Qorvo's IoT Dev Kit for QPG6200 is the definitive toolkit for incorporating Matter (over Thread), Zigbee, and Bluetooth Low Energy into your low-power IoT product.
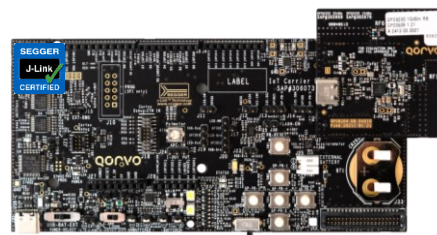
It provides a complete solution for building applications for connected devices with robust RF performance by leveraging Qorvo ConcurrentConnect™ technology.

Overview

Qorvo's IoT Dev Kit for QPG6200 accelerates development of products incorporating Matter (over Thread), Zigbee and Bluetooth Low Energy wireless connectivity standards. The solution has the best-in-class energy efficiency, right-sized security, and robust RF performance for multi-standard applications. The kit includes certified communication stacks, turn-key reference applications, development tools and is PSA Certified Level 2 for IoT Security.

The QPG6200 is the industry's most reliable and robust wireless multi-standard System-on-Chip. Featuring Qorvo's ConcurrentConnect™ technology, the QPG6200 enables multiple protocols to operate simultaneously and robust RF performance delivering improved capacity and low latency for the low-power standards. Furthermore, it leverages a secure element to keep your data and that of your customers safe.

Benefits

- **ConcurrentConnect™ Technology:**

  o **Multi-Radio**: built into the QPG6200, it enables seamless and concurrent (simultaneous) use of Bluetooth and IEEE 802.15.4 for all use cases. This makes it easy to build multi-standard applications that simply work without additional complex SW configuration/time-multiplexing mechanisms.

  o **Multi-channel**: enables the receiver for up to 3 IEEE 802.15.4 stacks concurrently, enabling running Zigbee and Matter over Thread concurrently.

  o **Antenna diversity**: increases interference robustness and link budget, resulting in superior RF range for both IEEE 802.15.4 protocols and Bluetooth Low Energy through preamble-based antenna diversity built in the QPG6200 hardware.

- **Fast time-to-market** by leveraging certified stacks and reference applications.

- **Single point-of-entry for all standards** with a single free-to-use build environment for Matter, Zigbee and Bluetooth Low Energy. The open-source components for Matter and Thread are pre-integrated in the environment.

- **Certified Solution and verified Interoperability** with other Matter devices and infrastructure.

Development Kit - Hardware

A development board combining QPG6200, peripherals, LEDs, buttons, power supply and a program/debug interface is available to developers for prototyping applications. The Development Kit is the ideal starting point to develop on QPG6200.

The kit consists of an IoT Carrier Board with a plug-on QPG6200 Radio Board with printed antennas. This setup is ideal for exploring QPG6200 features and prototyping. A plug-on QPG6200 Evaluation Board ideal for validating performance is also available upon request. The Carrier Board breaks out the pins of the QPG6200 to enable application development and debugging via sensors and peripherals and an on-board Segger J-Link debugger.

QPG6200 Radio Board Features:
- QPG6200 SoC with 2 MB flash, 336 kB RAM
- 2 x 2.4 GHz PCB antenna for antenna diversity.

Carrier Board features:
- SEGGER J-Link on-board debugger/programmer and virtual COM port via USB-C
- RGB, cool white and warm white LED
- Red and green signaling LED
- Humidity/temperature sensor via I²C
- Accelerometer via I²C

- 16 Mbit low-power serial SPI Flash

- Headers for ARM tracing, external debugger and UART
- Potmeter, 5 push buttons and slider switch
- CR2032 battery clip and external battery option
- External supply input option
- Current measurement in two ranges
- Arduino Uno Rev3 compatible to allow interfacing with external shields.

Development Kit - Software

IoT Dev Kit for QPG6200 SW is available on GitLab allowing easy access. The kit brings together a combination of open-source (Matter and Thread) and Qorvo SW components in a user-friendly way. It guides you through product development, from building a proof of concept to mass-producing a secure, certified and RF compliant end-product.

The Software Development Kit is built on a free-to-use compiler and development/debug environment. It comes with all needed tools and features for professional embedded product development. The configurable reference applications leverage certified communication stacks to simplify end-product development and certification.

Tools for Application Development

Application Tools

- **Matter Controller Tool** commissions a Matter device into the network and controls it.
- **ZAP** (ZCL Advanced Platform) tool to configure clusters, attributes and other entities for the Matter template applications.
- **Application Configurator** to enable Qorvo's differentiators and configure industry standard features on the reference Matter applications.
- **Qorvo's stack and driver components** are abstracted in a separate library, which can be re-used straight from the example applications.
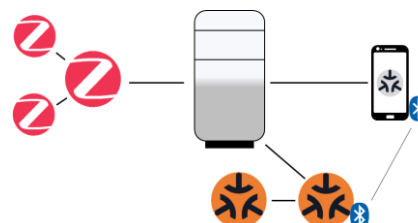
Security Implementation Tools

- **Device Attestation:** development tool that helps generating and programming certificates for Matter into the device during development phase.
- **Security Toolbox and Mass Production Programmer** (MPP) OTA Tool authenticates, compresses and/or encrypts your firmware, prior to packaging it in the format of your preferred Over-The-Air (OTA) upgrade network stack.

Other Evaluation Tools

- **Radio Control Console** is an RF test tool that allows the user to interact directly with the radio, making the tool the ideal companion for RF engineers validating performance including Qorvo ConcurrentConnect features and regulatory RF compliance. The tool can also be used to test the radio in a product manufacturer's production line in an automated way.

- **Energy Profile and Battery life estimator** [🚀*coming soon*]: By configuring the application profile, I/O pin usage and system level features, the developer can get an estimation of the battery life.

Turn-key Applications

As part of the development kit, high quality documentation is included to guide a developer from setting up a reference application, modifying example applications and making the application secure.

Matter

The included reference applications *Extended Color Light* [🚀*coming soon*], *Color Dimmer Switch and Generic Switch* (the included switch application supports both device types) support OTA firmware upgrade and are verified with Apple, Google, Amazon and Samsung SmartThings ecosystems.

Matter turn-key applications demonstrate a QPG6200 Matter device using Bluetooth Low Energy for commissioning. They can be used as is, or with minimal changes. These applications can perform OTA firmware updates and use secure boot to load only authenticated images.

Zigbee

The development kit is a Zigbee Platform Certified solution and includes a Zigbee Switch and Zigbee Light reference application [🚀*coming soon*], which is a Zigbee router device supporting Zigbee commissioning and *Touchlink*.

Matter and Zigbee Concurrent

The kit demonstrates the *Concurrent Commissioning Light* application [🚀*coming soon*] which can be used as a reference to create a customized light bulb.

This application leverages Qorvo ConcurrentConnect **Multi-channel** technology and supports commissioning for both Matter (using Bluetooth Low Energy) and Zigbee. This application joins both Zigbee and Matter networks and can be controlled over both networks simultaneously as the device state is automatically synchronized.

Combo Matter and Zigbee

The Combo Switch reference application controls a dimmable color light bulb either over Thread using Matter or over Zigbee. It only joins one network with a preference for Matter over Zigbee. It shows how to combine these two applications using dual boot. Buttons are used to trigger device state changes and to switch the application from Zigbee to Matter or vice versa, while LEDs are used to visualize the device states.

Bluetooth Low Energy

A Bluetooth Low Energy certified (v5.4) controller and host stack is included in the Development Kit. Through example applications, the user learns how to access the Bluetooth stack APIs for use cases such as advertising, connecting, sending, and receiving data and developing custom Bluetooth profiles and services.

The included Bluetooth Low Energy peripheral application [🚀*coming soon*] has Sleep enabled and supports Device Firmware Upgrade service. It is compatible with the Qorvo Connect smartphone app.

Ordering Information

Part Number	Packing / Qty	Description	Box Dimensions
QPG6200LDK-01	1 Kit	IoT Dev Kit for QPG6200L with 10 dBm Tx Power and QFN32 package	200 x 200 x 70 mm (7.9" x 7.9" x 2.8")

Web Contact Information

Technical support:	www.qorvo.com/support/technical-support
Sales:	www.qorvo.com/support/how-to-buy/contact-a-sales-rep

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