet transmit nibble data output/remappable peripheral/PORTC digital I/O       | CVDT12/ETXD1/RPC14/RC14                  |
| J401-26    | U1TX                     | UART1 transmit output                                                                                           | U1TX/RA9                                 |
| J401-27    | GND                      | Ground                                                                                                          | GND                                      |
| J401-28    | U1RX                     | UART1 receive input                                                                                             | U1RX/RA8                                 |
| J401-29    | CVDT10/ETH_CLK_OUT/RPC12 | ADC CVD controller TX output/Ethernet clock out/remappable peripheral/PORTC digital I/O                         | CVDT10/ETH_CLK_OUT/RPC12/RC12            |
| J401-30    | NC                       | Not connected                                                                                                   | NC                                       |

.....continued

| Pin Number | Pin on Carrier Board                 | Pin Description on Carrier Board                                                                                                                                            | Pin on WFI32E03 Module <sup>(1)(2)</sup> |
|------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| J401-31    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-32    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-33    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-34    | NC                                   | Not connected                                                                                                                                                               | NC                                       |
| J401-35    | CVDT8/ERXD1/RPC10                    | ADC CVD controller TX output/Ethernet transmit nibble data input/remappable peripheral/PORTC digital I/O                                                                    | CVDT8/ERXD1/RPC10/RC10                   |
| J401-36    | SDA1/RPA5                            | I2C1 data/remappable peripheral/PORTA digital I/O                                                                                                                           | SDA1/RPA5/RA5                            |
| J401-37    | CVDT9/ERXD0/RPC11                    | ADC CVD controller TX output/Ethernet transmit nibble data input/remappable peripheral/PORTC digital I/O                                                                    | CVDT9/ERXD0/RPC11/RC11                   |
| J401-38    | SCL1/RPA4                            | I2C1 clock/remappable peripheral/PORTA digital I/O                                                                                                                          | SCL1/RPA4/RA4                            |
| J401-39    | CVDT11/ETXEN/RPC13                   | ADC CVD controller TX output/Ethernet transmit enable output/remappable peripheral/PORTC digital I/O                                                                        | CVDT11/ETXEN/RPC13/RC13                  |
| J401-40    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-41    | USBID/AN2/CVD2/CVDR2/<br>CVDT5/RPB2  | USB OTG ID input/analog input/ADC CVD controller output/ADC CVD controller RX output/ADC CVD controller TX output/remappable peripheral/PORTB digital I/O                   | USBID/AN2/CVD2/CVDR2/<br>CVDT5/RPB2/RB2  |
| J401-42    | RF_FE_4/RPK1                         | RF front-end control/remappable peripheral/PORTK digital I/O                                                                                                                | RF_FE_4/RPK1/RK1                         |
| J401-43    | USB_D+                               | USB data +                                                                                                                                                                  | USB_D+                                   |
| J401-44    | RF_FE_2/RPK3                         | RF front-end control/remappable peripheral/PORTK digital I/O                                                                                                                | RF_FE_2/RPK3/RK3                         |
| J401-45    | USB_D-                               | USB data -                                                                                                                                                                  | USB_D-                                   |
| J401-46    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-47    | VBUS                                 | VBUS power input                                                                                                                                                            | VBUS                                     |
| J401-48    | ANN0/CVD14/CVDR14/RPA14              | Analog input/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTA digital I/O                                                    | AN14/ANN0/CVD14/CVDR14/<br>RPA14/RA14    |
| J401-49    | VBUSON/CVD1/CVDR1/<br>CVDT6/AN1/RPB1 | On signal for external VBUS source/ADC CVD controller output/ADC CVD controller RX output/ADC CVD controller TX output/analog input/remappable peripheral/PORTB digital I/O | VBUSON/CVD1/CVDR1/<br>CVDT6/AN1/RPB1/RB1 |
| J401-50    | ANA0/RPB12                           | Analog input/remappable peripheral/PORTB digital I/O                                                                                                                        | ANA0/RPB12/RB12                          |
| J401-51    | GND                                  | Ground                                                                                                                                                                      | GND                                      |
| J401-52    | ANN1/CVD15/CVDR15/RPA13              | Analog input/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTA digital I/O                                                    | AN15/ANN1/CVD15/CVDR15/<br>RPA13/RA13    |
| J401-53    | PGC2/AN4/CVD4/CVDR4/<br>CVDT3/RPB4   | ICSP™ programming clock/analog input/ADC CVD controller output/ADC CVD controller RX output/ADC CVD controller TX output/remappable peripheral/PORTB digital I/O            | PGC2/AN4/CVD4/CVDR4/<br>CVDT3/RPB4/RB4   |

.....continued

| Pin Number | Pin on Carrier Board                | Pin Description on Carrier Board                                                                                                                                                 | Pin on WFI32E03 Module <sup>(1)(2)</sup> |
|------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| J401-54    | AN17/CVD17/CVDR17/INT0/RPA10        | Analog input/ADC CVD controller output/ADC CVD controller RX output/External interrupt input 0/remappable peripheral/PORTA digital I/O                                           | AN17/CVD17/CVDR17/INT0/RPA10/RA10        |
| J401-55    | PGD2/AN5/CVD5/CVDR5/CVDT2/RTCC/RPB5 | ICSP programming data/analog input/ADC CVD controller output/ADC CVD controller RX output/ADC CVD controller TX output/RTCC output clock/remappable peripheral/PORTB digital I/O | PGD2/AN5/CVD5/CVDR5/CVDT2/RTCC/RPB5/RB5  |
| J401-56    | GND                                 | Ground                                                                                                                                                                           | GND                                      |
| J401-57    | TDO/AN7/CVD7/CVDR7/RPB7             | JTAG test data output/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTB digital I/O                                                | TDO/AN7/CVD7/CVDR7/CVDT0/RPB7/RB7        |
| J401-58    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-59    | TDI/PGD4/AN9/CVD9/CVDR9/RPB9        | JTAG test data/programming data input/ICSP programming data/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTB digital I/O          | TDI/PGD4/AN9/CVD9/CVDR9/RPB9/RB9         |
| J401-60    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-61    | TCK/PGC4/AN8/CVD8/CVDR8/RPB8        | JTAG test clock/programming clock input/ICSP programming clock/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTB digital I/O       | TCK/PGC4/AN8/CVD8/CVDR8/RPB8/RB8         |
| J401-62    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-63    | TMS/AN6/CVD6/CVDR6/RPB6             | JTAG Test mode select input/analog input/ADC CVD controller output/ADC CVD controller RX output/remappable peripheral/PORTB digital I/O                                          | TMS/AN6/CVD6/CVDR6/CVDT1/RPB6/RB6        |
| J401-64    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-65    | SCK2/RPA11                          | SPI2 clock/remappable peripheral/PORTA digital I/O                                                                                                                               | SCK2/RPA11/RA11                          |
| J401-66    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-67    | GND                                 | Ground                                                                                                                                                                           | GND                                      |
| J401-68    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-69    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-70    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-71    | NC                                  | Not connected                                                                                                                                                                    | NC                                       |
| J401-72    | 3V3_IN                              | 3.3V input power supply                                                                                                                                                          | 3V3_IN                                   |
| J401-73    | VBAT_IN                             | Power supply                                                                                                                                                                     | NC                                       |
| J401-74    | 3V3_IN                              | 3.3V input power supply                                                                                                                                                          | 3V3_IN                                   |
| J401-75    | VBAT_IN                             | Power supply                                                                                                                                                                     | NC                                       |

**Notes:**

1. These are Peripheral Pin Select (PPS) pins that can be configured for any of the supported peripheral functions based on the end user application.
2. For more details on the WFI32E03 pins and PTA signals, refer to the *PIC32MZ W1 MCU and WFI32 Module with Wi-Fi® and Hardware-Based Security Accelerator Data Sheet (DS70005425)*.

#### 4. PIC32 WFI32 2.0 Curiosity Board Out of Box Demo

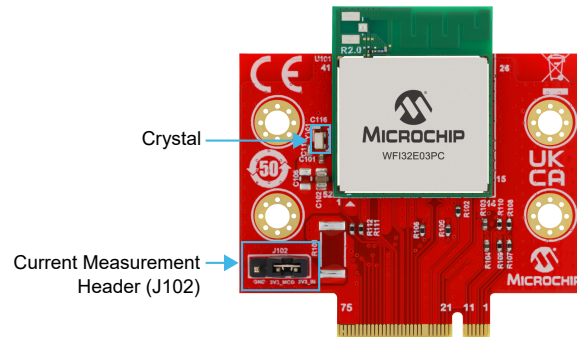
The Out of Box (OOB) demo connects to the cloud and allows the user to control the Curiosity board via a web-based interface. For the firmware and documentation related to OOB demo, go to [PIC32MZ2051W1 Curiosity OOB](#).

For more details on applications demo and harmony code examples, go to [MPLAB Harmony](#).

## 5. Appendix A: WFI32E03 Carrier Board

The WFI32E03 carrier board is a plug-in board designed around the WFI32E03 module. The carrier board brings all the signals from the module onto the Curiosity board for rapid prototyping. The WFI32E03 carrier board has an on-board crystal (32.768 kHz) for RTCC and a header (J102) for the current measurement (see the following figure).

**Figure 5-1.** WFI32E03 Carrier Board



The current measurement header (J102) helps the user measure the total current consumed by the WFI32E03 module using a multimeter. To measure the total current consumption of the module, remove the jumper from (J102) and connect a voltmeter across its pins 1-2. The user can mount a 1Ω resistor (R101) available on the board across the jumper which gives a 1:1 relationship between the voltage drop and current consumption.

For the direct current measurement, use a jumper wire to short (J102) pin 1-2, remove the (R101) resistor and current clamp probe (for example, TEKTRONIX TCP0030A Current Probe). A normal probe with long wires may add a load to the current path and introduce a voltage drop, which leads to incorrect readings.

For the current measurement in terms of voltage, a resistor (R101) must be mounted on the board. The user can measure similarly using a voltage probe or multimeter across the resistor (R101).

The following table lists the details of the carrier board:

**Table 5-1.** WFI32E03 Carrier Board Details

| Item No. | Description            | Part Number | Supported Module |
|----------|------------------------|-------------|------------------|
| 1        | WFI32E03 carrier board | WFI32E03_CB | WFI32E03PC-I     |

## 6. Appendix B: Reference Circuit

### 6.1 PIC32 WFI32 2.0 Curiosity Board Reference Schematics

Figure 6-1. MikroBUS™ Header

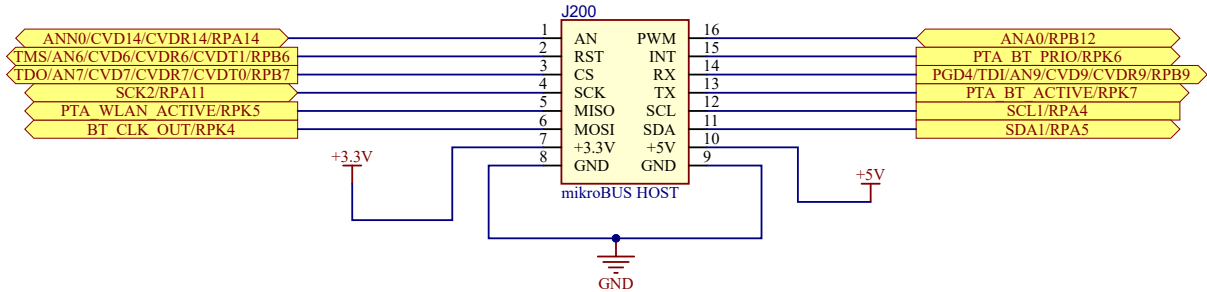


Figure 6-2. Xpro Header

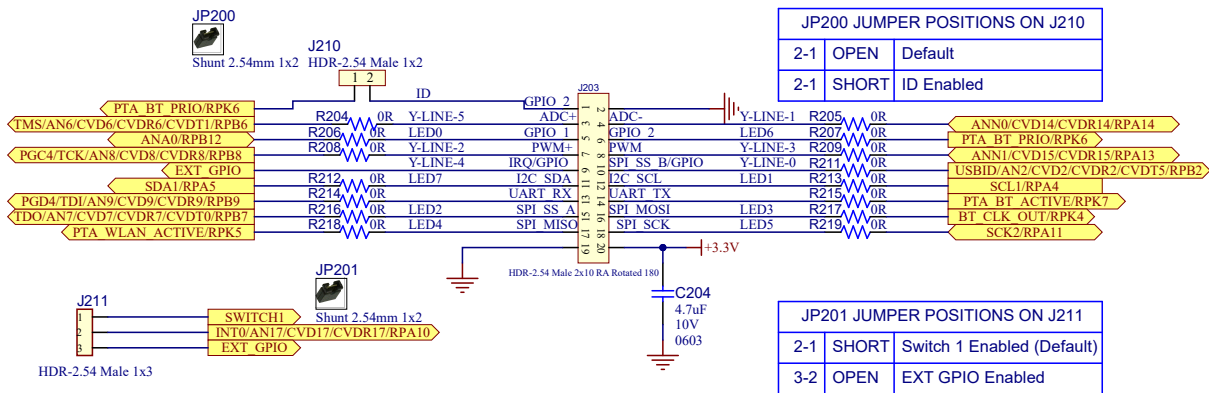


Figure 6-3. Power Circuit

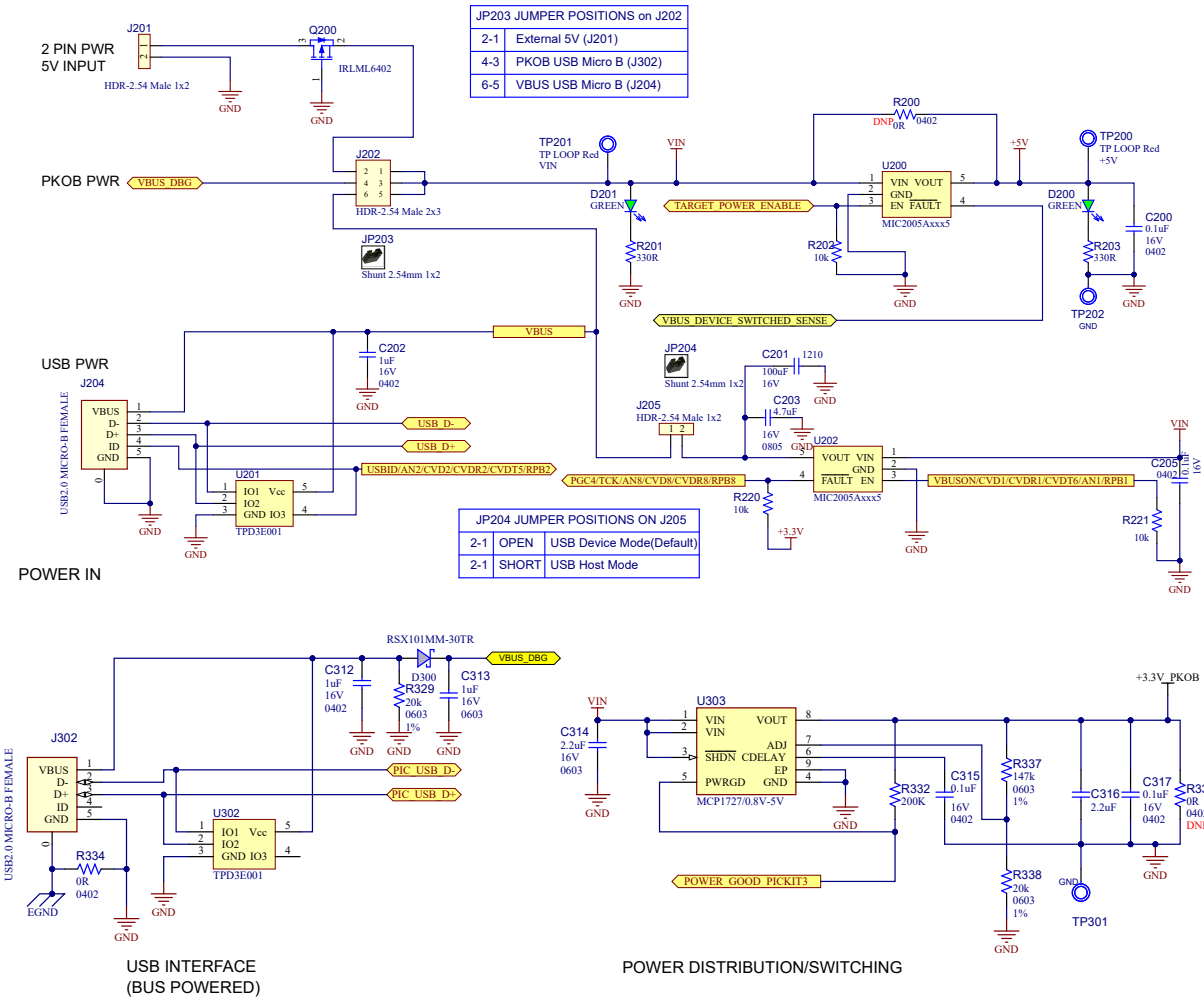


Figure 6-4. GPIO Header

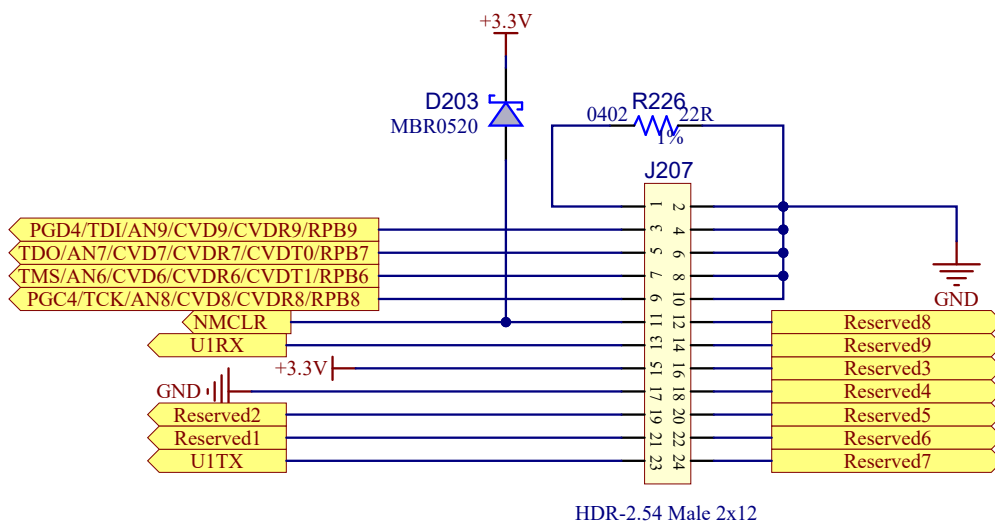


Figure 6-5. Temperature Sensor

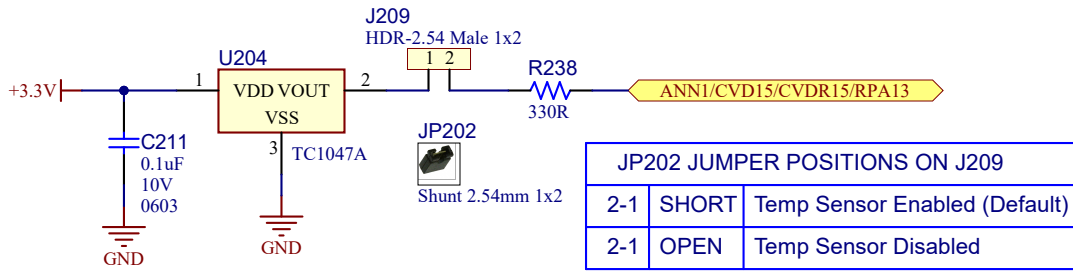


Figure 6-6. Switches

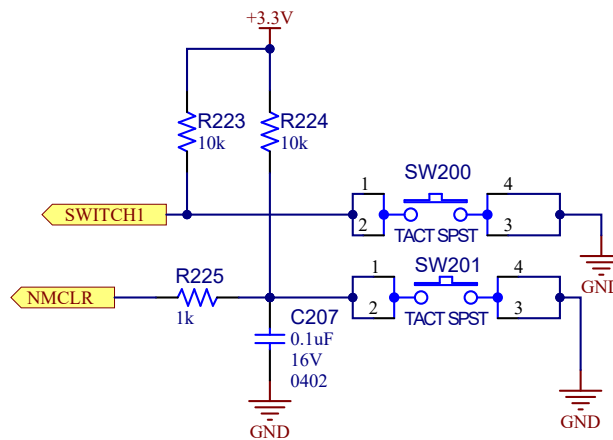


Figure 6-7. ICSP Header

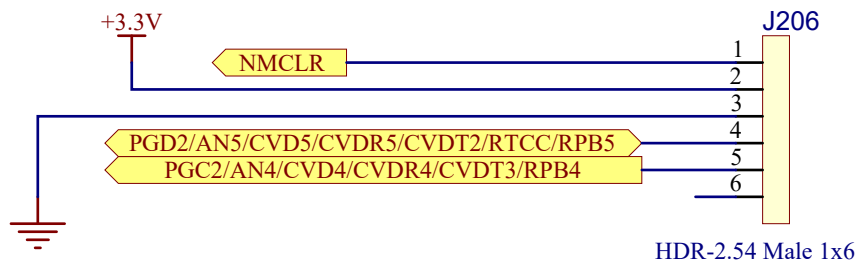


Figure 6-8. User LEDs

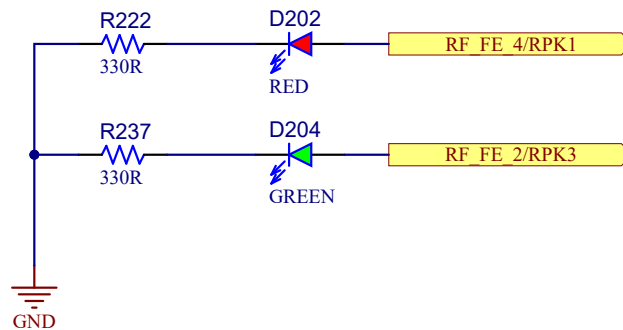




Figure 6-9. SPI Memory

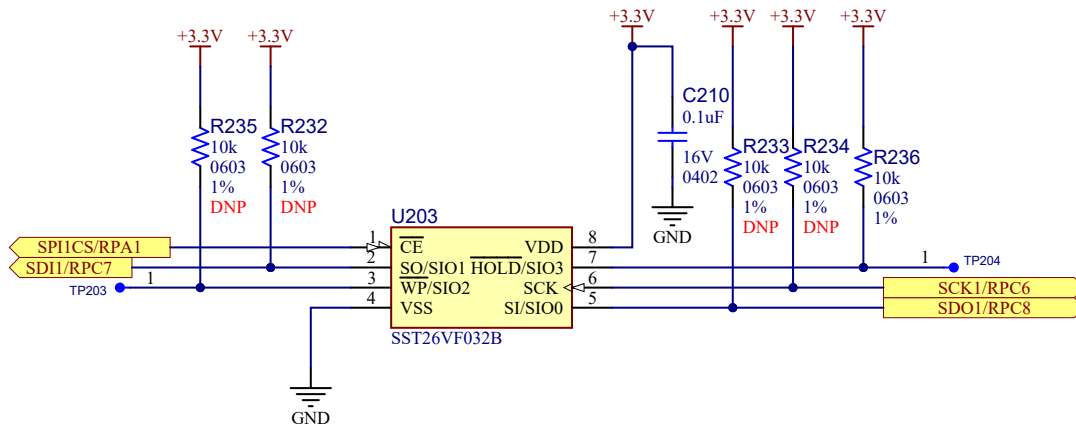


Figure 6-10. PHY Daughter Board Header

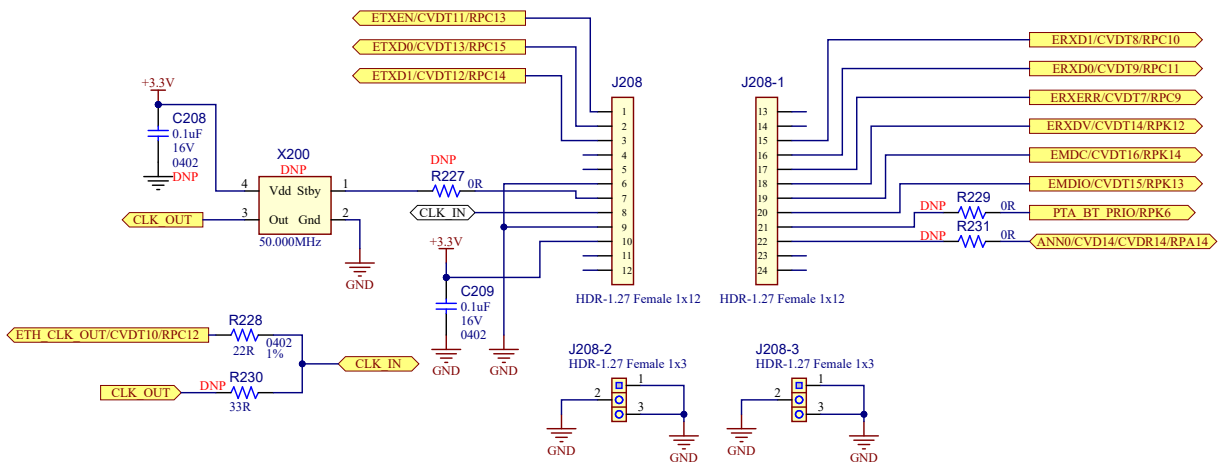


Figure 6-11. PICKIT™ On Board-3

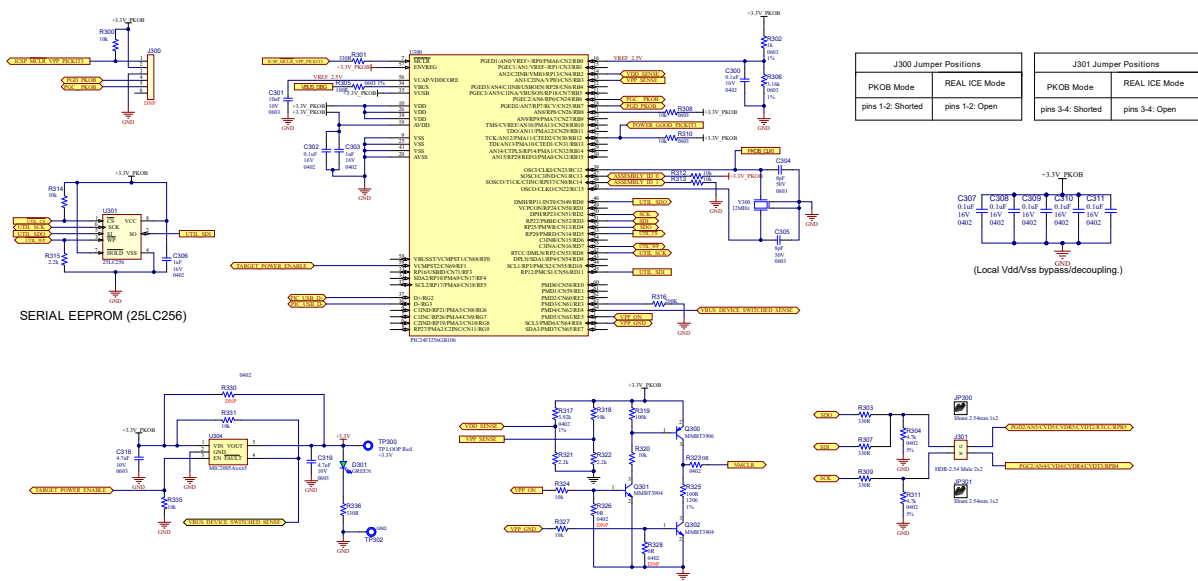


Figure 6-12. Carrier Board Connector

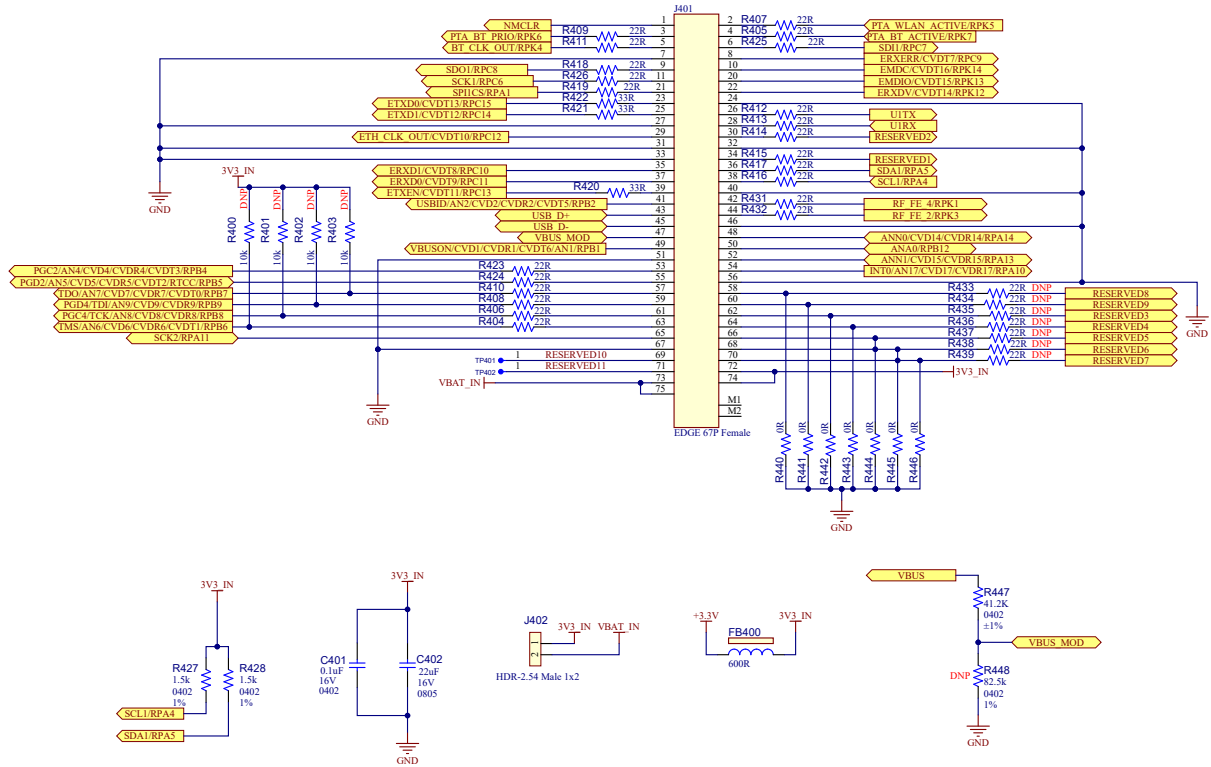


Figure 6-13. WFI32E03 Carrier Board (1 of 2)

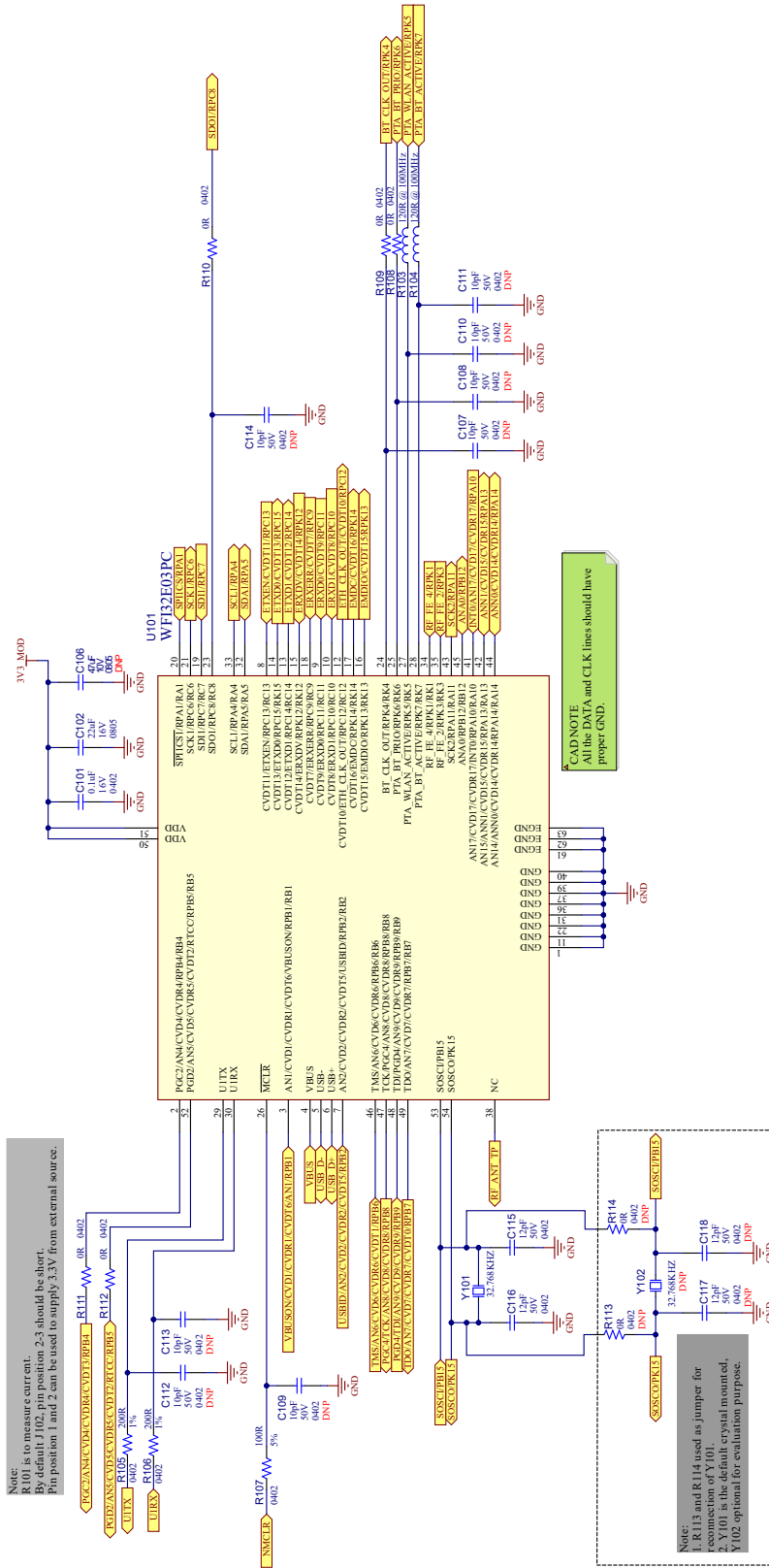
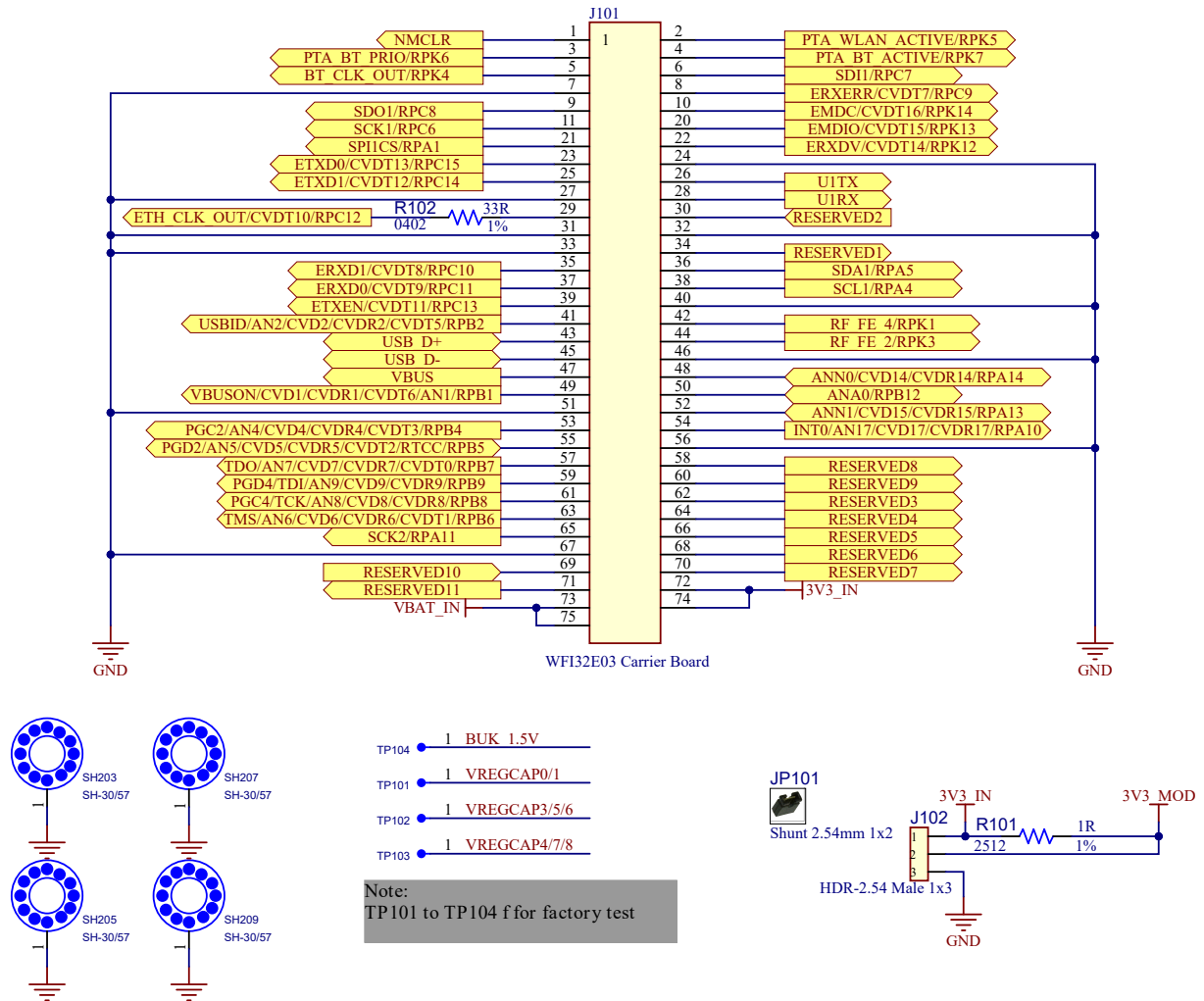


Figure 6-14. WFI32E03 Carrier Board (2 of 2)



## 6.2 PIC32 WFI32 2.0 Curiosity Board Bill of Materials

For the Bill of Materials (BOM) of the PIC32 WFI32 2.0 Curiosity Board, go to the [EV67T15A](#) product web page.

## 6.3 WFI32E03 Carrier Board Bill of Materials

For the Bill of Materials (BOM) of the WFI32E03 Carrier Board, go to the [EV67T15A](#) product web page.

## 7. Appendix C: Regulatory Approval

This equipment (PIC32 WFI32 2.0 Curiosity Board/EV67T15A) is an evaluation kit and not a finished product. It is intended for laboratory evaluation purposes only. It is not directly marketed or sold to the general public through retail; it is only sold through authorized distributors or through Microchip. Using this requires a significant engineering expertise towards understanding of the tools and relevant technology, which can be expected only from a person who is professionally trained in the technology.

Regulatory compliance settings have to follow the WFI32E03 module certifications. The following regulatory notices are to cover the requirements under the regulatory approval.

### 7.1 United States

The PIC32 WFI32 2.0 Curiosity Board (EV67T15A) contains the WFI32E03 module, which has received Federal Communications Commission (FCC) CFR47 Telecommunications, Part 15 Subpart C “Intentional Radiators” single-modular approval in accordance with Part 15.212 Modular Transmitter approval.

Contains FCC ID: 2ADHKWFI32E01

**This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**



#### **Important:** FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for uncontrolled environment. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 8 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. This transmitter is restricted for use with the specific antenna(s) tested in this application for certification.



#### **CAUTION**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## 7.2 Canada

The PIC32 WFI32 2.0 Curiosity Board (EV67T15A) contains the WFI32E03 module, which has been certified for use in Canada under Innovation, Science and Economic Development Canada (ISED, formerly Industry Canada) Radio Standards Procedure (RSP) RSP-100, Radio Standards Specification (RSS) RSS-Gen and RSS-247.

Contains IC: 20266-WFI32E01

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference;
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



This equipment complies with radio frequency exposure limits set forth by Innovation, Science and Economic Development Canada for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the device and the user or bystanders.

Cet équipement est conforme aux limites d'exposition aux radiofréquences définies par d'Innovation, Sciences et Développement économique Canada pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre le dispositif et l'utilisateur ou des tiers.

## 7.3 Europe

This equipment (EV67T15A) has been assessed under the Radio Equipment Directive (RED) for use in European Union countries. The product does not exceed the specified power ratings, antenna specifications and/or installation requirements as specified in the user manual. A Declaration of Conformity is issued for each of these standards and kept on file as described in Radio Equipment Directive (RED).

### Simplified EU Declaration of Conformity

Hereby, Microchip Technology Inc. declares that the radio equipment type [EV67T15A] is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at [EV67T15A](#) (See *Conformity Documents*).

## 8. Document Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

**Table 8-1.** Document Revision History

| Revision | Date    | Section  | Description      |
|----------|---------|----------|------------------|
| A        | 04/2024 | Document | Initial Revision |

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ISBN: 978-1-6683-4376-0

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