Product summary

M2-JODY-W3 module

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M.2 card with JODY-W3 Wi-Fi 6 and Bluetooth 5.3 module

Standard

Professional

Automotive

Module featuring IEEE 802.11ax and Bluetooth Low Energy 5.3

- M.2 Type 2230 Key E form factor
- Concurrent dual Wi-Fi 2.4 and 5 GHz, 2x2 MIMO (5 GHz), dual MAC
- Dual-mode Bluetooth 5.3 BR/EDR and LE, including long range
- Simultaneous access point (AP), station (STA), Wi-Fi Direct (P2P)
- Optimized for parallel operation of Wi-Fi and Bluetooth
- Compatible with NXP i.MX evaluation and development boards

22.0 × 30.0 × 4.2 mm



Product description

The M2-JODY-W3 card module combines the maximum performance of the JODY-W3 Wi-Fi 6 and Bluetooth 5.3 connectivity module with the flexibility and ease of use of an M.2 card. The card supports all features of the JODY-W377 module and delivers the highest data rates in Wi-Fi using the most advanced Wi-Fi 802.11ax technology. It can operate in concurrent dual Wi-Fi (2.4 GHz and 5 GHz), dual-MAC, and in 2x2 MIMO on 5 GHz. It supports Bluetooth LE/Bluetooth LE 5.3 features such as a data rate of 2 Mbit/s (PHY), extended advertising, and long range.

The M2-JODY-W3 card module is based on the NXP Q9098 chip. It requires a host processor running a Linux or Android operating system. The M.2 Key E form factor gives access to all supported JODY-W3 interfaces, such as PCIe, SDIO, high speed UART, PCM, and I2S.

Key features

- M.2 type 2230 Key E form factor
- 2x2 MIMO 802.11ax 5 GHz, beamforming
- Wi-Fi concurrent dual band 2.4 and 5 GHz
- Wi-Fi data rates (PHY): Up to 1.2 Gbit/s (5 GHz)
- Wi-Fi 20, 40, and 80 MHz channels
- DFS master zero-wait
- Multi-role operation: AP, STA, P2P
- WPA3: all common methods of security and encryption
- Bluetooth LE physical layer (PHY) data rates up to 2 Mbit/s
- Bluetooth long range
- Advertising extension, high duty cycle directed advertising
- Bluetooth LE isochronous channels
- All standard pairing, authentication, link key, and encryption operation
- Chipset qualified according to AEC-Q100 (card module is standard grade)

	M2-JODY-W377
Grade	
Automotive	
Professional	
Standard	•
Radio	
Bluetooth qualification	v5.3
Bluetooth profiles	HCI
Bluetooth BR/EDR	•
Bluetooth Low Energy	•
Wi-Fi IEEE 802.11 standards	Wi-Fi 6 (802.11ax)
Wi-Fi 2.4 / 5 [GHz]	2.4 and 5
LTE filter	o
Bluetooth output power conducted [dBm]	10
Wi-Fi output power conducted [dBm]	19
Antenna type	3 U.FL connectors
OS support	
Android / Linux drivers (from u-blox)	•
Interfaces	
UART [B]	1
PCIe [W]	1
SDIO [version] [W]	v3
PCM / I2S (Bluetooth audio)	1
Features	
Concurrent dual band	•
Micro Access Point [max connects]	64
AES hardware support	•
Wi-Fi direct	•
RF parameters in OTP memory	•
MAC addresses in OTP memory	•

B = For Bluetooth only
W = For Wi-Fi only

M2-JODY-W3 module

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Features

Wi-Fi standards	IEEE 802.11a/b/g/n/ac/ax IEEE 802.11d/e/h/i/k/r/u/v/w/mc
Wi-Fi channels	2.4 GHz: 1-13 5 GHz: 36-165
Bluetooth	v5.3 (Bluetooth Low Energy and Bluetooth with EDR) Class 1 and 2 transmission Bluetooth Low Energy long range
Antenna connectors	U.FL 1: 2.4 GHz and 5 GHz Wi-Fi U.FL 2: 2.4 GHz and 5 GHz Wi-Fi U.FL 3: Bluetooth
Output power	Wi-Fi: TBD Bluetooth BR/EDR: TBD Bluetooth LE: TBD
Security	Hardware encryption engine: AES-CCMP, AES-GCMP, TKIP WPA/WPA2/WPA3, WAPI, WEP 128-bit AES hardware support

Software features

RF parameters	Available in on-board OTP memory
MAC addresses	Available in on-board OTP memory
Operation modes	Station (STA) Access Point (AP) Wi-Fi Direct P2P Combinations of STA, AP, P2P
Driver support	Linux drivers in source code

Interfaces

Wi-Fi	PCIe SDIO v3.0
Bluetooth	High-speed UART, 4-wire (default)
Bluetooth audio	PCM audio I2S
Other interfaces	GPIOs

Package

Dimensions	22.0 × 30.0 × 4.2 mm
Mounting	M.2 Key-E connector 2199230-4 on host platform

Environmental data, quality & reliability

Operating temperature	−40 °C to +85 °C
Standard qualification	

Electrical data

Power supply	3.3 V (from M.2 card voltage pin) 1.8 V (generated by on-card DCDC)
I/O power supply	3.3 V or 1.8 V (default: 1.8 V)

Certifications and approvals

Type approvals	TBD
Bluetooth qualification	TBD

Product variants

M2-JODY-W377-00C	Standard grade M.2 card module with three antenna pins and concurrent dual band 2x2 2.4 GHz and 5 GHz 802.11ax, BT/BLE 5.3. NXP chipset 88Q9098 PCIe interface for Wi-Fi; UART interface for Bluetooth
M2-JODY-W377-01C	Standard grade M.2 card module with three antenna pins and concurrent dual band 2x2 2.4 GHz and 5 GHz 802.11ax, BT/BLE 5.3. NXP chipset 88Q9098 SDIO interface for Wi-Fi; UART interface for Bluetooth

Further information

For contact information, see **www.u-blox.com/contact-u-blox**.

For more product details and ordering information, see the product data sheet.

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