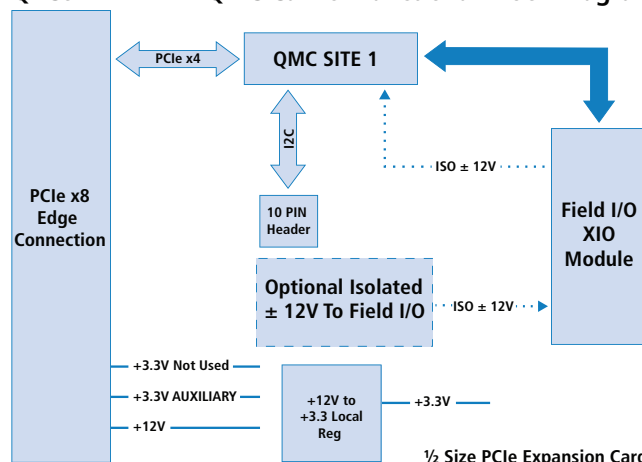


VITA 93 QMC Modules

QPCe7210 Series PCI Express Carrier Cards for QMC Modules



QPCe7211-1111 QMC Carrier Functional Block Diagram



Half-length PCIe Expansion Card ♦ One QMC Module Site ♦ Isolation Support ♦ PCIe Bus Gen 3 x4 Interface

Description

QMC carrier cards provide an electrical and mechanical interface for QMC mezzanine modules. A QMC module plugs into the carrier card to interface connected I/O and perform a variety of signal processing functions. Acromag's QPCe7210 carriers are PCIe expansion cards with a single QMC site and a high-density connector for field I/O signals. The QMC module's PCIe bus interface routes to the carrier card edge connector for communication with the host computer.

QPCe7210 carrier cards offer a variety of features to support a broad range of QMC modules. A standard 14-pin JTAG programming header facilitates programming and debugging of QMC modules equipped with an FPGA device. Fused, +3.3V, +3.3V Aux, +12V, DC power lines are available for the QMC module. An on-board fan provides direct cooling to the QMC module.

This carrier will also maintain isolation when hosting an isolated QMC module. The carrier's QMC host connector is electrically isolated from the QMC I/O connector.

QMC carrier cards adhere to the VITA 93 standard for small form factor (SFF) mezzanine modules. Two high-performance 80-pin connectors for each QMC module site provide separate field I/O and PCIe bus host interfaces. The rugged design is well-suited for use in laboratory, industrial, defense, and aerospace applications.

Use of any single-width, 26 x 78.25mm VITA 93 compliant QMC module is supported. Typical applications involve monitoring sensors and controlling equipment levels in deployed systems or for lab test and simulation projects. Other common operations include communication, networking, and signal or protocol conversion. With powerful FPGAs, GPUs and other processors, QMCs can perform image processing, adaptive filtering, sensor fusion, artificial intelligence, and machine learning functions.

Key Features & Benefits

- Half-length PCIe expansion card ideal for use with compact, rugged servers and workstations
- One QMC mezzanine site
- PCI Express Gen 3 x4 interface
- Isolated QMC support
- JTAG programming header
- Cooling fan
- Individually fused power
- Resettable Positive Temperature Coefficient (PTC) fuse on each supply line



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Performance Specifications

Carrier Card

Connectors

J1 (IO interface): QMC 80-pin male receptacle
J2 (Host interface): QMC 80-pin male receptacle
J5 (Carrier Field I/O): 68-pin 0.8mm CHAMP
P1 (PCIe Bus): Eight lanes (only four used)
P3 (I2C): 4-pin header
P4 (JTAG): 14-pin header

QMC cooling fan

40 x 40 x 6 mm, 3-pin connector
5V DC, 0.075 A, 6000 RPM, 6.3 CFM

Isolation

This carrier provides isolation between the QMC field I/O signals and the host. The QMC module must also be isolated to maintain isolation between the logic and field I/O signals. Otherwise, the field I/O connections are not isolated from the host connector and PCIe bus.

Host logic and field I/O are isolated from each other for voltages up to 250V AC or DC on a continuous basis (unit will withstand a 1500V AC dielectric strength test for one minute without breakdown).

Due to spacing between pads of the 68-pin CHAMP connector and cable, isolation between adjacent pins/signals on the front I/O is 30V.

Isolated Power

Use of an optional isolated DC/DC converter is required for use with isolated Acromag QMC modules. The isolated DC/DC converter plugs into a socket.

Compatible DC/DC isolated converters (6W, $\pm 12V$ DC, $\pm 250mA$) include:

DELTA DH06S/D Series, DH06D1212A

XP Power JCE Series, JCE0612D12

TRACO POWER, TEN 6N Series, TEN 6-1222N

PCI Express Bus Compliance

Conforms to revision 2.1

PCIe bus Interface

PCIe Gen 3 x4 lanes

Bus Speed

Up to 8.0 Gbps per lane

Environmental

Operating temperature
-10 to 70°C (200 LFM airflow)

Storage temperature
-55 to 125°C

Relative humidity
5 to 95% non-condensing

Power

For carrier board only:
+3.3 VDC ($\pm 5\%$): 0.023 A typical
+3.3 VDC AUX ($\pm 9\%$): 0.005 A typical
+12 VDC ($\pm 8\%$): 0.023 A typical

For supply to QMC module:
+3.3 VDC ($\pm 5\%$): 2.5 A typical
+3.3 VDC AUX ($\pm 9\%$): 0.1 A typical
+12 VDC ($\pm 8\%$): 0.5 A typical

NOTE: Maximum current provided to the carrier via the PCIe bus edge connector varies with each system. Refer to your system documentation.

MTBF (Mean Time Between Failure)

Contact factory

Physical

Size

Length: 167.64mm (6.60 in)
Width: 76.20mm (3.00 in)
Height: 20.32mm (0.80 in)
Board thickness: 1.575mm (0.062 in)

Weight

Unit weight: 113.83g (4.02 oz)

Ordering Information

Modules

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

QPCe7211-1111

Half-length, single QMC site carrier card

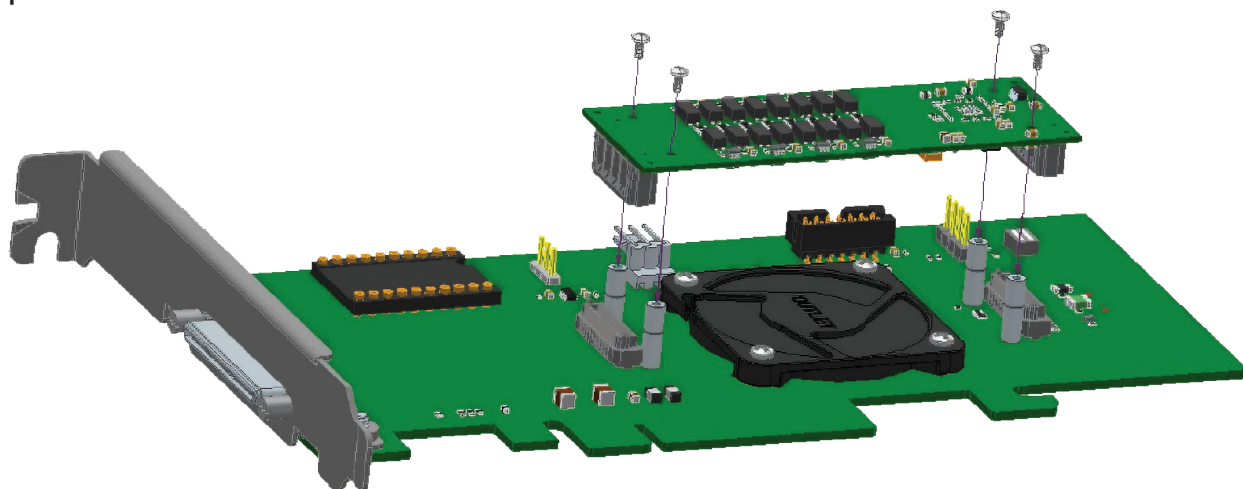
QMC Modules

See Acromag.com/QMC for a full list of QMC carrier modules.

Software *(see software documentation for details)*

USW-API

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



QMC Module Installation