



XMC-660

Multi-Function Wireless Mezzanine with
802.11 n/a/b/g (WiFi), 802.15.4
(Zigbee), GPS & Cryptographic support

Software

- ◆ Windows® XP, Linux® GPPLE, VxWorks® 6.7

Power

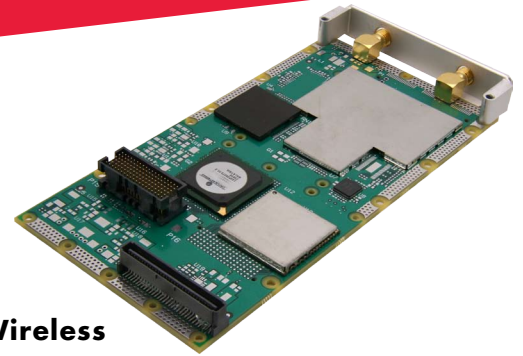
- ◆ 7 Watts (typical)
- ◆ 8.4 Watts (max)

Dimensions

- ◆ 143.75 mm x 74 mm as per ANSI/VITA 20-2001 (R2005)

Environment

- ◆ Operation: -20°C to 70°C;
-40°C to +85°C (TBD)



Enhancing Situational Awareness with Wireless

Network connectivity in a rugged environment is becoming increasingly important for better communications and increased situational awareness. The ability to connect luggable computers, manpacks and secure laptops to access points within ground vehicles, base camps or alternatively to other nodes forming ad-hoc wireless networks provides the underlying infrastructure to transmit voice, video and data between authenticated users.

Curtiss-Wright Controls' XMC-660 Multi-Function Wireless (MFW) is meant to enable secure wireless connectivity in an embedded rugged environment. With combined support for WiFi™ 802.11 n/a/b/g for communications, Zigbee™ 802.15 for asset tracking, and GPS for location services, the XMC-660 MFW is an ideal solution for systems integrators building embedded wireless networks.

Secure Wireless Interface for Embeddable Rugged Computers

The XMC-MFW also has advanced back-end cryptographic support for secure wireline communications over PCI to a basecard. As a modular building block, the XMC-660 can be mounted on a VPX3-1100 ATOMIC basecard (uses Intel ATOM® 1.6GHz processor) making this a 100mm x 160mm x 2.54mm solution that can then be embedded in a manpack as a wireless computing end node or a into a ground vehicle as an access point.

Wireless LAN - 802.11 n/a/b/g

The XMC-660 Wireless uses a dual band MIMO 2T3R chipset with PCI interface which consists of two highly integrated modules (RF and baseband/MAC ICs) that are fully compliant with IEEE 802.11n draft specification as well as IEEE 802.11 a/b/g standards that operate in the 2.5GHz and 5GHz bands.

Learn More

Sales Info: sales.cwembedded.com

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ABOVE & BEYOND



The main wireless features are:

- ♦ Optimized Base-band and RF architecture
- ♦ Wireless connectivity at high through-puts and extended range
- ♦ Reverse direction data-flow and Frame Aggression
- ♦ WEP 64/128, WPA,WPA2 support
- ♦ QoS-WMM,WMM-PS
- ♦ Wake on WLAN feature
- ♦ PCI interface with 3.3V/5V PCI I/O

This module interfaces to the underlying basecard through the PCI interface.

GPS Module - SiRF Star-III

The GPS module is a small high sensitivity solution consisting of a 20 channel GPS receiver (SiRF Star-III). It is capable of giving accurate details of the location, altitude, velocity and direction of moving objects. The module receives the spectrum signals from Medium Earth Orbiting (MEO) satellites. A low noise RF amplifier is used on the module to achieve the sensitivity below -159dBm and to withstand ESD up to 2000V.

The low noise amplifier and filters enhance the nominal sensitivity of the chip. This chip has an analog and digital section. The input GPS signal is down-converted to a low IF of ~4MHz with the aid of a PLL oscillator. This signal is converted to the digital format by ADC's. The digital section processes this with the aid of 200,000 correlators.

A low frequency RTC clock is also used to keep the system synchronized with the satellite time and offers a fast turn on and reduces computation time for valid fix of satellite signals. The time to fix is ~34 sec from cold start.

The analog and digital sections are powered by separate low noise low drop out regulators. The GPS receiver is connected through a UART channel. The UART signals are connected to the PMC IO connector (Pn4) on the XMC-660 MFW card enabling a control/management and data interface to the underlying basecard.

Wireless Zigbee - 802.15.4

The Zigbee interface on the XMC-660 MFW uses a single chip TI CC2480 processor that runs TI's Zigbee Z-Stack. The application running on the base card can make use of this ZigBee stack through APIs provided on the basecard driver. The MFW hardware interface for ZigBee includes UART for data communication and GPIO lines for configuration and control.

A UART channel is used for the ZigBee interface from the basecard with other GPIO signals (8-bit). The UART and GPIO signals are connected to the IO connector.

Figure 1: XMC-660 Block Diagram

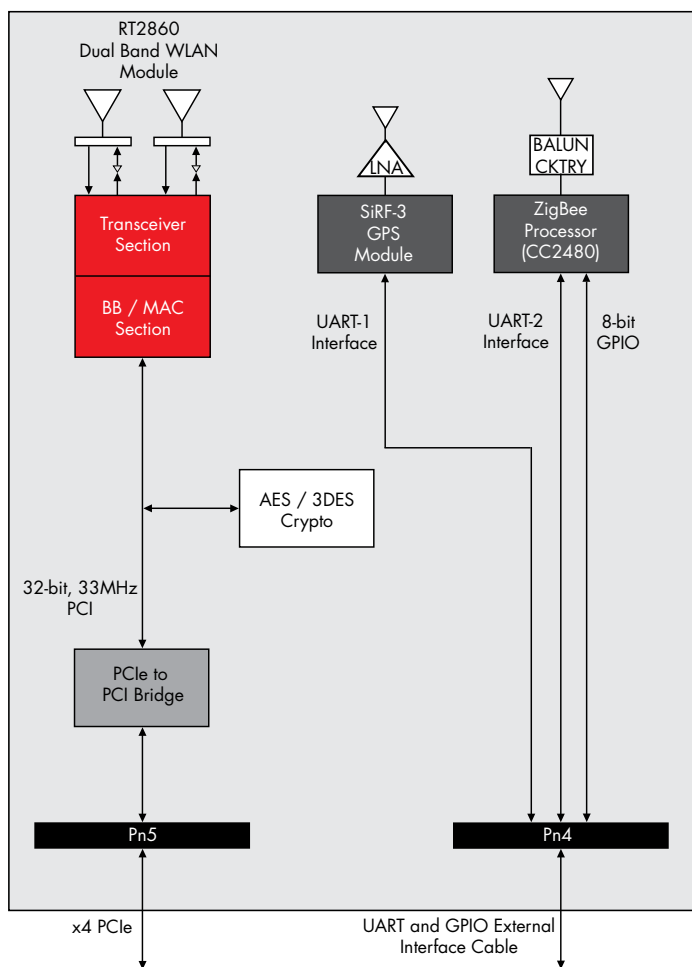


Table 1: Ordering Information

Part	Description
XMC-660-C2000	Multi-Functional Wireless XMC that supports 802.11n, GPS, Zigbee as well as cryptography for data in motion (e.g. for data that uses the ATOMIC basecard GbE ports)