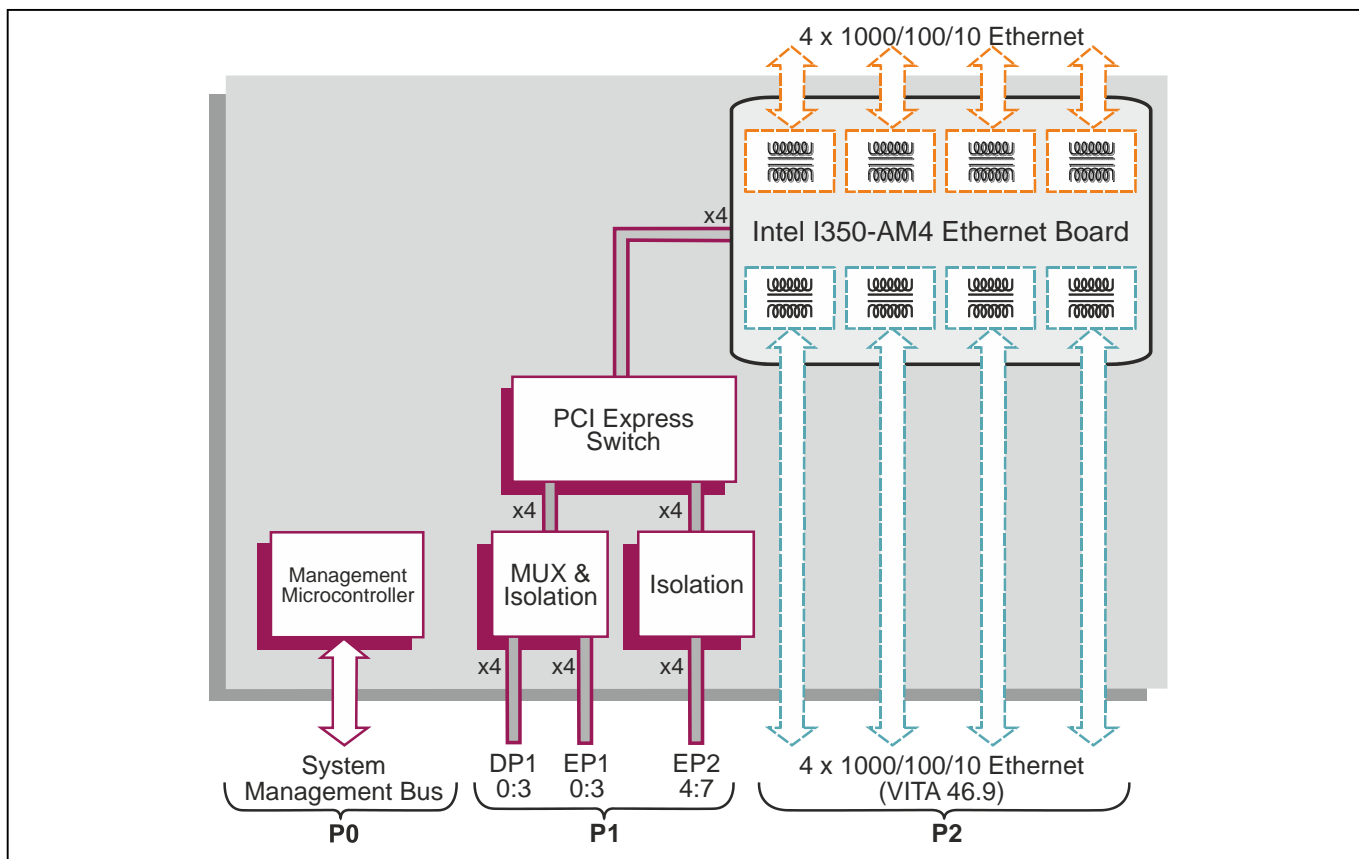## 3U VPX™ Quad-port Gigabit Ethernet Board

Key Features

BA 2TR/502 is a 3U VPX™ board with a quad-port Gigabit Ethernet controller for applications that require additional networking connectivity within a single VPX slot.

- Up to four Gigabit Ethernet ports via VPX P2 connector or front panel connectors
- PCI Express® connectivity supporting a variety of VPX backplane profiles
- Air-cooled and conduction-cooled variants available

Air-cooled variant: Quad-port Gigabit Ethernet Board

4 x 1000/100/10 Ethernet

Intel I350-AM4 Ethernet Board

PCI Express Switch

Management Microcontroller

MUX & Isolation

Isolation

System Management Bus

DP1 0:3

EP1 0:3

EP2 4:7

4 x 1000/100/10 Ethernet (VITA 46.9)

P0

P1

P2

VPX Quad-port Gigabit Ethernet Board

- 3U VPX™ Gigabit Ethernet board supports four 1000/100/10Mbps interfaces
- supports I/O map via P2 connector as per VITA 46.9
- optional Rear Transition Module (RTM)
- compatible with OpenVPX™ (VITA 65) profiles:
  - BKP3-CEN06-15.2.2-3
  - SLT3-PAY-1F2F2U
- single VPX slot (VITA 42.0)
- air-cooled or rugged conduction-cooled variants

Gigabit Ethernet Interfaces

- 4 x 1000BASE-T/100BASE-Tx/10BASE-T interfaces utilizing Intel® Ethernet Controller I350-AM4 device, supporting:
  - Intel® Virtualization Technology for Connectivity (VT-c) and PCI-SIG SR-IOV
  - 1 x4 PCI Express® Gen 2 port
- factory build options for either:
  - 4 x Ethernet interfaces with magnetics on-board (50V isolation) via P2 (VITA 46.9 mapping)
  - 4 x Ethernet RJ45 connectors on front panel
- supports IEEE 802.3ab for 1000BASE-T over Category 5e/6 UTP Cable
- supports IEEE 802.3/802.3u for 10BASE-T and 100BASE-Tx over Category 5 UTP cable
- supports Jumbo frames
- individual MAC and frame Controllers supporting the following features:
  - transmit and receive IP, TCP and UDP checksum off-loading
  - transmit TCP segmentation
  - automatic retransmission
- physical interfaces (PHY) implemented internally by the Ethernet controller supporting:
  - 1000BASE-T/100BASE-Tx/10BASE-T auto-negotiation
  - automatic polarity and MDI/MDI-X selection
  - full and half-duplex operation
- status LEDs on-board for four Ethernet ports:
  - status LED signals for two Ethernet ports via P2

VPX Backplane Interface

- P0, P1 and P2 support OpenVPX configuration
- configurable PCI Express fabric interface supports:
  - x4 PCIe port to either Data Plane 1 (DP1) or Expansion Plane 1 (EP1) (also called Data Plane 2 on some profiles)
  - x4 PCIe port to Expansion Plane 2 (EP2)
  - PCIe Gen 1, Gen 2 and Gen 3
  - port isolation from PCIe Switch
  - upstream or downstream ports
- for advanced PCIe configurations use VPX PCIe Switch Configuration software (SW VSC/001)

Electrical Specification

- typical current consumption:
  - +5V VS3 @ 0.8A, voltage +5% / -2.5%
  - +3.3V VS2 @ 0.4A, voltage +5% / -2%
  - +3.3V AUX @ 0.12A, voltage +5% / -5%
- quad Gigabit Ethernet interfaces adds a maximum of 1.7A @ +5V VPWR, voltage +5% / -5%

N, E-Series Environmental Specification

- air-cooled board
- operating temperatures:
  - VITA 47 Class AC1, 0°C to +55°C (N-Series)
  - -25°C to +70°C (E-Series)
- non-operating temperature:
  - VITA 47 Class C1, -40°C to +85°C
- operating altitude:
  - 0 to 15,000 feet (0 to 4,572 meters)
- relative humidity:
  - 5% to 95%, non-condensing

RCx-Series Environmental Specification

- conduction-cooled board (VITA 48.2)
- conformally coated
- operating temperature at card edge:
  - VITA 47 Class CC4, -40°C to +85°C
- non-operating temperature:
  - VITA 47 Class C4, -55°C to +105°C
- operating altitude:
  - -1,000 to 50,000 feet (-305 to 15,240 meters)
- relative humidity:
  - 5% to 95%, non-condensing

VPX Mechanical Specification

- 3U VPX form-factor (VITA 46.0, VITA 48.0)
- 3.9 inches x 6.3 inches (100mm x 160mm)
- connectors to VITA 46.0 for P0, P1 and P2

N, E-Series Mechanical Specification

- air-cooled slot width 1.0-inch:
- IEEE 1101.10 as per VITA 46.0
- operating mechanical:
  - shock - VITA 47 Class OS1, 20g
  - random vibration - 0.002g²/Hz

RCx-Series Mechanical Specification

- conduction-cooled slot widths (VITA 48.0):
  - 0.8 inches VPX-REDI Type 2, RCT-Series
  - 0.85 inches VPX-REDI Type 1, RCS-Series, Type 1 Two Level Maintenance (VITA 48.2)
- operating mechanical:
  - shock - VITA 47 Class OS2, 40g
  - random vibration - VITA 47 Class V3, 0.1g²/Hz

Software

- support for Linux®, VxWorks® and Windows®

System Management

- Tier 2 IPMC via SM0-1 and SM2-3:
  - board temperature and voltage monitor accessed via system management

Safety

- PCB (PWB) manufactured with flammability rating of UL94V-0

Compatible VPX System Processor Board

- 3U VPX Intel® processor based board examples:
  - TR C4x/msd board (System on Chip based on Intel® Xeon® Processor D-1500)
  - TR G4x/msd board (System on Chip based on Intel® Xeon® Processor D-1500)
  - TR E5x/msd board (6th generation Intel® Core™ Processor)
- contact your local sales office for the latest range of boards supported
- supported operating systems depend on the processor board used

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