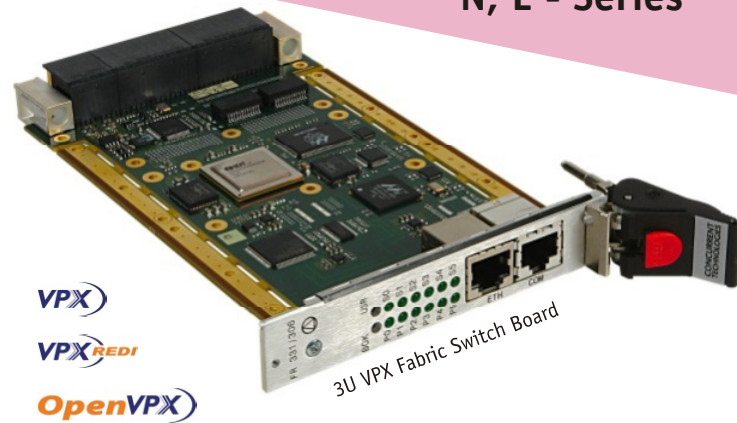


## 3U VPX Fabric Switch Board



### APPLICATIONS

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. FR 331/x06 is designed for use in centralized switching systems as defined in the OpenVPX specification (VITA 65) and supports up to six payload boards. An easy to use configuration tool is available to set up Ethernet and PCI Express features such as VLAN and

non-transparent bridging, these configuration parameters are then stored in a Flash device for deployment operation. Concurrent Technologies offers a range of 3U VPX processor cards that are verified to inter-operate with FR 331/x06 designed to speed up development times. Conduction-cooled variants of FR 331/x06 are also available for rugged deployments.

### HIGHLIGHTS

- 3U VPX (VITA 46.0) fabric switch board:
  - 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
- Commercial versions (N-Series, E-Series)
  - N: 0°C to +55°C
  - E: -25°C to +70°C
- Rugged conduction-cooled VPX-REDI versions (RCx-Series)
- FR 331/x06 is compatible with a range of Concurrent Technologies single board computers

## VPX Fabric Switch Board

- 3U VPX 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 rugged 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

## VPX 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

## VPX 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

## LED Status Indicators

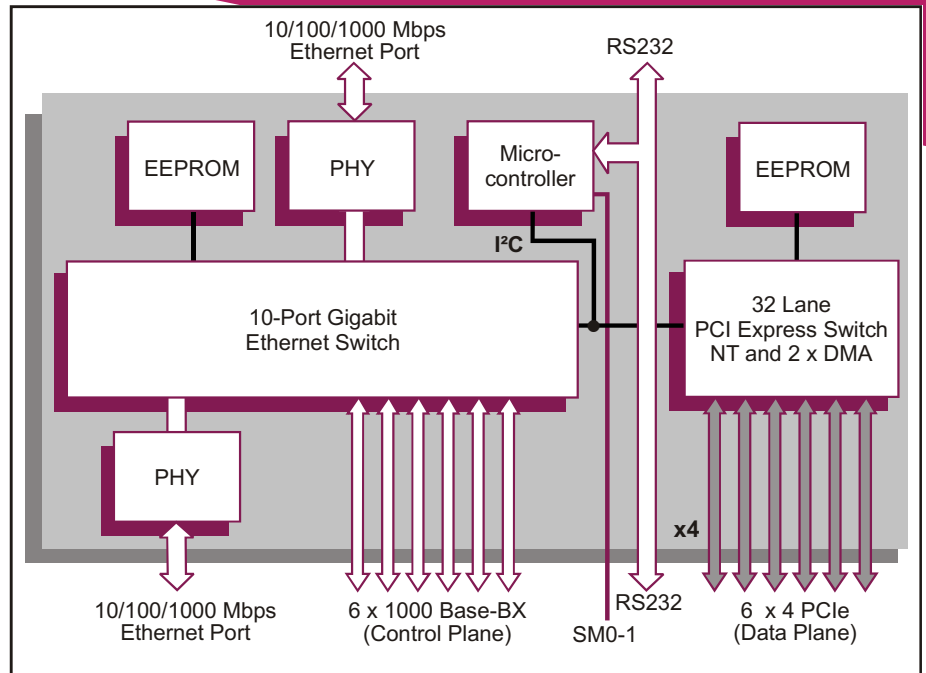
- front panel LED status indicators:
  - Link/Activity LEDs for all VPX backplane 1000 BASE-BX ports
  - LinkUp/Active status LEDs for all PCI Express ports

## 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:
  - one via front panel
  - one via VPX P2 connector



## Concurrent Technologies SBC Supported

- FR 331/x06 is compatible with a range of Concurrent Technologies single board computers (SBC)
- contact your local sales office for further details

## 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 UL94V-0

## Environmental Specification

- operating temperature (N-Series):
  - VITA 47 Class AC1, 0°C to +55°C
- extended operating temperature (E-Series):
  - -25°C to +70°C
- air-cooled
- non-operating 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

## 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 - 0.002g<sup>2</sup>/Hz

## ORDERING INFORMATION

Order Number	Product Description
FR 331/x06-11	6-port PCI Express Fabric Switch, 3U VPX
SW FSC/001-L0	Fabric Switch Configuration Tool

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