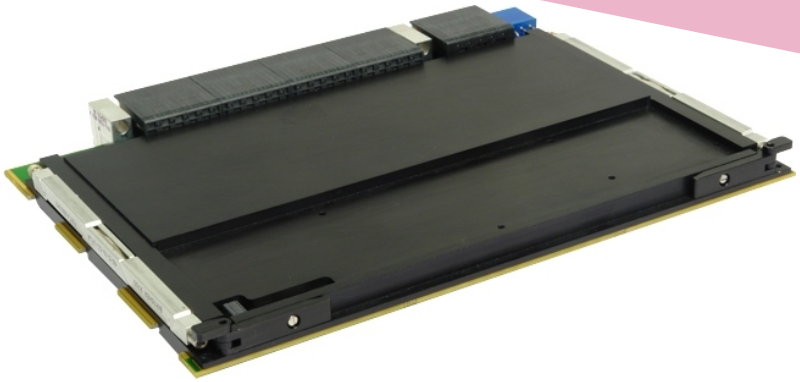
VXS
Ruggedized

FX 322/0xx-RC

RC - Series

VXS Switch Board - PCI Express (VITA 41.4) and Ethernet (VITA 41.6) Rugged Conduction-Cooled



APPLICATIONS

The FX 322/0xx-RC is a ruggedized conduction-cooled, Gen1/Gen2, 4-Lane PCI Express® Switch Board for use in VXS VITA 41.4 Switched Serial Backplane environments. The FX 322/0xx-RC provides a data plane with up to eighteen x4 PCI Express payload boards, a control plane with up to eighteen 1000 Base-BX ports (as per VITA 41.6) and an inter-switch interface. This VXS fabric switch gives the end-user higher bandwidth and lower latency while maintaining backward compatibility within a VME ecosystem. The PCI Express and Gigabit Ethernet fabrics provide switching for a dual star topology allowing boards within the system to communicate. The Ethernet fabric also enables interconnection between legacy VME boards. The FX 322/0xx-RC is rear I/O plug compatible with the commercial air-cooled versions. This switch board is suitable for a range of applications within the defense, industrial control, telecomms, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- Ruggedized VXS PCI Express™ switch board:
  - supporting 6, 12 or 18 payloads
  - conduction-cooled to IEEE 1101.2
  - -40°C to +85°C operating temperature (at card edge)
  - conformally coated
  - utilizing non-transparent/transparent bridges
  - for use in PCI Express Backplane environments
- x4 PCI Express (Gen1 or Gen2) data plane (VITA 41.4) with DMA
- 1000 Base-BX unmanaged control plane (VITA 41.6)
- Inter-switch ports for interconnecting switch boards:
  - two PCI Express inter-switch ports
  - four 1000 Base-BX inter-switch ports
- Link/Activity status LEDs on all ports
- Non-volatile EEPROM storage provides board configuration data per port:
  - Ethernet switch configuration data
  - PCI Express configuration data
- air-cooled versions (N, E and K-Series):
  - N: 0°C to +55°C, commercial, non-ruggedized
  - E: -25°C to +75°C, extended, non-ruggedized
  - K: -40°C to +85°C, humidity-sealed, non-ruggedized
- Serial port interface for operator setup
- Fabric Switch Configuration software
- Single slot, 6U VXS form factor

CONCURRENT TECHNOLOGIES

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Ruggedized Ethernet Switch

- supporting 6, 12 or 18 payloads in VXS backplane
- supports VITA 41.4 and VITA 41.6 fabric interfaces
- conduction-cooled to IEEE 1101.2
- conformally coated
- for commercial air-cooled versions - see separate FX 322/0xx datasheet:
  - → rear plug compatible

VXS Data Plane Switch

- 6, 12 or 18-port VITA 41.4 data plane switch:
  - → for use with VITA 41.4 PCI Express® fabric backplanes
  - → x4 PCI Express lanes
  - → support for Gen 1 or Gen 2 (see Note 1)
  - → DMA support on each port
  - → transparent and non-transparent bridge functionality on each port
- EEPROM storage for user configuration data

VXS Control Plane Switch

- 6, 12, or 18-port unmanaged Ethernet switch:
  - → for use with VITA 41.6, 1000 Base-BX control plane
- high performance IEEE 802.1 switch:
  - → implemented by Marvell® Prestera™ 98DX240 single-chip switch
  - → full line rate Layer 2 switching engine
  - → 8K MAC address cache with automatic learning and aging
- EEPROM storage for user configuration data

System Management

- configuration and setup interface:
  - → implemented by microcontroller
  - → operator controlled via onboard serial header
  - → configuration data retained in EEPROM
- non-volatile EEPROM storage provides board configuration data per port:
  - → Ethernet switch configuration data
  - → PCI Express configuration data
- inter-switch ports for interconnecting switch boards:
  - → two PCI Express inter-switch ports
  - → four 1000 Base-BX inter-switch ports
- Fabric Switch Configuration software:
  - → see separate SW FSC/001 datasheet

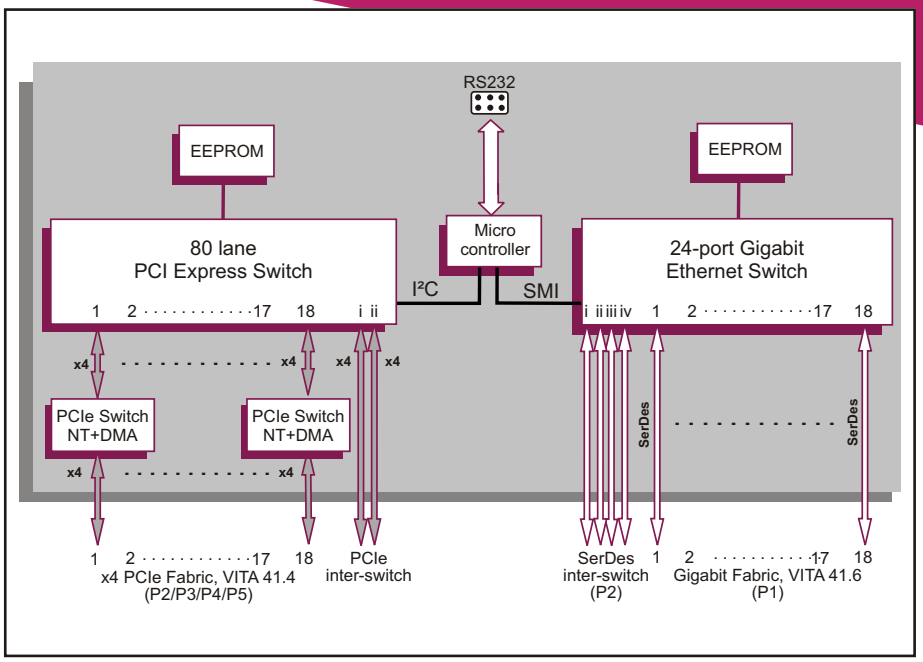
Electrical Specification

- typical current figures with 18 ports (Gen 1 PCI Express):
  - → +5V @ 9.7A, voltage +5%/-3%
- +3.3V, +12V and -12V supplies are not required

Safety

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

Note 1. VXS Data Plane Switch: Reliable PCI Express Gen 2 rates may depend on the backplane used



Environmental Specification

- operating temperature (at card edge):
  - → VITA 47 Class CC4, -40°C to +85°C
  - → conduction-cooled
- 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 form-factor
- single slot, front panel width 0.8 inch (20.3mm)
- utilizes 160-way connectors for P1 and P2
- IEEE 1101.10 handles
- operating mechanical:
  - → shock - VITA 47 Class OS2, 40g
- random vibration - VITA 47 Class V3, 0.1g²/Hz

ORDERING INFORMATION

Order Number	Product Description (Hardware and Software)
FX 322/006-10RC	6-port VXS PCI Express and Ethernet Fabric Switch
FX 322/012-10RC	12-port VXS PCI Express and Ethernet Fabric Switch
FX 322/018-10RC	18-port VXS PCI Express and Ethernet Fabric Switch
SW FSC/001-L0	Fabric Switch Configuration software

Please contact your local sales office for commercial air-cooled boards

Datasheet Code 1698/0813