CMP4020: Multi-Protocol IoT Connectivity Module

Wi-Fi, BLE, Thread and Zigbee with ARM Cortex-M4F MCU

Based on Qualcomm’s QCA4020, the CMP4020 is a multi-protocol connectivity module optimized for low-power IoT applications. The highly integrated module provides a flexible platform for developing connected products with requirements for multiple wireless standards. The CMP4020 contains a dedicated WLAN processor supporting IPv4/IPv6, an integrated Cortex-M0 to run BLE and 802.15.4 network stacks and a Cortex-M4F available for User Application code.

The CMP4020 offers advanced features from the Qualcomm Network IoT Connectivity Platform, including support for HomeKit and the Open Connectivity Foundation (OCF), as well as support for AWS IoT software development kit (SDK) and Microsoft Azure IoT Devices SDK.

KEY FEATURES
- Multi-CPU System
  - Tensilica LX Processor for Wi-Fi stack
  - ARM Cortex-M0 @ 64 MHz for BLE/802.15.4
  - ARM Cortex-M4F @ 128 MHz for Application
  - 300-500 kB SRAM + XIP for User Application
- Low-Power Wi-Fi
  - Dual Band 1x1 802.11 a/b/g/n
  - Integrated PA/LNA
  - Dedicated Wi-Fi antenna for concurrent operation with BLE/802.15.4
  - Pout of 19 dBm (2.4 GHz) and 16 dBm (5 GHz)
  - Wake from GPIO
- Advanced Security Features
  - AES-128/256 HW Crypto Engine and PRNG
  - Secure OTA FW Updates
- Bluetooth LE
  - BLE v5.0
  - Pout of 4 dBm
  - 32 supported BLE services
- 802.15.4
  - ZigBee 3.0 / Thread v1.1
  - Pout of 19 dBm
- Wireless Coexistence
  - Concurrent Wi-Fi and BLE/15.4
  - Per-Packet Coexistence Manager
- Dimensions: 28.5 x 33.5 x 4.5 mm
- Antenna: Dual Integrated PCB Trace
- Operating Voltage: 3.3V
- Operating Case Temperature: -30° C to +70°C
- Certifications: FCC/IC/CE Pending

IMPLEMENTATION OPTIONS
- HOSTLESS MODE
  - ARM Cortex-M4F @ 128 MHz for User Application
  - 300-500 kB SRAM for running Application Code
  - RTOS Support: ThreadX, FreeRTOS
  - Toolchain Support: IAR, GCC
- HOSTED MODE
  - UART/SPI/SDIO Interface Options
  - Qualcomm-provided API
ADDITIONAL FEATURES
- Wi-Fi Feature Set
  - WEP, WPA/WPA2 PSK, WPS2.0
  - Soft AP w/ up to 10 STAs
  - Hidden SSID
  - Concurrent AP + STA
  - TCP/UDP, TLS/DTLS Server/Client
  - 2.4/5 GHz HT20 STA
  - Sniffer Mode with Optional Filters
  - Wi-Fi Direct concurrent with STA
  - 802.11n Advanced Features: STBC, Green Tx, Low Power Listen
- Bluetooth LE Feature Set
  - BLE v5.0 Compliant
  - 32-bit UUID Support
  - Simultaneous Central/Peripheral
  - Up to 10 Concurrent Connections
  - 2 Mbps PHY
- 802.15.4 Feature Set
  - Non-Beacon PAN wth FFD/RFD support
  - ZigBee 3.0: Light Link, HA, BA, RF4CE an SE profiles supported
  - Thread v1.1: Border Router, Thread Router and End Device supported

EVALUATION BOARD
PN: CMP4020-ZPA-EVB
- On-board sensors with out-of-box drivers for use in demo applications.
  - Position and Motion: 3D Gyro, 3D Magnetic Field, 3D Accelerometer
  - Environmental: Ambient Light, Temperature, Humidity, Pressure, PIR
- 4-Wire JTAG Debugging Interface
- Arduino™ Connector for adding Shields

ORDERING INFORMATION
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMP4020-ZPA</td>
<td>Module with 802.15.4 PA</td>
</tr>
<tr>
<td>CMP4020-ZPA-EVB</td>
<td>Evaluation Board for CMP4020-ZPA</td>
</tr>
</tbody>
</table>

CORPORATE OFFICE
Santa Clara, CA

WIRELESS CENTER OF EXCELLENCE
Buffalo Grove, IL

CONTACT US
wirelessmodules@cel.com
www.cel.com
408-919-2618

ABOUT CEL
California Eastern Laboratories (CEL) is a U.S. based company with a 60+ year history of wireless expertise. CEL assists customers in all phases of wireless product development, from concept to production. At our RF labs we can assist customers with certification pre-scans, RF performance analysis and antenna tuning.