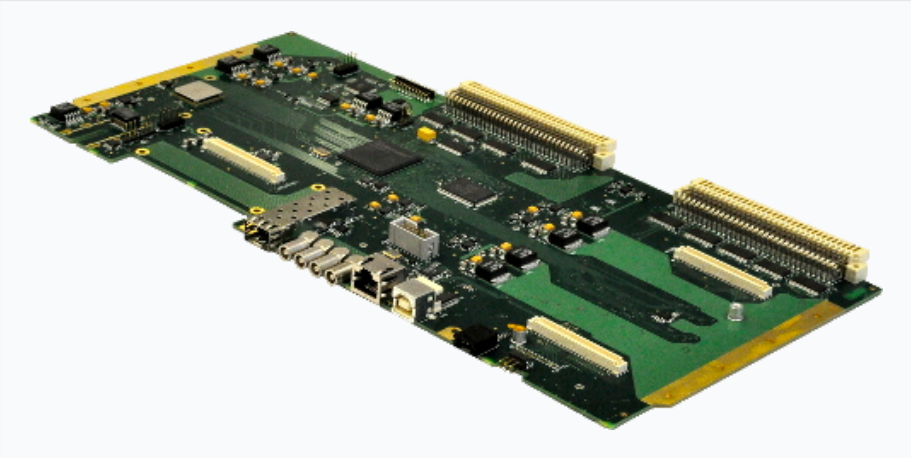
VX1394

Data Readout Module (VME Master - DAQ and Detector interfaces)



VX1394 is a VME crate controller and data readout module for Time-of-Flight (TOF) systems. It combines VME64x 2eSST readout, a Microsemi Igloo2 FPGA qualified for a few Krads total dose, and a radiation-hard 4.8 Gbps SERDES ASIC with optical transceiver for data transmission, trigger distribution and clock forwarding. An embedded Linux single-board computer mezzanine and 1.25 Gbps optical link provide slow control for monitoring board temperatures, voltages, vital parameters and physics data.

Overview

Product Highlights

- VME Master
- 2eSST readout mode
- Microsemi Igloo2 FPGA RAD Tolerant
- Linux embedded Single Board Computer Mezzanine for Slow Control
- 4.8 Gbps SERDES ASIC
- 4.8 Gbps optical transceiver

Product Description

The **VX1394** is crate controller for **Time-of-Flight (TOF) systems**.

The VX1394 board features a radiation hard 4.8 Gbps SERDES ASIC, which, in connection to a rad-hard optical transceiver implements a newer generation optical links for many detector readout systems. The ASIC performs data transmission, trigger distribution and clock forwarding towards the front-end electronics in the crate.

The heart of the VX1394 board is a commercial **FPGA** from Microsemi, an Igloo2 device, qualified for working in environments with a few Krads total dose without major problems: the FPGA manages the trigger received via SERDES link and it forwards it to the Slave boards, through the VME P2 connector. Then the VX1394 reads and encodes the data from the Slave cards via VME (using the VME64x 2eSST feature) and sends the formatted events towards the DAQ via the SERDES link.

The VX1394 card also performs a **slow control function** for spying temperatures, voltages, vital parameters of the board and for monitoring physics data. Slow control links are implemented via an on-board ARM processor Ethernet link and via a 1.25 Gbps optical fiber using the Igloo2 FPGA internal serializer / deserializer (SERDES).

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Ordering Information (continued)

The board can work in a moderately hostile environment, with expected total dose of 0.13 krads in 10 years and a flux of 0.26 kHz/cm^2 of hadrons with energy above 20 MeV.

ORDERING CODE	DESCRIPTION
WVX1394XAAAA	VX1394 DRM2 ALICE

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Related Products

A4818 — USB 3.0 to CONET2 Adapter

A5818 — CONET2 Controller based on PCI Express Gen 3 interface

V3718 — VME to USB 2.0 / Optical Link Bridge

V4718 — VME to USB 3.0/Ethernet/Optical Link Bridge

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