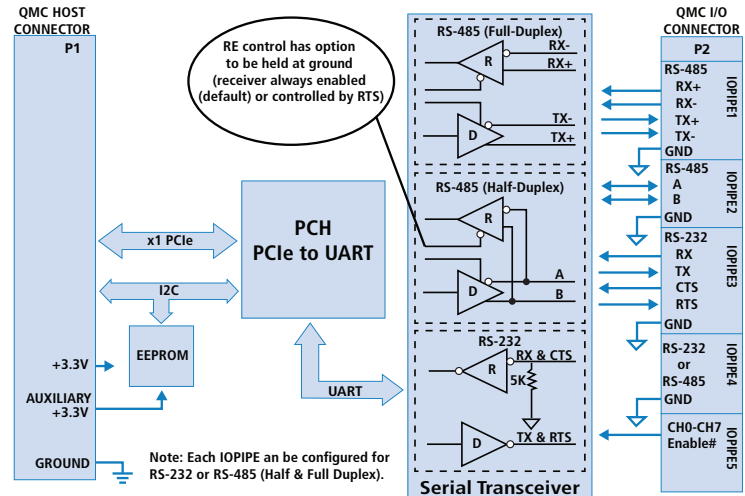
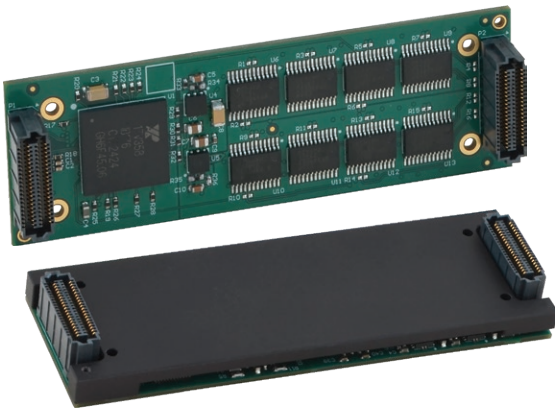


# VITA 93 QMC Modules

## QMC510 Series Serial Communication



8 Serial Communication Ports ♦ Programmable for EIA/TIA-232/422/485 ♦ 256-byte FIFO Buffers ♦ PCIe Bus Interface

### Description

QMC mezzanine modules plug into a carrier card to interface connected I/O and provide a variety of signal processing functions. Acromag QMC510 modules offer eight programmable serial ports for reliable communication with a broad range of systems. A PCIe bus interface provides communication to the carrier and host computer.

Each port is individually programmed for RS-232, RS-422, or RS-485 communication to provide optimal flexibility and utility. Software-configuration helps you quickly set baud rates, character-sizes, stop bits, and parity.

For more efficient data processing, each serial port is equipped with 256-character FIFO buffers on the transmit and receive lines. These FIFO buffers minimize CPU interaction for improved system performance.

The data ports generate individually controlled transmit, receive, line status, data set, and flow control interrupts. All interrupts can be read from a single register.

The 16-bit timer/counter uses an internal 125MHz clock. This timer supports a single-shot mode for one-time events and a re-triggerable mode for periodic signals. The timer can also generate interrupts for timeout conditions.

QMC modules adhere to the VITA 93 standard for small form factor (SFF) mezzanine modules. Two high-performance 80-pin connectors provide separate field I/O and PCIe bus host interfaces. Modules can deploy on a variety of carrier card platforms including PCIe expansion cards, 3U/6U Eurocards such as VPX and CompactPCI, VNX+ SFF cards, and many other architectures. The rugged design is well-suited for use in laboratory, industrial, defense, and aerospace applications.

QMC modules have a much smaller footprint than PMC/XMC modules. Single-width QMC modules are only 26 x 78.25mm which facilitates mixing and matching of multiple functions on a single carrier card for high-density I/O solutions. They are ideal for computing systems with strict size, weight, power, and cost (SWAP-C) limitations.

An Intelligent Platform Management Interface (IPMI) facilitates system management. The QMC EEPROM holds module information and sensor data that is accessible by a smart carrier card with an IPMC controller over an I2C interface.

### Key Features & Benefits

- Eight (octal) asynchronous serial communication ports
- Each port programmable for EIA/TIA-232-F, EIA-TIA-422B, or EIA-485
- Full/half-duplex EIA-485 line support
- 16550-compatible register set
- 256-byte transmit and receive FIFO buffers with programmable trigger levels
- Programmable baud rate (up to 20Mbps)
- Individually controlled transmit, receive, line status, and data set interrupts
- General-purpose 16-bit timer/counter
- Extended temperature range and support for conduction-cooled systems



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## Performance Specifications

### Serial Ports

#### Configuration

Eight independent, non-isolated serial ports with a common single return connection

#### Data Rate

20M bits/second, maximum

#### Max. Cable Length

1200 meters (4000 feet) typical

#### Character size

5 to 8 bits, software-programmable

#### Parity

Odd, even, or no parity; software-programmable

#### Stop bits

1, 1-1/2, or 2 bits; software-programmable

#### Data register buffers

256-byte FIFO buffer

#### Interrupts

Receiver line status (overrun, parity, framing error, or break interrupt); receive/transmit FIFO level reached or character time-out; Xon/Xoff or special character detected

### PCI Express Base Specification

Conforms to revision 2.1

#### Lanes

1 lane in each direction

#### Bus Speed

2.5 Gbps (Generation 1)

#### Memory

256k space: Base address register 0

1M space: Base address register 2

### Environmental

#### Operating temperature

Air-cooled: 0 to 70°C (200 LFM airflow)

Conduction-cooled: -40°C to +85°C

#### Storage temperature

-55 to 125°C

#### Relative humidity

5 to 95% non-condensing

#### Power

+3.3 VDC(±5%): 0.10A typical

+3.3 VDC AUX(±5%): 0.20A typical

+12 VDC(±5%): 0.28A typical

#### MTBF (Mean Time Between Failure)

Contact factory

### Physical

#### Size

Length: 78.25mm (3.08 in)

Width: 26.00mm (1.02 in)

Height: 11.00mm (0.43 in)

#### Weight

Unit weight: 11.28g (0.988 ounces)

## Ordering Information

### QMC Modules

[Go to on-line ordering page >](#)

QMC511-1111

QMC512-1111

Octal 232/422/485 serial communication,

Air-cooled (QMC511) or Conduction (QMC512)

### Carrier Cards

See [Acromag.com/QMC-Carriers](#) for a full list of QMC carrier cards.

### Software *(see software documentation for details)*

#### USW-API

Universal Embedded Design Suite with software support for VxWorks®, Windows®, and Linux®



Example QMC Module shown with attached heatsink included with conduction-cooled QMC Modules.