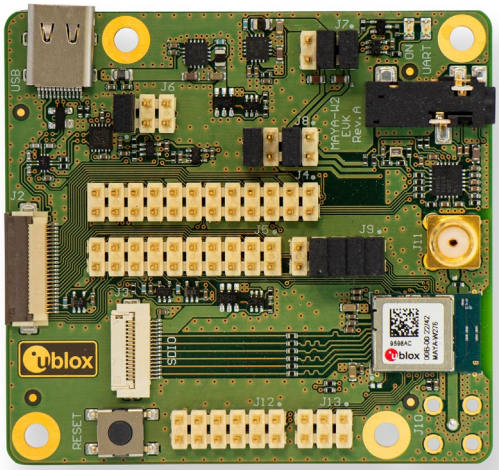
EVK-MAYA-W2

Evaluation kit for MAYA-W2 host-based modules

User guide



Abstract

This document describes how to set up the EVK-MAYA-W2 evaluation kit to evaluate MAYA-W2 series multiradio modules with Wi-Fi, Bluetooth, and IEEE 802.15.4.

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Document information

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This document applies to the following products:

Product name	Type number	Hardware version
EVK-MAYA-W271	EVK-MAYA-W271-00C-00	Rev. A
EVK-MAYA-W276	EVK-MAYA-W276-00C-00	Rev. A

Contents

1 Kit description

The MAYA-W2 series comprises ultra-compact multiradio modules with Wi-Fi 6, Bluetooth 5.2, and IEEE 802.15.4, including variants with an internal antenna. MAYA-W2 series supports dual band IEEE 802.11a/b/g/n/ac/ax Wi-Fi standards with up to 600 Mbps data rate, and it supports both Bluetooth BR/EDR and the full Bluetooth Low Energy 5.2 feature set. MAYA-W260, MAYA-W261, and MAYA-W266 are based on the NXP IW611 chipset. MAYA-W271 and MAYA-W276 are based on the NXP IW612 chipset and integrate an additional IEEE 802.15.4 radio for Thread mesh networking support.

The modules require a host processor and connect to it through SDIO for Wi-Fi, high-speed UART for Bluetooth, PCM/I2S for Bluetooth audio, and SPI for 802.15.4. The supported operating systems include Linux and Android. Wi-Fi/Bluetooth support for RTOS is provided by the NXP MCUXpresso SDK [5] on NXP i.MX RT MCUs.

EVK-MAYA-W2 allows an external host processor to access several practical features for testing and evaluating the connectivity options supported in MAYA-W2 series modules, including:

- SD card and M.2 key E adapters to access SDIO, UART, and PCM/I2S host interfaces
- USB interface to easily access the Bluetooth UART interface via a USB-to-UART bridge
- Digital and analog audio interfaces for Bluetooth
- SMA connectors for external antennas
- GPIO pins and other module interfaces, including SPI, are accessible through pin headers
- Multiple power supply options

For more information about MAYA-W2 modules, see also the MAYA-W2 series data sheet [1] and system integration manual [2].

1.1 Overview

Table 1 lists the available evaluation kit versions:

Evaluation kit	Ordering code	Description	Suitable for evaluating
EVK-MAYA-W276	EVK-MAYA-W276-00C	Evaluation kit for MAYA-W276: Single embedded PCB antenna for dual-band Wi-Fi 6 Bluetooth 5.2 and IEEE 802.15.4	MAYA-W276, MAYA-W266
EVK-MAYA-W271	EVK-MAYA-W271-00C	Evaluation kit for MAYA-W271: Two external antennas for dual-band Wi-Fi 6 and shared Bluetooth 5.2/IEEE 802.15.4	MAYA-W271, MAYA-W261, MAYA-W260

Table 1: Available EVK-MAYA-W2 evaluation kits

Figure 1 shows the main components of the EVK-MAYA-W2 evaluation board.

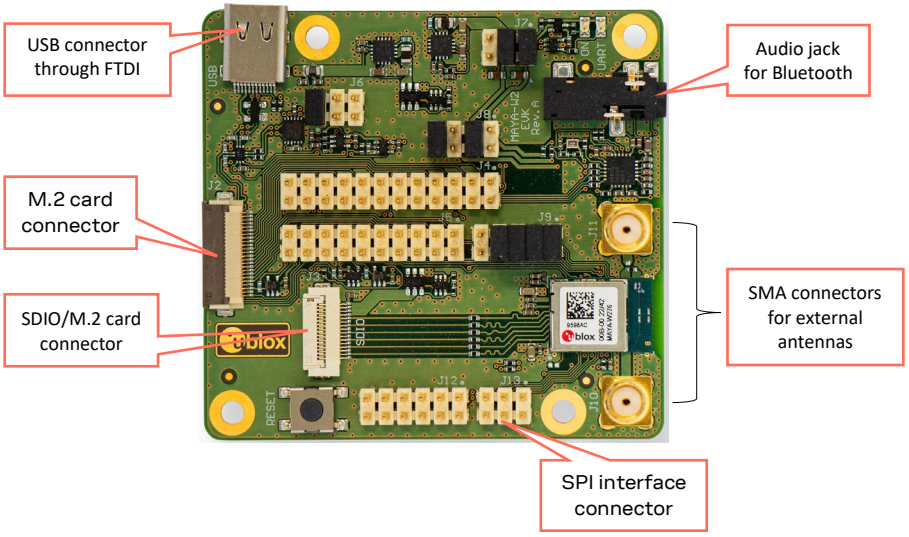
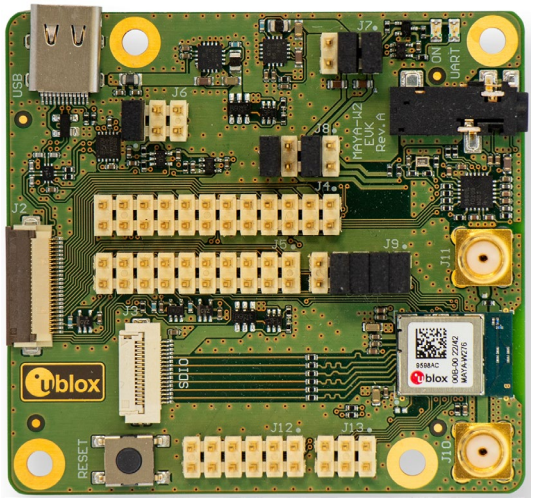


Figure 1: Evaluation board of EVK-MAYA-W2 overview showing main connectors

1.2 Kit includes

Table 2 shows the various components included in the EVK-MAYA-W2.

Part	Description	Outline
Evaluation board (EVB)	Evaluation board for the MAYA-W2 series modules. EVK-MAYA-W271 includes SMA antenna connectors that connect to external antennas for Wi-Fi and Bluetooth/802.15.4. EVK-MAYA-W276 uses the internal PCB antenna on the MAYA-W276 module.	
M.2 Key E adapter	M.2 Key E adapter to connect to M.2 host sockets. Two flat cables are included in the EVK to connect the adapter to ZIF connectors on the EVB: Molex 15166-0255 102.00 mm Cable Length, 24 Circuits Molex 15166-0167, 102.00 mm cable length, 16x circuits	
Micro SD/SDIO adapter	Micro SD to ZIF adapter for Wi-Fi SDIO host communication. The adapter is compatible with host sockets designed for micro-SD cards and supporting SDIO. Flat cable: Molex 15166-0167, 102.00 mm cable length, 16x circuits	

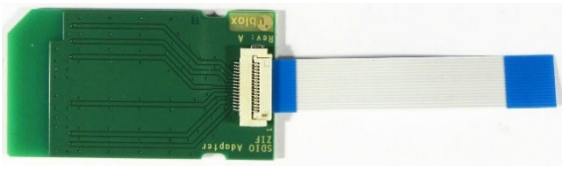
Part	Description	Outline
Full-size SD/SDIO adapter	Full-size SD to ZIF adapter for Wi-Fi SDIO host communication. The adapter is compatible with host sockets designed for full-size SD cards and supporting SDIO. Flat cable: Molex 15166-0167, 102.00 mm cable length, 16x circuits	
Type-C USB cable	Type-C USB cable for Bluetooth host communication over UART connected via on-board (EVB) FTDI USB-to-UART bridge.	
External antennas	2 x Dual band Wi-Fi/Bluetooth antenna, Linx Technologies ANT-DB1-RAF-SMA (EVK-MAYA-W271)	

Table 2: EVK-MAYA-W2 component list

1.3 Software

MAYA-W2 series modules are based on the NXP IW611/IW612 chipsets. The open-source drivers and firmware required to operate MAYA-W2 series modules are developed by NXP and are already integrated into the Linux and Android BSP for the NXP i.MX application processors [3] and the MCUXpresso SDK for NXP MCU devices [5].

The documentation for NXP software releases contains Wi-Fi and Bluetooth release notes and a list of supported software features. The driver source code is provided free of charge as open source under NXP licensing terms. As open-source software, the drivers can be integrated or ported to other non-NXP based host platforms.

1.3.1 Open-source Linux/Android drivers

The latest version of the Linux/Android driver source code and Wi-Fi/Bluetooth firmware are available from the following open-source repositories:

- Wi-Fi driver: https://github.com/nxp-imx/mwifiex
- Firmware: https://github.com/NXP/imx-firmware/

☞ Use the repository branches matching to the latest Linux BSP release version. At the time of this document publication, this is release 6.1.36_2.1.0.

Yocto recipes for the driver and firmware (nxp-wlan-sdk, kernel-module-nxp-wlan, firmware-nxp-wifi) are included in the NXP meta-imx and meta-freescale layers.

Bluetooth uses the `hci_uart` or `btnxpuart` driver from the Linux kernel and BlueZ host stack. The OpenThread stack (provided by Google Nest Team) and Matter (Project CHIP) are used for 802.15.4 based applications. NXP provides an OpenThread binary that can be run as a Thread application, or it can be built from source code.

For further information about initialization and configuration of the Wi-Fi and Bluetooth features, see also the MAYA-W2 series system integration manual [2] and NXP User Manual UM11490 [4].

1.4 System requirements

The evaluation kit has the following system requirements:

- Host (PC or embedded system) with one or more of the following connection options:
  - M.2 Key E socket for access to Wi-Fi through the SDIO host interface and for access to Bluetooth through the UART host interface
  - Micro or full-size SD card slot for access to Wi-Fi through the SDIO host interface
  - USB 2.0 interface for access to the Bluetooth UART interface through USB-to-UART bridge
  - SPI interface for access to the IEEE 802.15.4 radio host interface
- Supported operating systems:
  - Linux (3.x/4.x/5.x)
  - Android
  - FreeRTOS™ (through NXP MCUXpresso)

1.5 Operating conditions

Table 3 describes the recommended operating conditions for the EVK-MAYA-W2. For more information about power supply requirements, see also the MAYA-W2 series data sheet [1].

Symbol	Parameter		Min.	Typ	Max.	Units
3V3	Module 3.3 V power supply voltage		3.14	3.3	3.46	V
1V8	Module 1.8 V power supply voltage		1.71	1.8	1.89	V
VIO / VIO_SD	Module I/O supply voltage	1.8 V	1.62	1.8	1.98	V
		3.3 V	2.97	3.3	3.47	V
VBUS_USB	EVB power supply from USB		4.5	5	5.5	V
T_A	Ambient operating temperature		-40	-	+85	°C
Ripple Noise	Peak-to-peak voltage ripple on all supply lines.		-	-	30	mV

Table 3: EVK-MAYA-W2 operating conditions

2 Getting started

This chapter describes the basic settings and procedures to get started with the MAYA-W2 EVK. All referenced connectors, jumpers, and LEDs are shown in Figure 2.

☞ For more detailed information about the available connectors and configuration options, see also Board description.

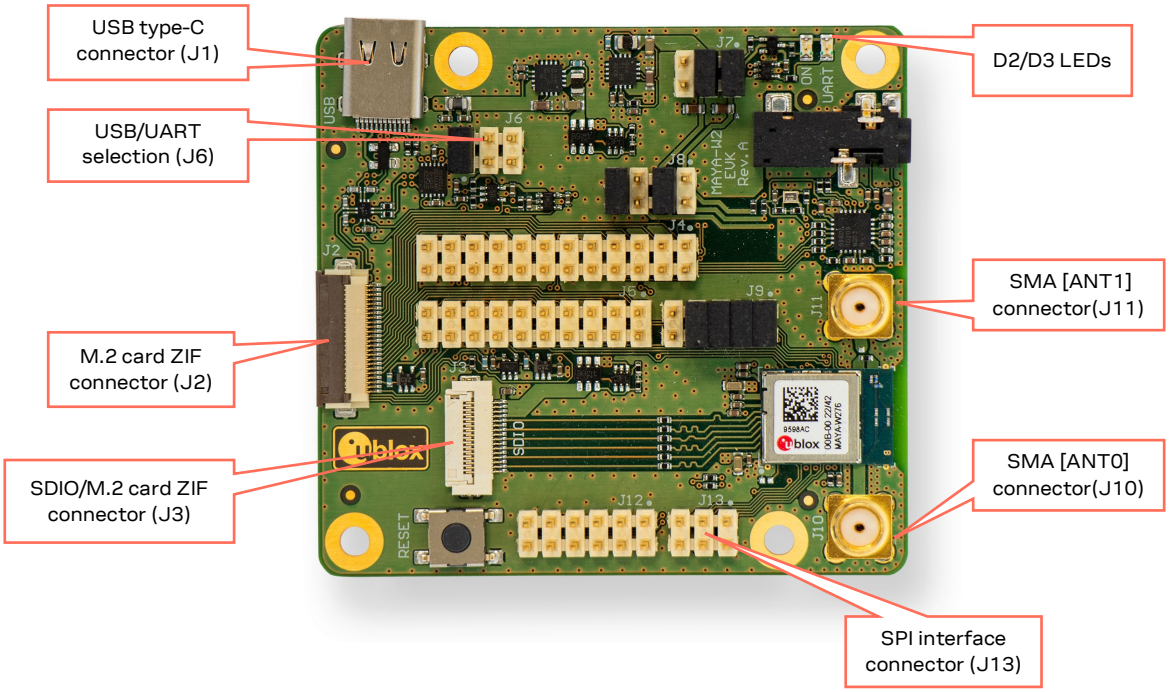


Figure 2: Evaluation board of EVK-MAYA-W261 overview showing main connectors

Follow the procedure below to evaluate MAYA-W2 series module using EVK-MAYA-W2:

1. Connect the external antennas to EVK-MAYA-W271. Two external dual-band antennas for Wi-Fi and Bluetooth communication are included in the EVK, which must be connected to the SMA connectors (J10 and J11) on the evaluation board.

☞ EVK-MAYA-W276 is equipped with an internal PCB antenna and an optional SMA connector for connecting an external antenna. For more information about the antenna connectors, see also Antenna interfaces.

2. Connect the host interfaces to the host system. The EVB and supplied M.2 and SDIO adapters use zero insertion force (ZIF) connectors and flat cables for connecting the adapters. To connect the cables, gently flip up the small locking flap of the connector, align and insert the flat cable with the blue marking pointing upwards, and then close the locking flap.
   - For SDIO connection through an SD card socket on the host system, connect the micro or full-size SD card adapter with the flat cable to the SDIO connector (J3) on the EVB and insert the adapter card into the host socket. The SDIO interface is used for Wi-Fi communication with the MAYA-W2 series module.

- A USB-to-UART bridge is included on the evaluation board to access the high speed UART interface of the MAYA-W2 series module for Bluetooth communication. To use the Bluetooth interface through USB, connect the included USB cable to the USB type-C connector on the EVB and connect it to a USB interface on the host system. Make sure that the jumper on J6 is on pins 1-2 (EXT USB) to enable Bluetooth communication over the USB connector. For information about accessing the UART interface for Bluetooth directly, see also Bluetooth host interface.
- EVK-MAYA-W2 can optionally be connected to a host system through an M.2 Key E host socket. M.2 sockets with mechanical Key E are used on several host platforms, including platforms based on NXP MPUs and MCUs that support wireless connectivity modules based on NXP Wi-Fi/Bluetooth radios. M.2 Key E host sockets can support various host interfaces, including SDIO, UART, USB, and PCM/I2S. For information about using the M.2 interface with EVK-MAYA-W2, see also M.2 interface.
- The SPI interface connector (J13) on the EVB is used to access the SPI interface of MAYA-W2 for the IEEE 802.15.4 radio. Connect the signals on the pin header to an SPI interface on the host system through wires. For more information about the SPI interface, see also SPI host interface for IEEE 802.15.4.

3. Power on the host system. The Supply LED (D2) on the EVB should turn green to indicate proper power supply. At this point the module should be detected by the host system.

☞ The SDIO/M.2 and USB host sockets are used as default power supply sources for the EVB. For information about other supply options, see also Power supply configuration.

4. Install the necessary driver software for the MAYA-W2 series module, as described in Software.

2.1 Connecting to NXP i.MX 8M Mini EVK for 802.15.4

The SPI interface is used for 802.15.4 Thread radio communication. Table 4 shows the required connections between the MAYA-W2 EVB and the NXP i.MX 8M Mini EVK related to 802.15.4.

i.MX 8M Mini EVK (J1003)		**MAYA-W2 EVB**		
Pin	**Signal**	**Connector**	**Pin**	**Signal**
15	EXP_IO10	J13	3	SPI_INT
19	ECSPI_MOSI		2	SPI_RX
21	ECSPI_MISO		1	SPI_TX
20	GND		6	SPI_CLK
23	ECSPI_SCLK		4	SPI_FRM
24	ECSPI_SS0		5	GND
16	EXP_IO11	J5	12	MA_BT_RST (combined BT/15.4 reset)

Table 4: SPI connection with i.MX 8M Mini

Enter the following command to start the OpenThread ot-daemon:

```
root@imx8mmevk:/usr/sbin# ot-daemon "spinel+spi:///dev/spidev1.0?gpio-int-
   device=/dev/gpiochip5&gpio-int-line=12&gpio-reset-device=/dev/gpiochip5&gpio-reset-
   line=13&spi-mode=0&spi-speed=1000000&spi-reset-delay=500" &
```

For further information about Thread network bring-up, see also the MAYA-W2 series system integration manual [2].

3 Board description

3.1 Block diagram

Figure 3 shows a block diagram of the evaluation board with the M.2 and SD card adapters.

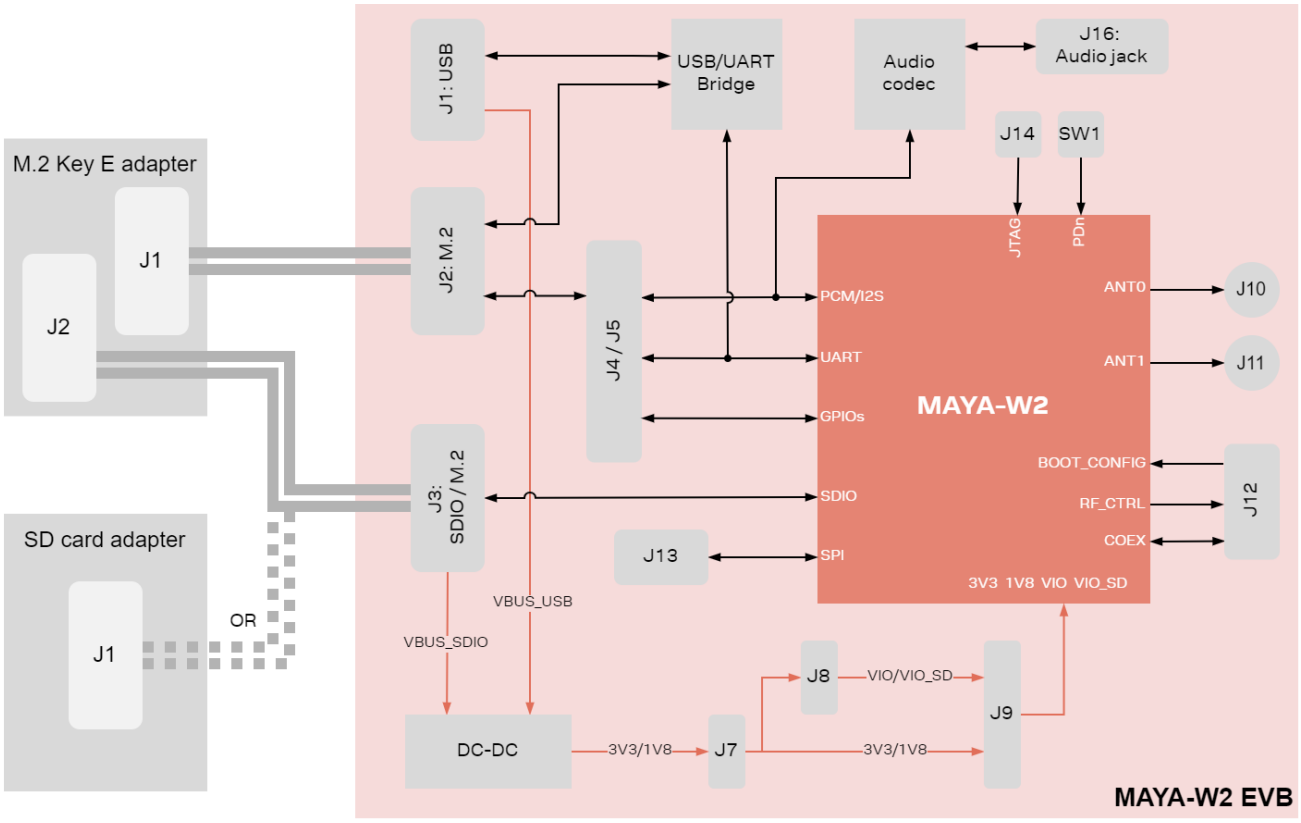


Figure 3: Block diagram of the EVB and adapter cards

3.2 Jumpers and connectors

The EVB exposes all the MAYA-W2 interfaces, so they are accessible through connectors or pin headers. Figure 4 shows an outline of the evaluation board and the placement of the connectors and pin headers for jumper configuration. Default jumper positions are highlighted in red.

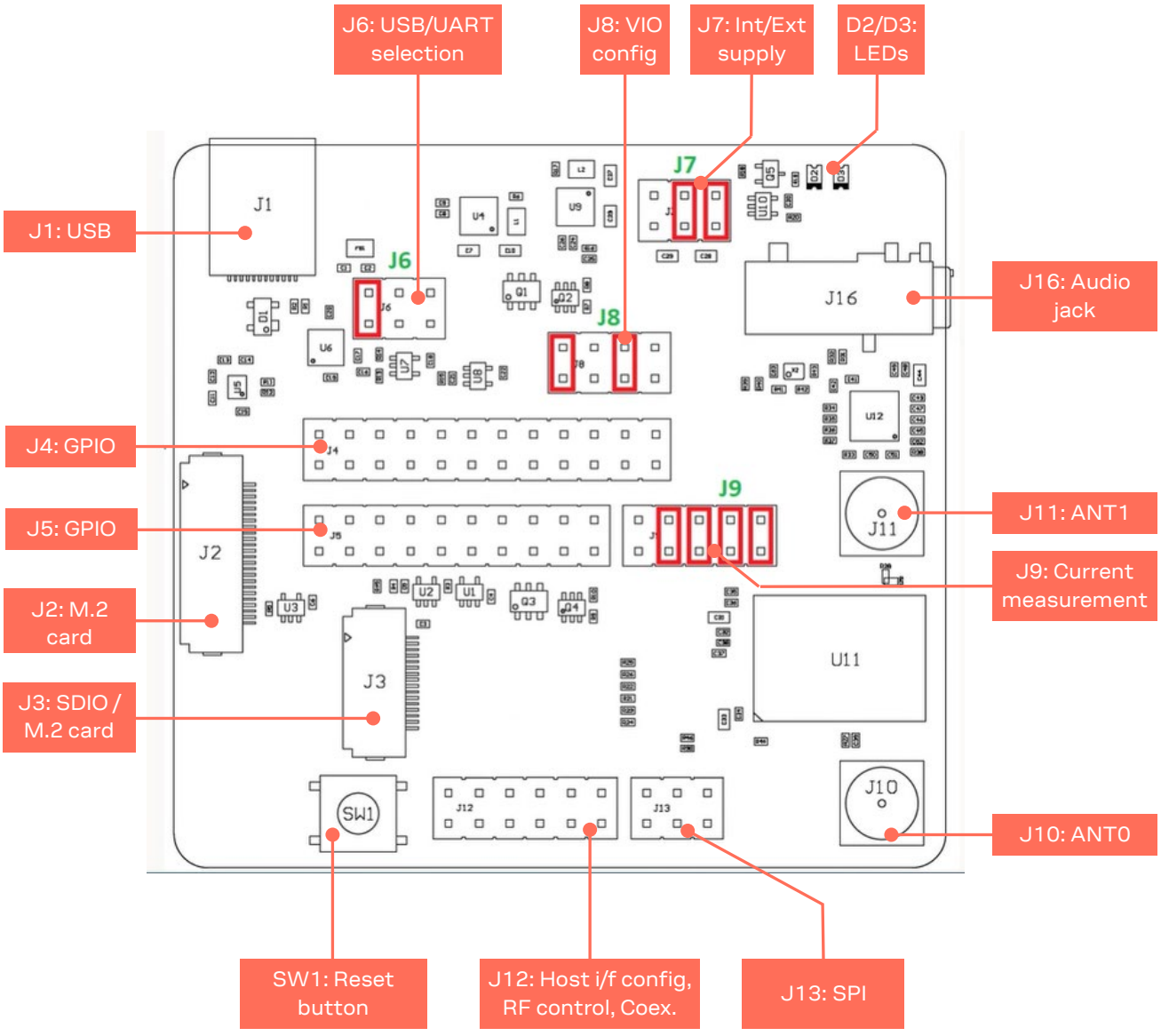


Figure 4: EVK-MAYA-W2 connectors and default jumper configuration

Table 5 provides a summary of the connectors and pin headers shown in Figure 4.

Designator	Function	Description
J1	USB connector	USB type-C connector for Bluetooth host interface
J2	M.2 card connector	ZIF connector for M.2 card adapter
J3	SDIO/M.2 card connector	ZIF connector for SDIO or M.2 card adapter
J4/J5	GPIOs	Module GPIOs and interfaces
J6	USB/UART selection	Pin header for USB/UART Bluetooth host interface selection
J7	Internal/external supply selection	Pin header for internal or external power supply selection
J8	VIO configuration	Pin header for VIO voltage configuration
J9	Current measurement	Pin header for current measurements
J10	ANT0	SMA connector for Wi-Fi antenna interface
J11	ANT1	SMA connector for Bluetooth/802.15.4 antenna interface
J12	Host interface configuration, RF controls, coexistence interface	Pin header for MAYA-W2 Host interface configuration and RF control and coexistence interfaces
J13	SPI interface	Pin header for SPI host interface for IEEE 802.15.4
J14	JTAG	JTAG connector for MAYA-W2 (not assembled)
SW1	Reset button	Reset button
D2/D3	LEDs	Power supply and UART activity indicator LEDs

Table 5: MAYA-W2 evaluation board connectors

3.3 Power supply configuration

MAYA-W2 series modules are supplied with 3.3 V (**3V3**), 1.8 V (**1V8**), and selectable **VIO/VIO_SD** voltages. Power supply for the EVB can be provided from the SDIO, M.2 or USB host sockets and internal DC-DC, or from external sources. The following power supply options are available on the EVB:

- SDIO or USB interfaces: The EVB is powered from the SDIO/M.2 or USB host sockets. All internal voltages are generated by DC-DC converters on the EVB.
- External sources: 3.3 V and 1.8 V voltages for the board are supplied from external power sources through connector J7.

The current consumption of the MAYA-W2 module can be measured individually on each supply rail.

3.3.1 Internal or external supply

The EVB can be supplied through the host interfaces and voltages generated by internal DC-DC. To use internal supplies, place jumpers on pins 1-2 and 3-4 of pin header J7 (default configuration).

To use external power sources, remove the jumpers and connect the supplies directly to the **BRD_3V3, BRD_1V8**, and **GND** pins on J7.

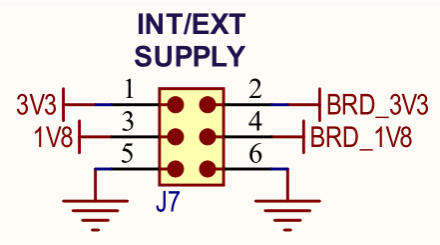


Figure 5: Internal/external supply (J7)

3.3.2 VIO configuration

The **VIO** and **VIO_SD** voltages for the MAYA-W2 module can be selected from the 1.8 V or 3.3 V board supplies by placing jumpers between the board and VIO supply pins on J8. The default configuration is to use 1.8 V for both **VIO** (3-4) and **VIO_SD** (7-8).

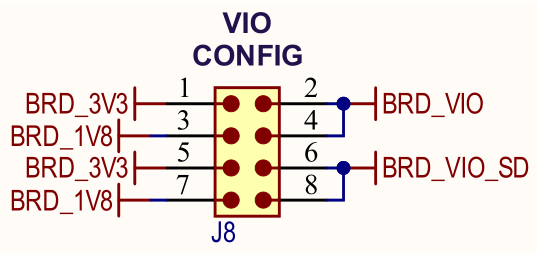


Figure 6: VIO configuration (J8)

3.3.3 Current measurement

Pin header J9 allows to measure the current consumption of the MAYA-W2 module individually on each supply rail. By default, all the board voltages are connected to MAYA-W2, through the jumpers on J9, to supply the module. To perform a current measurement, remove the jumper and place an ampere meter or current probe between the respective board and module supply pins on J9.

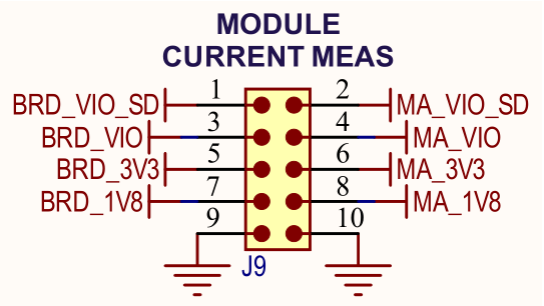


Figure 7: MAYA-W2 current measurement (J9)

3.4 Host interface configuration

MAYA-W2 supports the SDIO interface for Wi-Fi and the UART interface for Bluetooth communication (SDIO-UART mode). MAYA-W271 and MAYA-W276 additionally support an SPI interface for communication with the IEEE 802.15.4 radio (SDIO-UART-SPI mode). The MAYA-W2 boot mode configuration pins CONFIG[1:0] for selecting the host interfaces can be set on J12. See also Figure 13. The SDIO-UART and SDIO-UART-SPI boot modes are selected by leaving the pins open as described in Table 6.

CONFIG[1]	CONFIG[0]	Wi-Fi	Bluetooth	802.15.4
1 (J12: 3-4 open)	1 (J12: 1-2 open)	SDIO	UART	SPI
Others	Others	Reserved	Reserved	Reserved

Table 6: Host interface configuration

☞ The SDIO host interface for Wi-Fi is accessible through adapters for either SDIO card interface or M.2 card interface. The UART interface for Bluetooth can be accessed either directly or via a USB-to-UART bridge. Direct access is provided on pin header J4 or through the UART signals on the M.2 card interface. USB access can be provided through the USB type-C connector J1 or the USB lines on the M.2 card interface. For further information see Bluetooth host interface. Access to the SPI host interface for IEEE 802.15.4 on MAYA-W271 and MAYA-W276 is provided on pin header J13.

3.5 Host interface connectors

The EVB can be connected to a host system with the included SD card or M.2 card adapters. A USB connector is provided to access the Bluetooth UART through a USB-to-UART bridge. The SPI interface for 802.15.4 is provided on a pin header. For information about the various connection options for each interface, see SDIO card interface, M.2 card interface, Bluetooth host interface and SPI host interface for IEEE 802.15.4.

3.5.1 SDIO card interface

Micro SD and full-size SD card adapters are included in the EVK to connect the evaluation board to SDIO capable host sockets. To use one of the SDIO card adapters, connect it with the smaller flat cable to the ZIF connector J3 on the EVB. All SDIO signals are directly connected to the MAYA-W2 module through 22 Ω series resistors. The SDIO interface can be used for power supply of the EVB.

☞ The SDIO card adapters support only the SDIO interface, which is used for Wi-Fi communication of the MAYA-W2 module. The M.2 card adapter supports additional interfaces, including UART for Bluetooth communication.

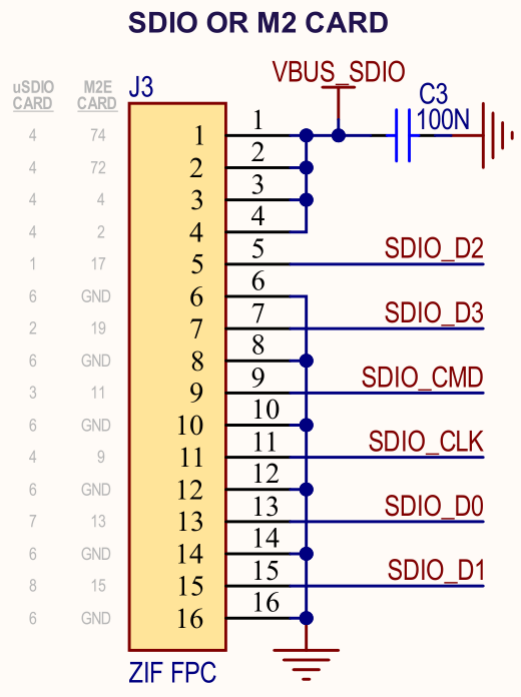


Figure 8: SDIO or M.2 card ZIF connector (J3)

3.5.2 M.2 card interface

An M.2 Key E card adapter is included in the EVK to connect the evaluation board to M.2 Key E host sockets. To use the M.2 adapter, connect it with both flat cables to the matching ZIF connectors J2 and J3 on the EVB.

MAYA-W2 SDIO signals are connected through connector J3. Connector J2 provides additional MAYA-W2 interfaces and signals to the M.2 interface, including UART (optionally through USB), PCM/I2S, JTAG, and other sideband signals. To enable the various interfaces and connect MAYA-W2 signals to connector J2, jumpers must be placed on pin headers J4 and J5. For information about connecting the available MAYA-W2 interfaces to the M.2 card connector, see Figure 9.

The M.2 interface signals M2_UART_WAKE#, M2_W_DISABLE1#, and M2_W_DISABLE2# use 3.3 V signal voltage with voltage translators on the EVB. See Schematics for details. All other signals are powered from the board VIO voltage.

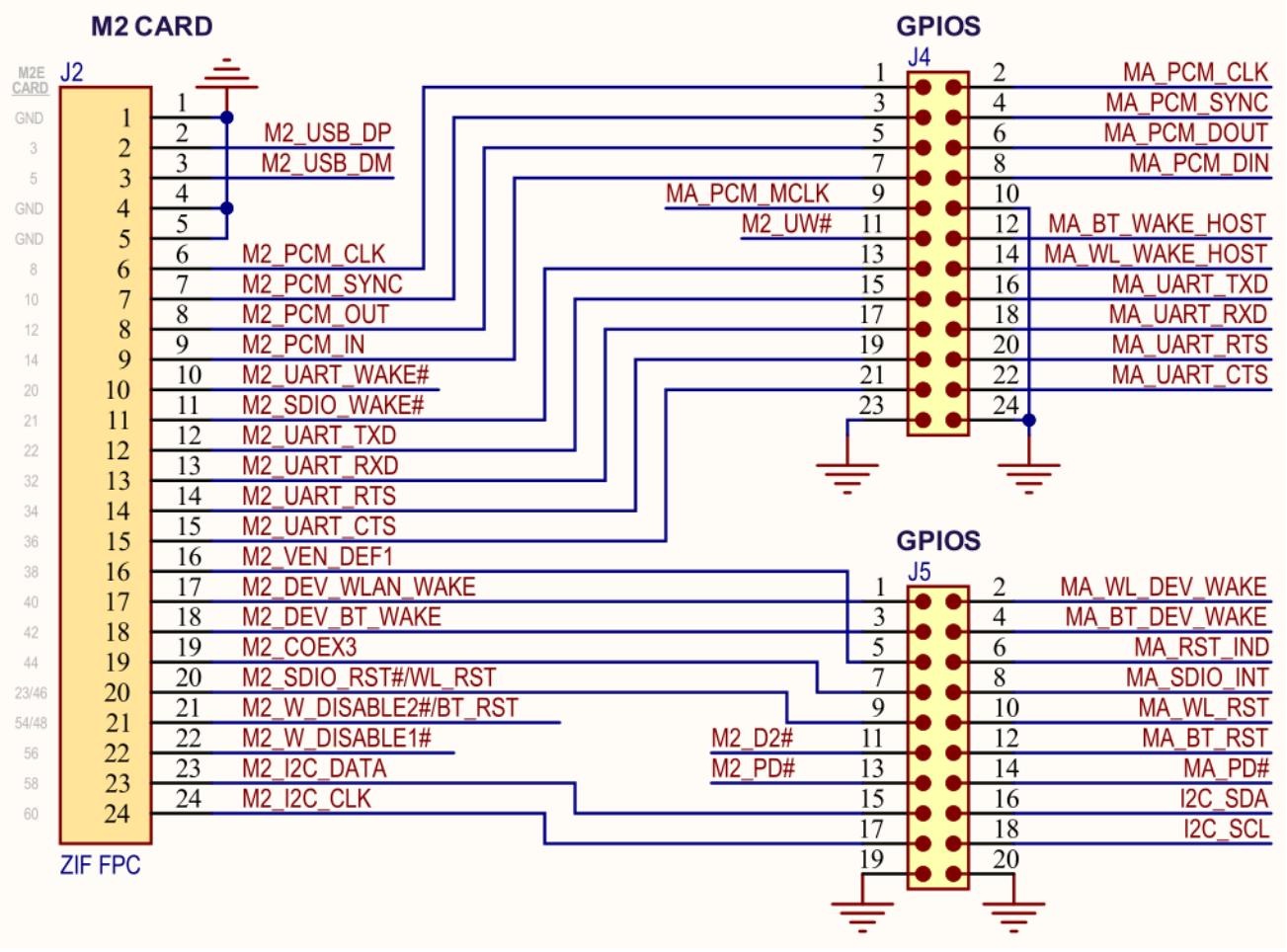


Figure 9: M.2 card ZIF connector (J2) and pin headers J4 and J5

The M.2 Key E pinout follows the definition from NXP for M.2 sockets on platforms based on NXP MPUs and MCUs. For more information about the Wi-Fi/Bluetooth M.2 Key E Pinout Definition on NXP host boards, see also the NXP AN13049 pin definition [6].

☞ Some interfaces might not be available on the M.2 socket of a host platform. Check the interface connector specification from the host platform vendor to confirm the pinout and supported interfaces.

3.5.3 SPI host interface for IEEE 802.15.4

Figure 10 shows pin header J13 which provides direct access to the SPI interface for the IEEE 802.15.4 radio on EVK-MAYA-W271 and EVK-MAYA-W276.

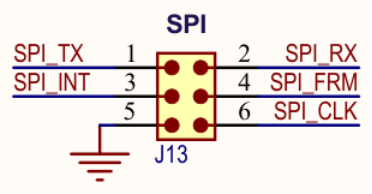


Figure 10: SPI interface connector (J13)

The SPI interface supports a maximum clock speed of 25 MHz. The SPI pins are shared with the external PTA coexistence interface of MAYA-W2. Table 7 describes the function of the pins on J13 in SPI and PTA modes.

No.	Pin name	I/O	Description SPI mode	Usage in PTA mode
1	SPI_TX	O	SPI transmit output signal	EXT_PRI
2	SPI_RX	I	SPI receive input signal	EXT_GNT
3	SPI_INT	O	SPI interrupt output signal.	EXT_FREQ
4	SPI_FRM	I	SPI frame input signal	EXT_REQ
5	GND	-	Ground	Ground
6	SPI_CLK	I	SPI clock input signal	EXT_STATE

Table 7: SPI/PTA interface description

3.5.4 Bluetooth host interface

MAYA-W2 series provides a UART host interface for Bluetooth communication. The UART interface can be either accessed directly through pin header J4 or connected to the M.2 card connector J2 using jumpers. To connect the UART interface of MAYA-W2 to the M.2 card connector J2, place jumper bridges on J4 positions 15-16, 17-18, 19-20, and 21-22.

The EVB includes a USB-to-UART bridge (FT234XD) for accessing the UART interface through USB. Access is provided through the USB type-C connector J1 or the USB lines on the M.2 card interface. The USB type-C connector can be used for the EVB power supply.

The routing and selection of the Bluetooth host interface modes is configured using the jumpers on pin header J6 and J4, as shown in Figure 11 and Figure 9.

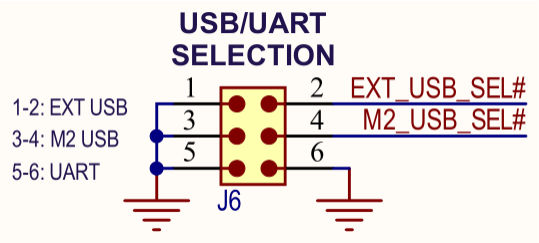


Figure 11: USB/UART selection (J6)

The configuration options for the Bluetooth host interface modes are described in Table 8.

Bluetooth host interface mode	Jumper positions	Description
USB on type-C connector J1	J6: 1-2 (default) J4: UART pins open	The Bluetooth UART interface is available through USB-to-UART bridge on USB type-C connector J1
USB on M.2 connector J2	J6: 3-4 J4: UART pins open	The Bluetooth UART interface is available through USB-to-UART bridge on M.2 card connector J2 (using the USB lines of the M.2 socket)
UART on M.2 connector J2	J6: 5-6 or open J4: UART pins bridged	The Bluetooth UART interface is directly available on M.2 card connector J2 (using the UART lines of the M.2 socket). Jumpers must be placed on J4 to connect the MAYA-W2 UART signal lines to J2.
Direct UART access	J6: 5-6 or open J4: UART pins open	The Bluetooth UART interface is directly available on the UART pins of J4.

Table 8: Bluetooth host interface selection options

3.6 Bluetooth audio interface

For Bluetooth voice applications, MAYA-W2 EVB includes a MAX9860 16-bit audio codec that connects to the PCM/I2S interface of the module. It also includes a 3.5 mm audio jack (J16) for connecting a headset. The MAX9860 codec is driven by 19.2 MHz master clock (MCLK) and is completely controlled through software using an I2C interface. The codec responds to the I2C slave address 0x20 for all write commands and 0x21 for all read operations.

The I2C interface of the audio codec is provided on connector J5, as shown in Table 9. The PCM/I2S interface of the MAYA-W2 module is directly connected to the serial audio interface of the MAX9860 audio codec. The PCM pins are shared with the I2S interface and extend to connector J4, as shown in Table 9. To connect the PCM/I2S interface of MAYA-W2 to the M.2 card connector J2, place jumper bridges on J4 positions 1-2, 3-4, 5-6, and 7-8.

Name	I/O	Connector / pin no.	Description
I2C_SDA	I/O	J5 / 16	I2C Serial-Data Input/Output
I2C_SCL	I	J5 / 18	I2C Serial-Data clock
PCM_CLK	I/O	J4 / 2	PCM clock Alternate function: I2S clock
PCM_SYNC	I/O	J4 / 4	PCM frame sync Alternate function: I2S word select
PCM_DOUT	O	J4 / 6	PCM data out Alternate function: I2S data out
PCM_DIN	I	J4 / 8	PCM data in Alternate function: I2S data in

Table 9: Audio interfaces

3.7 GPIOs

Figure 9 shows the pin headers J4 and J5 that provide direct access to the UART, JTAG, GPIO and PCM/I2S interfaces on the MAYA-W2 module. The interface signals are connected through jumpers to the M.2 card interface connector J2 or accessed directly through the pin headers.

3.8 Antenna interfaces

The evaluation board of EVK-MAYA-W271 includes two standard 50 Ω female SMA connectors for connecting external antennas or measurement instruments. EVK-MAYA-W276 uses the internal PCB antenna of MAYA-W276.

Table 10 describes the available radio interfaces of the MAYA-W2 module and the respective antenna interfaces on the EVB.

Product name	Module antenna interface	Function	Antenna interface on EVB
EVK-MAYA-W271	RF_ANT0	2.4/5 GHz Wi-Fi	SMA connector J10
	RF_ANT1	Bluetooth, shared with IEEE 802.15.4 on EVK-MAYA-W271	SMA connector J11
EVK-MAYA-W276	Internal PCB antenna	2.4/5 GHz Wi-Fi,Bluetooth and 802.15.4	-

Table 10: Antenna interface configuration

☞ Connect the external antennas supplied with EVK-MAYA-W271 to the SMA connectors J10 and J11. If 2.4 GHz Wi-Fi and Bluetooth/802.15.4 are used at the same time, bend the antennas at a 90° angle to each other or use a coaxial RF cable to increase isolation between the antennas.

The antenna interface of EVK-MAYA-W276 can be changed to SMA connector J11 by removing 0 Ω resistor R29 and populating R28 instead, as shown in Figure 12.

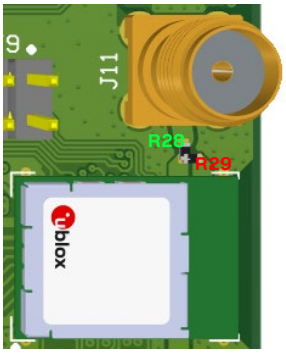


Figure 12: Hardware modification to use SMA connector J11 on EVK-MAYA-W276

3.9 RF control and coexistence interfaces

Figure 13 shows the module RF control signals and the WCI-2 coexistence interface accessible on pin header J12. The external PTA coexistence interface of MAYA-W2 is shared with the SPI pins on J13 as described in Table 7.

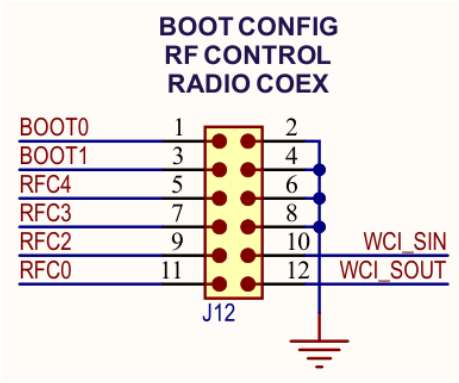


Figure 13: Host interface configuration, RF control, and WCI-2 coexistence interfaces (J12)

3.10 LEDs

Table 11 describes the function and designation of the available LEDs on the EVK-MAYA-W2 evaluation board.

Function	Description	Designator	Color
Supply	Board 3.3 V and 1.8 V power supply status indication	D2	Green
UART	UART RX/TX activity indication	D3	Orange

Table 11: LED function

3.11 Reset button

Press the SW1 button on the EVB to reset the MAYA-W2 module. When pressed, SW1 asserts the **PDn** pin of the MAYA-W2 module to enter power down mode, while keeping the supply rails enabled. The module is automatically reset when it exits the power down mode, which means that the firmware must be downloaded again.

3.12 Schematics

Complete schematics for the MAYA-W2 evaluation board are available on request. For further information, contact your local u-blox support team.

Appendix

A Glossary

Abbreviation	Definition
EVB	Evaluation board
EVK	Evaluation kit
HCI	Host controller interface
I/O	Input / output
I2S	Inter-Integrated circuit sound
LED	Light-Emitting Diode
LDO	Low-dropout regulator
LPO	Low-power oscillator
LTE	Long-Term Evolution
MAC	Medium access control
MIMO	Multiple input multiple output
MMC	Multimedia card
PC	Personal computer
PCI	Peripheral component interconnect
PCIe	Peripheral component interconnect express
PCM	Pulse-code modulation
PTA	Packet Traffic Arbitration
SD	Secure digital
SDIO	Secure digital input output
UART	Universal asynchronous receiver/transmitter
USB	Universal serial bus
Wi-Fi	Wireless local area network
WCI-2	Wireless Coexistence Interface 2
ZIF	Zero Insertion Force

Table 12: Explanation of the abbreviations and terms used

Related documents

[1] MAYA-W2 series data sheet, UBX-22009721
[2] MAYA-W2 system integration manual, UBX-22011848
[3] Embedded Linux for i.MX Applications Processors
[4] NXP UM11490 - Feature Configuration Guide for NXP-based Wireless Modules on i.MX 8M Quad EVK
[5] MCUXpresso Software Development Kit (SDK)
[6] NXP AN13049 - Wi-Fi/Bluetooth M.2 Key E Pinout Definition

☞ For product change notifications and regular updates of u-blox documentation, register on our website, www.u-blox.com.

Revision history

Revision	Date	Name	Comments
R01	06-May-2022	mzes	Initial release.
R02	22-Jun-2022	lfar	Included EVK-MAYA-W276 and removed EVK-MAYA-W261/-W266 in Document information. Updated contact information.
R03	24-Mar-2023	lfar	Document released for Engineering samples. Added procedures for copying IW612 production software and generating Tx power configuration file in Calibration data. Updated Jumpers and connectors.
R04	25-Jan-2024	mzes	Updated product images. Updated Open-source Linux/Android drivers. Removed Calibration data. Added Connecting to NXP i.MX 8M Mini EVK for 802.15.4.

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