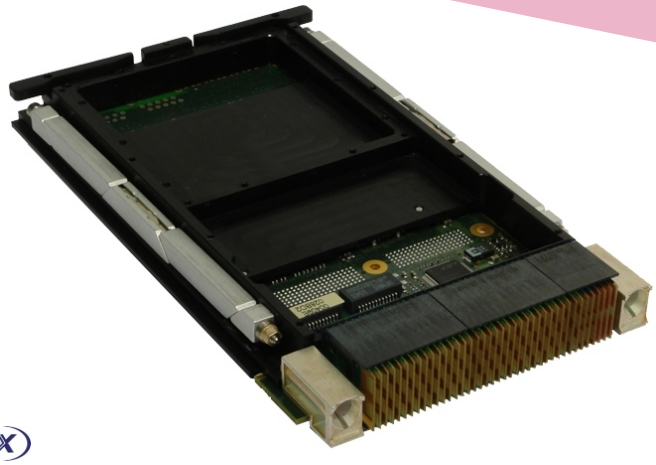
VPX-REDI
(OpenVPX)

FR 331/306-RCx

RCS, RCT - Series

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



VPX

VPX REDI

OpenVPX

APPLICATIONS

The FR 331/306-RCx 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 331/306-RCx is designed for use in VPX-REDI PCI Express Backplane environments supporting six payload boards, two additional Ethernet ports and a configuration control interface. The FR 331/306-RCx is suitable for use in centralized switching systems as defined in OpenVPX (VITA 65). The FR 331/306-RCS is a VPX-REDI Type 1 Two-Level Maintenance conduction-cooled board and the FR 331/306-RCT is VPX-REDI Type 2. For non-rugged applications a VPX version, the FR 331/x06, is available. Typical applications include networking equipment, data management and blade-based servers in vertical markets such as defense, communications, medical and automation.

HIGHLIGHTS

- 3U VPX-REDI (VITA 48.0) RCx-Series switch fabric board:
  - rear I/O compatible with the VPX N-Series
  - conduction-cooled to VITA 48.2
  - conformally coated
  - -40°C to +85°C operating temperature (at card edge)
  - RCS-Series supports VPX-REDI Type 1 Two Level Maintenance in 3U VPX-REDI 0.85-inch slot
  - RCT-Series supports VPX-REDI Type 2 in 3U VPX-REDI 0.8-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
- Gigabit Ethernet port
- Switch configuration via serial port:
  - used with Fabric Switch Configuration software tool
- Configuration data EEPROMs for:
  - board configuration data
  - both PCI Express and Ethernet switch configuration data
- Non-ruggedized air-cooled versions (N-Series):
  - rear plug compatible with the ruggedized versions
  - useful for bench development
  - use in commercial (non-rugged) applications
- Supports range of Concurrent Technologies Single Board Computers:
  - TR A40/30x-RCx, Intel® Atom™ processor
  - TR 501/36x-RCx, Intel® Core™ 2 Duo processor
  - TR 80x/39x-RCx, 2nd gen Intel® Core™ i7 processor

CONCURRENT TECHNOLOGIES

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VPX-REDI Fabric Switch Board

- ruggedized 3U VPX-REDI (RCx-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)
  - conduction-cooled (VITA 48.2)
  - conformally coated
- range of OpenVPX (VITA 65) module profiles
- for non-ruggedized VPX (N-Series) versions:
  - commercial air-cooled
  - see FR 331/x06 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 IDT PES32NT8AG2 PCI Express 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
- 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 Marvell® Prestera™ 98DX106 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 rear panel
- Fabric Switch Configuration software:
  - see separate SW FSC/001 datasheet

System Management Interface

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

Ethernet Interface

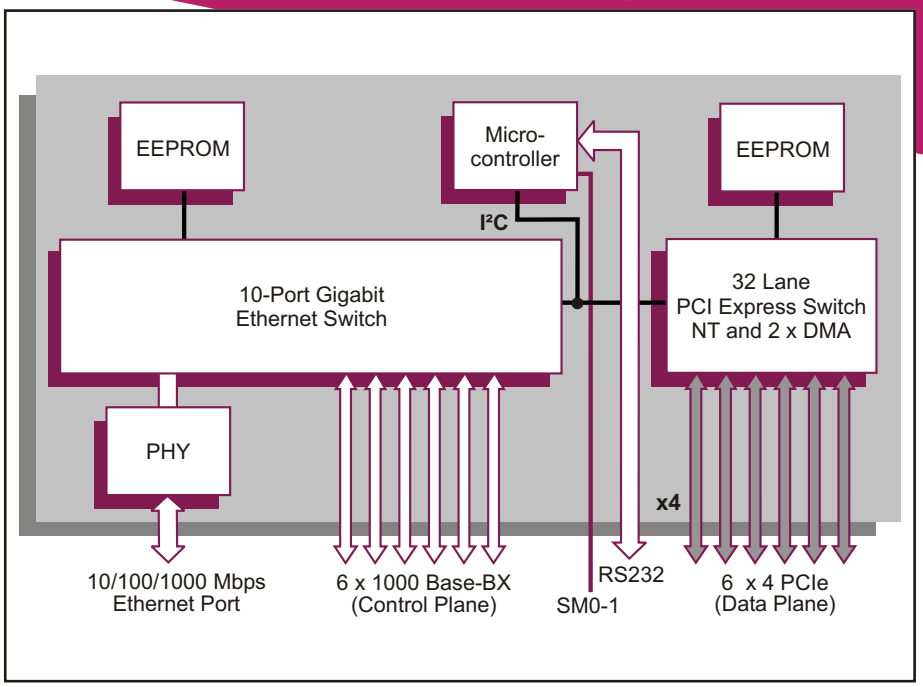
- 1 x Gigabit Ethernet port via rear panel

Concurrent Technologies SBC Supported

- a range of Concurrent Technologies Single Board Computers supported:
  - TR A40/30x-RCx, Intel® Atom™ processor
  - TR 501/36x-RCx, Intel® Core™ 2 Duo processor
  - TR 80x/39x-RCx, 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 CC4, -40°C to +85°C (at card edge)
  - conduction-cooled (VITA 48.2)
- storage temperature:
  - VITA 47 Class C4, -55°C to +105°C
- operating altitude:
  -1,000 to 50,000 feet (-305 to 15,240 meters)
- 5% to 95% Relative Humidity, non condensing` (operating/storage)

Mechanical Specification

- 6U VPX form-factor (VITA 46.0, VITA 48.0)
  9.2 inches x 6.3 inches (233mm x 160mm)
- 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)
- connectors to VITA 46.0, P0, P1 and P2
- operating mechanical:
  - shock - VITA 47 Class OS2, 40g
  - random vibration - VITA 47 Class V3, 0.1g²/Hz

ORDERING INFORMATION

Order Number	Product Description (Hardware)
FR 331/306-13RCS	6-port PCI Express Fabric Switch, 3U VPX-REDI Type 1, RCS-Series
FR 331/306-13RCT	6-port PCI Express Fabric Switch, 3U VPX-REDI Type 2, RCT-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 1653/0612