

Solutions for i.MX
wireless connectivity

World-leading solutions

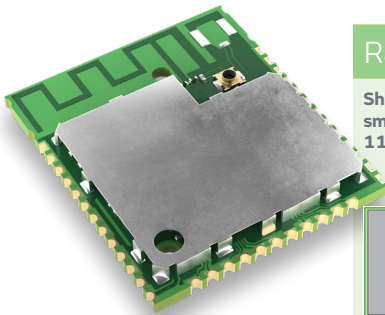
Murata's wireless modules already account for more than 53% of the world market.

Our market-leading position in module design also extends to low power and battery operated sensor nodes, gateways/border routers, software development for both embedded, application software, and more.

We go beyond thinking about just the modules, to identify the optimal approach and platform for the complete end-to-end solution.

A wide range of modules

Murata offers an extensive range of wireless modules, including a rapidly expanding offering based on NXP chipsets. Modules with integrated MCU are used in combination with NXP EZ-SDK or NXP MCUXpresso software.



Radio + MCU

Shielded small Wi-Fi® 11b/g/n + MCU



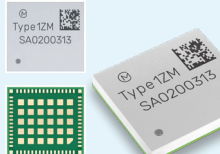
Actual size 10.2 x 9.3 x 1.3mm

Radio-only modules are hosted by MPU (Linux/Android) or MCU (FreeRTOS). These modules cover a wide range of specifications. From Single band Wi-Fi 2.4GHz to Dual band Wi-Fi 11ac 2.4/5GHz 2x2 MIMO. Most options include Bluetooth®.

Murata's wide range of modules enable applications from a small connected gadget or sensor node to a high data rate video streaming device.

Radio only

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac + Bluetooth® 5.1



Actual size 10.2 x 9.3 x 1.3mm

Shielded ultra-small dual band Wi-Fi® 11a/b/g/n/ac 2x2 MIMO + Bluetooth® 5.2



Actual size 11.8 x 8.4 x 1.3mm

Specifications	Type ABR	Type 1ZM	Type 1YM
Murata part number	CMWC1ZZABR-107	LBEE5QD1ZM-572	LBEE5XV1YM-574
Embedded Artists M.2 module P/N	N/A	EAR00364	EAR00370
Technology	Wi-Fi + MCU	Wi-Fi + Bluetooth	Wi-Fi + Bluetooth
Chipset	NXP 88MW320	NXP 88W8987	NXP 88W8997
Wi-Fi specification	802.11b/g/n	802.11a/b/g/n/ac	802.11a/b/g/n/ac 2x2 MIMO
Bluetooth specification	N/A	5.1	5.2
Frequency (GHz)	2.4	2.4 & 5	2.4 & 5
Hosted/Hostless architecture	Hosted/Hostless	Hosted	Hosted
Software	EZ-Connect, MCUXpresso	Linux, MCUXpresso	Linux
Wi-Fi interface	UART, SPI	SDIO 3.0	PCIe, SDIO 3.0
Bluetooth interface	N/A	UART	UART, SDIO 3.0
MAX data rate - Wi-Fi (Mbps)	72.2	433	866
MAX data rate - Bluetooth (Mbps)	N/A	3	3
Interface voltage (V)	1.8, 3.3	1.8	1.8, 2.5, 3.3
Operating temp. Range (°C)	-30 to +85	-20 to +85	-30 to +85
Antenna configuration	PCB trace antenna	PCB trace antenna or U.FL connected patch antenna	U.FL connected patch antennas
Regulatory certification	FCC/IC, CE	FCC/IC, CE, MIC	FCC/IC, CE, MIC

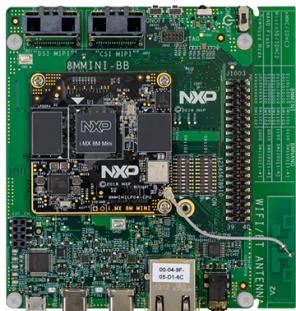
Note: CE marking and declaration should be done by customer as a final product

Soldered-down in major development platforms

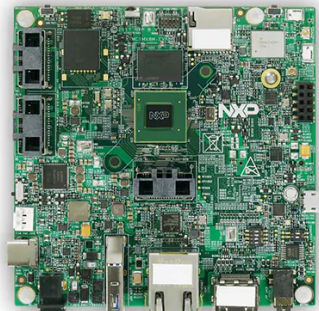
Many of Murata's extensive range of wireless modules are designed into leading development platforms including Linux, Android, FreeRTOS and others, for example:

NXP i.MX - Linux/Android/MCUXpresso

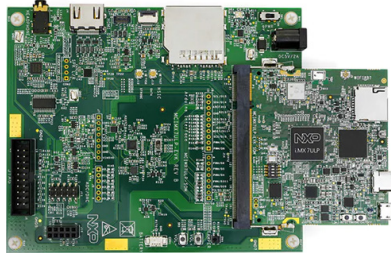
- i.MX 8M EVK - Type 1CX
- i.MX 8M Mini EVK - Type 1MW
- i.MX 8M Nano EVK - Type 1MW
- i.MX 7ULP EVK - Type 1DX
- i.MX RT Alexa Voice Board - Type 1DX



i.MX 8M Mini/Nano EVK



i.MX 8M EVK



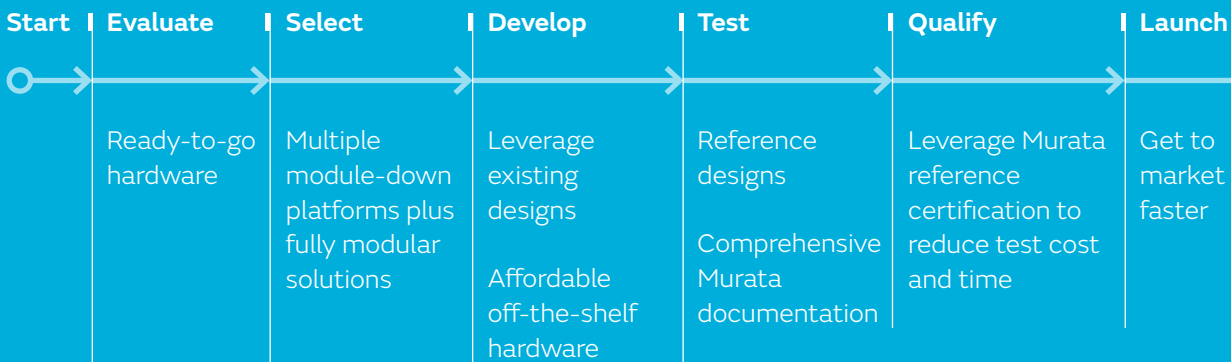
i.MX 7ULP EVK



i.MX RT Voice Board: Alexa Voice Services (AVS) certified solution

Making IoT connectivity easier

Murata is focused on delivering a comprehensive Software/Hardware/Regulatory/Documentation solution that enables customers to get their wireless IoT enabled products to market faster and easier.



A rich ecosystem supporting your entire project lifecycle



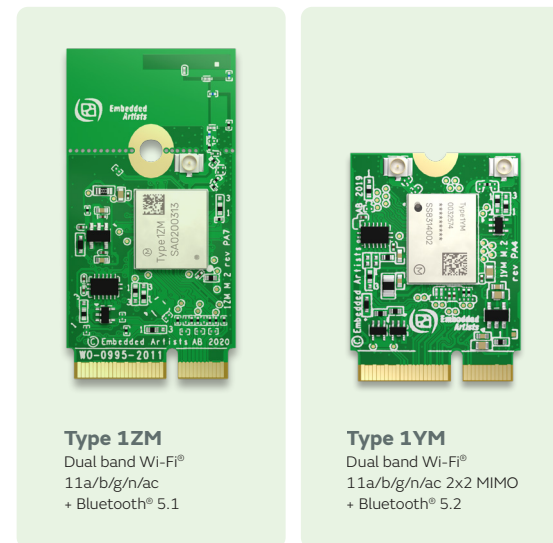
Modular solutions

M.2 boards

Murata embarked on a close partnership with Embedded Artists to develop a best-of-class Wi-Fi®/Bluetooth® evaluation board. Based on the industry standard M.2 Key 'E' specification; these professionally designed and proven M.2 Modules provide customers ultimate flexibility in validating Murata's Wi-Fi®/Bluetooth® solutions. In M.2-enabled end products, the M.2 is the fastest option in time-to-market.

Features

- Standard M.2 form factor
- Reference-certified antennas & snap-off option
- UFL connectors for antenna or conducted testing
- Comprehensive interface support including SDIO, PCIe, UART, PCM, and radio control lines



μSD adapter

Murata's μSD-M2 Adapter board offers modular enablement for NXP's i.MX EVKs with Embedded Artist's M.2 module family. Enabling WLAN-SDIO modules, the following WLAN/BT signals are brought out of the Adapter:

- WLAN SDIO
- BT UART
- BT PCM/I2S
- WLAN/BT CTRL
- WLAN JTAG
- Debug GPIOs



i.MX EVKs

- RT1020
- RT1050
- RT1060
- RT1064
- 6UL/6ULL
- 6SoloX
- 6DL/6Q/6QP
- 8M Mini
- 8M Nano

Fully modular system

Embedded Artists partnered closely with Murata to arrive at the ultimate modular Wi-Fi®/Bluetooth® solution which offers IoT designers a quick, easy and cost-effective route to world-class connectivity.

Developer's Kits are available for use as your evaluation/prototyping platform. The kits include the hardware and software components needed to get up-and-running with your software development on day 1.

- Easily evaluate different Wi-Fi/BT solutions – by just switching M.2 modules
- Fast-to-market integration
- Less regulatory burden
- Use certified antennas
- Re-use FCC certification

1. Choose a COM/OEM board

Embedded Artists have developed a suite of COM (Computer-on-Modules) and OEM boards, integrating all core components around a variety of NXP processors and microcontrollers:

- i.MX RT1062
- i.MX RT1052
- i.MX8M Quad
- i.MX8M Mini uCOM
- i.MX8M Nano uCOM
- i.MX6 Quad
- i.MX6 DualLite
- i.MX6 Ultralite
- i.MX6 SoloX
- i.MX7 Dual
- i.MX7 Dual uCOM
- i.MX7ULP uCOM

2. Plug into COM carrier board

There are two types of carrier boards: One for i.MX RT family boards (with a slot for the OEM board) and another for i.MX 6/7/8 family boards (supporting larger COM board).

- Support for i.MX RT/6/7/8 designs
- Support for Wi-Fi/BT M.2 Key 'E' interface, including advanced debug features developed with Murata
- Extensive MPU/MCU Interface support
- Ultimate ease-of-use

3. Plug in your connectivity

Choose the Murata-enabled Embedded Artists M.2 connectivity module appropriate for your application in terms of:

- Performance
- Power consumption
- Range
- Cost
- Temperature range
- Supported standards



4. Start your evaluation

- Pre-loaded software drivers
- Comprehensive user manuals
- Responsive support

Murata Forum

Murata's Community provides customers any necessary support to get their Murata module-enabled product to market. The Forum has global reach, allowing any customer to get online and seek assistance.

Software

Murata has developed resources and made key strategic partnerships to create a strong software ecosystem support model for customers.

Linux - Murata has developed an enhanced solution for both NXP and Cypress-based modules that support plug-n-play solutions. Additional wireless hardware configurations are supported with some leading-edge wireless functionality not seen elsewhere. Murata's dedicated team has fine-tuned the software offering over our five-year collaboration with NXP (previously Freescale). Current modules supported include Type 1ZM, 1YM, 1FX, 1DX, 1MW, 1LV, 1CX, and 1XA.

MCUXpresso - NXP's MCUXpresso FreeRTOS-based solution provides strong and flexible IDE and SDKs which currently enable Murata Type 1DX, 1MW, and 1LV.

Android - NXP provides a built-in solution on their BSP release which currently supports Type 1ZM, 1MW, and 1CX.

Documentation - Murata provides extensive documentation support (hardware, software, testing, regulatory certification) openly at Murata's wireless connectivity site.

