

PCIe-4QMC Carrier — Four VITA 93 QMC Sites

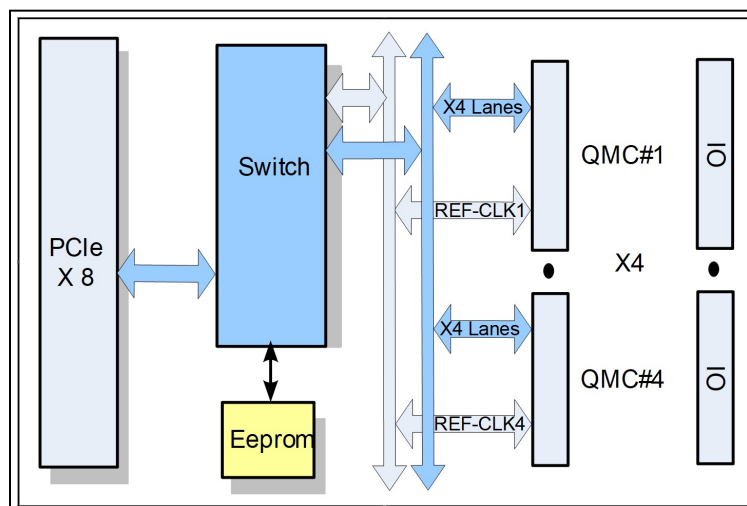
Features

- Supports up to four (4) single-width VITA® 93 QMC modules
- PCIe Gen3 x8 host interface (Gen2 fallback compatible)
- Backward compatible with PCIe r1.0a / 1.1 / 2.0
- Provides up to PCIe Gen2 x4 lanes per QMC site
- Each QMC slot (Slot 1 – Slot 4) provides a Px2 I/O interface, supporting up to 40 single-ended or 20 differential pairs per slot.
- VITA 93 dual-connector topology per site for Host and I/O
- Front-panel I/O via high-density connectors
- Per-site fused power protection
- Full-height, half-length PCIe form factor 111.15 mm (4.376 in) x 167.65 mm (6.6 in)
- Air-cooled and conduction-cooled mechanical options



Block Diagram Overview

The **ALPHI PCIe-4QMC Carrier** is a high-performance PCI Express® expansion card that hosts up to four single-width **VITA 93 (QMC)** mezzanine modules. It integrates high-speed I/O, signal-processing, and communication functions into workstation, server, or embedded PC platforms. Each QMC site connects through a dedicated PCIe Gen2 x4 interface via an on-board switch, providing exceptional throughput and modular flexibility. Air- and conduction-cooled mechanical options support deployment in both commercial and rugged environments.



Software Support:

- LabVIEW® Support
- Linux® drivers
- Windows® 10/11 drivers
- QNX® drivers
- VxWorks® drivers

Typical Applications:

For applications requiring low cost, high density I/O or unique I/O combinations, the PCIe-4QMC is the perfect solution.

For a complete list of VITA 93 QMC Modules offered by Alphi Technology please visit our WEB site at www.alphitech.com



Technical Specifications:

- Meets ANSI/VITA 93.0 (QMC) Standard
- Four single-width modules (26 × 78.25 mm)
- PCIe Gen2 x4 interface per site
- Dual high-speed Host and I/O connectors
- Differential and single-ended I/O support
- 100MHz refclk and programmable clocks
- I²C/SMBus management and FRU EEPROM
- 12V/3.3V power inputs, 25W per site typical
- Air or conduction-cooled options
- System and site-level reset control

PCIe Bus Features:

- PCI Express Gen3 x8 edge connector (Gen3 compatible)
- High-speed switch fabric to four QMC sites
- Up to 64GT/s aggregate throughput
- Transparent PCIe endpoint operation
- Hot Reset and Link Training per lane
- Compliant with PCIe Base Spec 4.0
- Backward compatible with PCIe 2.0/1.0

Operating Environment

- **Operating Temperature:**
 - Commercial: 0°C to +70°C
 - Industrial: -40°C to +85°C
- **Non-Operating Temperature:** -45°C to +125°C
- **Airflow Requirement:** 5 CFM minimum
- **Humidity:** 5% to 90% (non-condensing)
- **Altitude:** 0 – 10,000 ft

Mechanical: Environmental:

- **Form Factor:** Full-height, half-length PCIe add-in card (111 mm × 167.65 mm typ.)
- **Power:** Approx. 25W per site (typical) derived from +12V and +3.3V PCIe slot rails or auxiliary ATX power connector for full 100W support
- **Front-Panel I/O:** VHDCI connectors with jack-screw retention for secure mating
- **Vibration:** 0.5 G (RMS), 20 – 2000Hz random
- **Shock:** 20G, 11ms, ½ sine pulse
- **Weight:** 120 g (≈ 4.2oz)
- **MTBF:** > 250,000 hours (calculated)

QMC Interface Features:

- Dual-stack Molex VHDCI connectors for front-panel I/O
- High-density 68-pin per connector stack supporting differential and single-ended signals
- Routed per VITA 93 I/O map for flexible module-specific pin assignments
- Supports up to 10Gb/s per differential pair (controlled impedance routing)
- Ground shielding and strain-relief hardware for signal integrity and durability
- Compatible with air- or conduction-cooled configurations

Ordering & Options

Part Number: PCIe-4QMC

Four-Site VITA 93 QMC Carrier Board

Operating Temperature:

- C 0°C to +70°C
- I -40°C to +85°C
- CC Conformal Coated HumiSeal 1A33

Optional Accessories

Part Number :TB-68VHDCI Terminal Block 68 VHDCI to Screw Terminal

Part Number :CBL-68VHDCI-1M 68-pin VHDCI male-to-male, Cable 1m