VPX
(OpenVPX)

FR 331/x06
N - Series

Fabric Switch Board - 3U OpenVPX (VITA 65) PCI Express (VITA 46.4) and Ethernet (VITA 46.6)

3U VPX Fabric Switch Board

APPLICATIONS

The FR 331/x06 is a 3U OpenVPX™ fabric switch board with a x4 PCI Express™ data plane (VITA 46.4) and a 1000 Base-BX control plane (VITA 46.6) per payload board. The FR 331/x06 is designed for use in VPX PCI Express Backplane environments and supports up to six payload boards, two additional Ethernet ports and a configuration control interface. The FR 331/x06 is suitable for use in centralized switching systems as defined in OpenVPX (VITA 65). For rugged applications two VPX-REDI conduction-cooled versions are available, the FR 331/306-RCS is VPX-REDI Type 1 Two-Level Maintenance conduction-cooled board and the FR 331/306-RCT is VPX-REDI Type 2. Typical applications include networking equipment, data management and blade-based servers in vertical markets such as defense, communications, medical and automation.

HIGHLIGHTS

- 3U VPX (VITA 46.0) N-Series switch fabric board:
  - rear I/O compatible with the VPX-REDI RCx-Series
  - air-cooled
  - 0°C to +55°C operating temperature
  - use in commercial (non-rugged) applications
  - 3U VPX 0.8-inch or 1.0-inch slot
- 3U OpenVPX fabric switch board:
  - for use in PCI Express™ Backplane environments
  - supports six payload boards
  - x4 PCI Express (Gen1 or Gen2) data plane (VITA 46.4)
  - utilizing non-transparent/transparent PCI bridges
  - supports two DMA engines
  - 1000 Base-BX unmanaged control plane (VITA 46.6)
  - compatible with OpenVPX (VITA 65) module profiles
- 2 x Gigabit Ethernet ports:
  - one via front panel and one via VPX P2 connector
- Switch configuration using serial port via front panel and rear panel:
  - used with Fabric Switch Configuration software tool
- Configuration data EEPROMs for:
  - board configuration data
  - both PCI Express and Ethernet switch configuration data
- Ruggedized conduction-cooled versions (RCx-Series):
  - conduction-cooled to VITA 48.2
  - -40°C to +85°C operating temperature (at card edge)
  - conformally coated
- Compatible with a range of Single Board Computers:
  - TR A40/x0x, Intel® Atom™ processor
  - TR 501/x6x, Intel® Core™ 2 Duo processor
  - TR 80x/x9x, 2nd gen Intel® Core™ i7 processor
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CONCURRENT TECHNOLOGIES

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Specification

VPX Fabric Switch Board

- 3U VPX (N-Series) fabric switch board:
  - x4 PCI Express™ (Gen 1 or Gen 2) data plane (VITA 46.4)
  - 1000 Base-BX control plane (VITA 46.6)
  - air-cooled
- compatible with OpenVPX (VITA 65) module profiles
- for ruggedized VPX-REDI (RCx-Series) versions:
  - conduction-cooled to VITA 48.2
  - -40°C to +85°C at card edge
  - conformally coated
  - see FR 331/306-RCx datasheet

Data Plane Switch

- 6-port VITA 46.4 data plane switch:
  - for use with PCI Express Fabric VITA 46.4 backplanes
  - option to configure setup via RS232 port
- high performance PCI Express switch:
  - implemented by PCI Express 32-lane single-chip switch
  - x4 PCI Express links
  - support for Gen 1 or Gen 2
  - transparent and non-transparent bridge functionality on each port
  - provides two DMA engines for two ports
- EEPROM storage for switch configuration data

Control Plane Switch

- 6-port VITA 46.6 control plane switch:
  - for use with 1000 Base-BX VITA 46.6 backplanes
  - unmanaged Ethernet switch
  - option to configure setup via RS232 port
- high performance IEEE 802.1 switch:
  - implemented by 10-port single-chip switch
  - full line rate Layer 2 switching engine
  - 8K MAC address cache with automatic learning and aging
- EEPROM storage for switch configuration data

Switch Configuration Setup

- RS232 serial port providing PCI Express switch and Ethernet switch configuration setup:
  - EEPROM for storing PCI Express switch setup
  - EEPROM for storing Ethernet switch setup
  - implemented by microcontroller
- 1 x RS232 serial port via front and via VPX P1 connector
- Fabric Switch Configuration software:
  - see separate SW FSC/001 datasheet

Switch Status Indicators

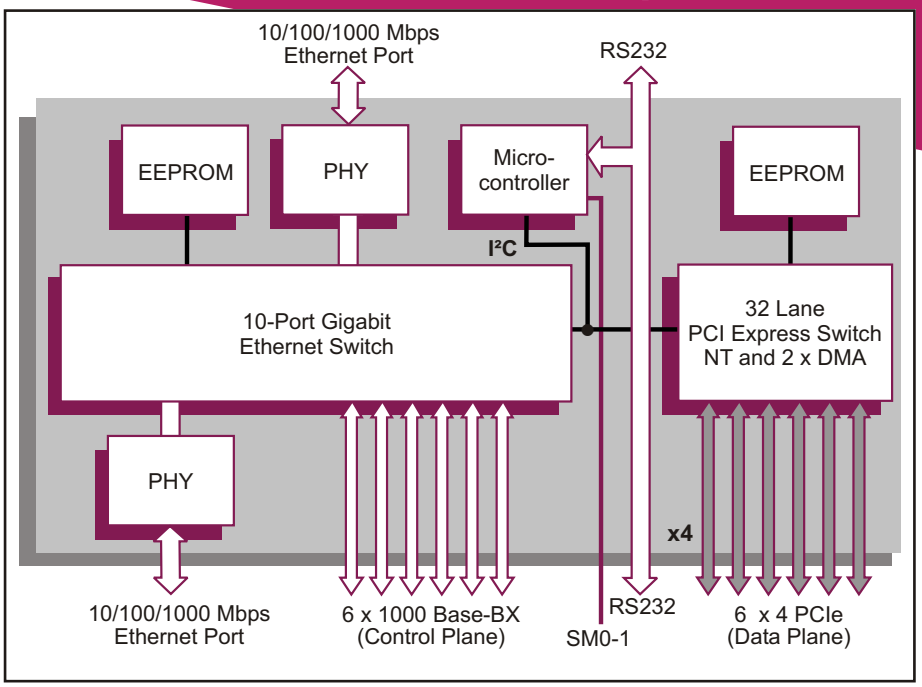
- front panel, VPX N-Series only:
  - Link/Activity LEDs for all VPX backplane 1000 Base-BX ports
  - LinkUp/Active status LEDs for all PCI Express ports

System Management Interface

- System Management interface:
  - implements SM0-1 hardware
- on-board System Management Controller
  - supports 8 Kbytes of non-volatile memory

Ethernet Interfaces

- 2 x Gigabit Ethernet ports, VPX N-Series:
  - one via front panel and one via VPX P2 connector



Concurrent Technologies SBC Supported

- a range of Concurrent Technologies Single Board Computers supported:
  - TR A40/x0x, Intel® Atom™ processor
  - TR 501/x6x, Intel® Core™ 2 Duo processor
  - TR 80x/x9x, 2nd gen Intel® Core™ i7 processor
- operating system drivers supported
- contact your local sales office for the latest range of boards and operating systems supported

Electrical Specification

- typical current figures:
  - +5V@ 1.5A, voltage +5% / -2.5%
  - +3.3V@ 1.8A, voltage +5% / -2%

Safety

- PCB (PWB) manufactured with flammability rating of 94V-0

Environmental Specification

- operating temperature:
  - VITA 47 Class AC1, 0°C to +55°C
  - air-cooled
- storage temperature:
  - VITA 47 Class C1, -40°C to +85°C
- operating altitude:
- 0 to 15,000 feet (0 to 4,572 meters)
- 5% to 95% Relative Humidity, non condensing (operating/storage)

Mechanical Specification

- 3U VPX form-factor (VITA 46.0, VITA 48.0): 3.9 inches x 6.3 inches (100mm x 160mm)
- optional slot widths :
  - 0.8-inch (VITA 46.0)
  - 1.0-inch (IEEE 1101.10 as per VITA 46.0)
  - 1.0-inch (VITA 48.0 as per VITA 65)
- connectors to VITA 46.0, P0, P1 and P2
- operating mechanical:
  - shock - VITA 47 Class OS1, 20g
  - random vibration - 0.002g²/Hz

ORDERING INFORMATION

Order Number	Product Description (Hardware)
FR 331/x06-11	6-port PCI Express Fabric Switch, 3U VPX, N-Series

SW FSC/001-L0 Fabric Switch Configuration Tool

For further information on the VPX (N-Series) and VPX-REDI (RCx-Series) boards please contact your local sales office.

Datasheet Code 1638/0612