

## VXS Switch Board - PCI Express (VITA 41.4) and Ethernet (VITA 41.6)



### APPLICATIONS

The FX 322/0xx is a Gen1/Gen2, 4-Lane PCI Express™ Switch Board for use in VXS VITA 41.4 Switched Serial Backplane environments. The FX 322/0xx 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 as well as access to an outside local area network. Options for extended temperature boards or ruggedized boards are available. The FX 322/0xx is suitable for a range of applications within the defense, industrial control, telecomms, telemetry, scientific and aerospace markets.

### HIGHLIGHTS

- VXS PCI Express™ switch board:
  - supporting 6, 12 or 18 payloads
  - utilizing non-transparent/transparent bridges
  - x4 PCI Express (Gen1 or Gen 2) data plane (VITA 41.4) with DMA
  - 1000 Base-BX unmanaged control plane (VITA 41.6)
  - for use in PCI Express Backplane environments
- 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
- Extended temperature versions:
  - -25°C to +70°C (E-Series)
  - -40°C to +85°C (K-Series, includes humidity sealant)
- Ruggedized conduction-cooled versions (RC-Series):
  - conduction-cooled to ANSI/VITA 30.1-2002
  - -40°C to +85°C, conformally coated
  - see separate FX 322/0xx-RC datasheet
- Ruggedized air-cooled versions (RA-Series):
  - -40°C to +75°C, conformally coated
  - see separate FX 322/0xx-RA datasheet
- Terminal interface for operator setup
- Fabric Switch Configuration software
- Single slot, 6U VXS form factor

## 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
  - DMA support on each port
  - transparent and non-transparent bridge functionality on each port
- EEPROM storage for user configuration data

## 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® Presteria™ 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 front panel serial port or 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 (estimated)

- +5V@10A (typical, with 18 ports), voltage +5%/-3%
- +3.3V, +12V and -12V supplies are not required

## Safety

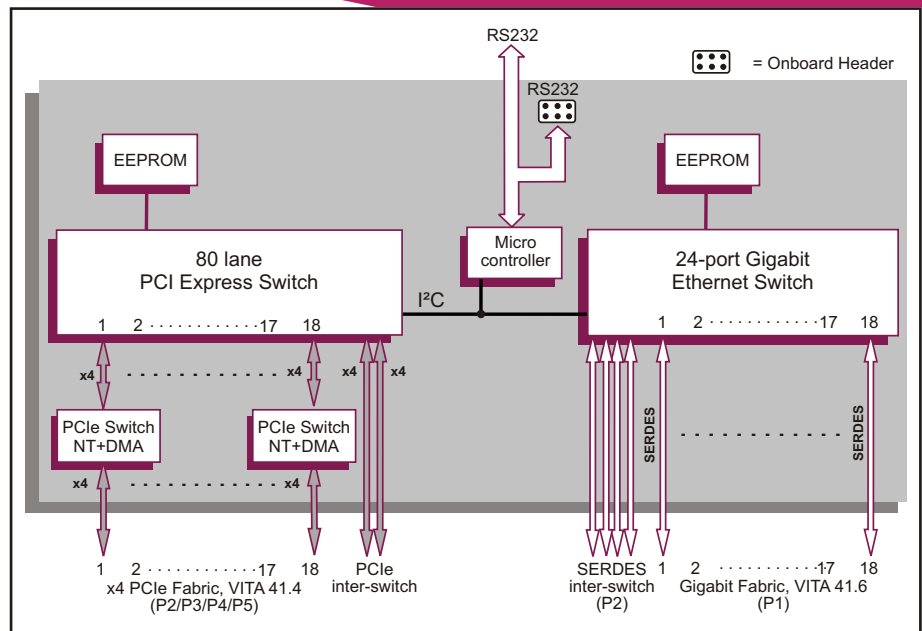
- PCB (PWB) manufactured with flammability rating of 94V-0

## Environmental Specification

- operating temperatures:-
  - 0°C to +55°C (N-Series)
  - -25°C to +70°C (E-Series)
  - -40°C to +85°C (K-Series)
- storage temperature: -40°C to +85°C
- 5% to 95% Relative Humidity, non condensing (operating or storage):-
  - K-Series includes humidity sealant
- ruggedized versions, see separate datasheets:-
  - conduction-cooled: FX 322/0xx-RC
  - air-cooled: FX 322/0xx-RA

## Mechanical Specification

- 6U form factor: 9.2 inches x 6.3 inches (233mm x 160mm)
- single slot: 0.8 inches (20.3mm)
- operating shock: 20g, 11ms, ½ sine
- operating vibration: 5Hz-2000Hz at 2g, 0.38mm peak displacement



## ORDERING INFORMATION

### Order Number Product Description (Hardware and Software)

FX 322/006-10	6-port VXS PCI Express Fabric Switch
FX 322/012-10	12-port VXS PCI Express Fabric Switch
FX 322/018-10	18-port VXS PCI Express Fabric Switch

SW FSC/001-L0 Fabric Switch Configuration Tool

For extended temperature or ruggedized boards please contact your local sales office