

10/100/1000 Ethernet Switched Fabric Board, Rugged Conduction-Cooled



APPLICATIONS

The FP 110/019-RC is an entry-level 24-port 10/100/1000Mbps ruggedized conduction-cooled Ethernet Switched Fabric Board for use in PICMG® 2.16 and VITA 31.1 Packet Switched Backplane environments. It supports up to nineteen node boards and a fabric to fabric link. It offers high speed, full line rate Layer 2 switching fabric on all Ethernet ports. Quality of Service (QoS) operation is supported with four priority queues and a variety of traffic classes for time-critical and

multimedia traffic. System monitoring is provided by the PICMG 2.9 compliant IPMI subsystem, supporting the IPMB0 serial management bus. The board operates in temperatures ranging from -40°C to +85°C. Commercial air-cooled versions are available and ruggedized air-cooled versions are planned. Typical applications include networking equipment, voice over IP (VoIP) and blade-based servers.

HIGHLIGHTS

- 20-port 10/100/1000Mbps Ethernet Switched Fabric Board:
 - compatible with PICMG 2.16 Packet Switched Backplane (PSB)
 - 19 PSB Ethernet ports for PSB node boards
 - PSB Ethernet port for fabric board interconnect link
- Low cost, low power, high performance switched fabric:
 - full line rate Layer 2 switching engine
 - supports up to 8K MAC addresses with automatic learning and aging
- Auto-negotiation on all Ethernet ports:
 - 1000Mbps full-duplex
 - 10/100Mbps full-duplex and half-duplex
- Speed and Link/Activity status LEDs on all Ethernet ports
- Non-volatile EEPROM storage for board and Ethernet switch configuration data
- Fabric Switch Configuration software
- Hardware support for Quality of Service (QoS):
 - 4 priority queues per port
 - variety of classification services
 - fixed priority or weighed packet streams
- IPMI (Intelligent Platform Management Interface):
 - PICMG 2.9 (System Management Specification)
 - access to network management registers
- Ruggedized air-cooled version (RA-Series) planned:
 - -40°C to +75°C, and conformally coated
 - see separate FP 110/019-RA datasheet
- Non-ruggedized air-cooled versions available:
 - rear plug compatible with the ruggedized version
 - useful for bench development
 - use in commercial (non-rugged) applications
 - see separate FP 110/019 datasheet
- Supports hot insertion and removal
- Single slot, 6U CompactPCI form factor

Ruggedized Ethernet Switch

- CompactPCI® or VME backplanes
- conduction-cooled to IEEE 1101.2
- conformally coated

Ethernet Switched Fabric

- 20-port 10/100/1000Mbps Ethernet Switched Fabric board:-
 - for use with PICMG® 2.16 and VITA 31.1 Packet Switched Backplanes (PSB)
 - for use with non-PICMG 2.16 CompactPCI backplanes
- high performance Ethernet Switched Fabric:-
 - implemented by Marvell® Prestera® 98DX240 single-chip switch
 - full line rate Layer 2 switching engine
 - 8K MAC address cache with automatic learning and aging
- auto-negotiation on all ports:-
 - 1000Mbps full-duplex
 - 10/100Mbps full-duplex and half-duplex
- EEPROM storage for user configuration data
- Fabric Switch Configuration software:-
 - see separate SW FSC/001 datasheet

Backplane Interfaces

- compatible with CompactPCI® Packet Switched Backplane (PSB):-
 - conforms to the relevant sections of PICMG 2.16 R1.0
 - support for geographic address (GA) on J2
- compatible with ANSI/VITA 31.1-2003 Gigabit Ethernet on VME64x backplanes
- 19 PSB Ethernet ports for PSB node boards
- Ethernet port for linking with second fabric board:-
 - enables redundant fabric board
- J1, J2, J3 and J5 connectors fitted as standard

System Management

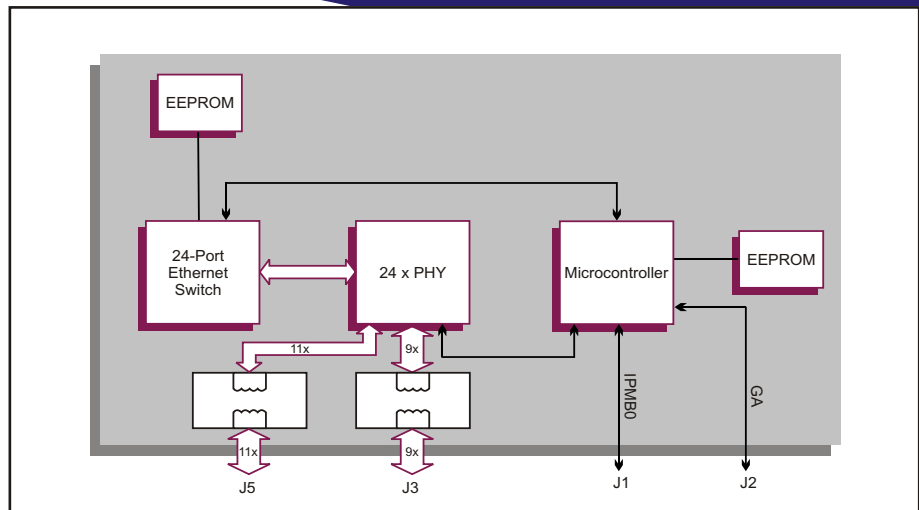
- board health and status management:-
 - conforms to PICMG® 2.9 R1.0 (System Management Specification)
 - implements the IPMB0 interface on J1
 - microcontroller-based Peripheral Management Controller
 - EEPROM for Field Replaceable Unit (FRU) and Sensor Data Record (SDR) storage
- hot swap insertion and removal

Quality of Service (QoS)

- supports prioritized packet streams for management of voice, video and data
- 4 hardware priority queues per port
- fixed priority or weighted fair queuing
- QoS traffic classification, determined by:-
 - port ID
 - IEEE 802.1p multimedia traffic tags
 - IPv6 Traffic Class

Electrical Specification

- +5V (+5%/-3%) @ 3.8A
- +12V (+5%/-5%) @ 0.01A (maximum)
- +3.3V and -12V supplies are not required



Safety

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

Environmental Specification

- operating temperatures (VITA 47 Class CC4):-
 - -40°C to +85°C
- storage temperatures (VITA 47 Class C4)
 - -55°C to +105°C
- 5% to 95% Relative Humidity, non condensing (operating and storage)
- altitude (operating):
 - -1,000 to 50,000 feet (-305 to 15,240 metres)
- commercial air-cooled versions available (copper or fiber):-
 - rear plug compatible
 - see separate FP 110/019 datasheet
- ruggedized air-cooled version planned (copper only):-
 - rear plug compatible
 - see separate FP 110/019-RA datasheet

Mechanical Specification

- 6U form factor: 9.2 inches x 6.3 inches (233mm x 160mm)
- single slot: 0.8 inches (20.3mm)
- connectors: IEC 60917 and IEC-61076-4-101 (PICMG 2.0 R3.0 S2.2) for J1, J2, J3 and J5
- operating shock (VITA 47, conduction-cooled): 40g, 11ms, 1/2 sine
- operating random vibration (VITA 47 Class V3):-
 - PSD increasing at +3dB/octave (5Hz to 100Hz)
 - PSD = 0.1 g²/Hz (100Hz to 1kHz)
 - PSD decreasing at -6dB/octave (1kHz to 2kHz)

(PSD = Power Spectral Density)

ORDERING INFORMATION

Order Number Product Description (Hardware)

FP 110/019-00RC 20-port 10/100/1000 Ethernet Switched Fabric Board (19 PSB Ethernet node ports)

SW FSC/001-L0 Fabric Switch Configuration Tool

For more information on the ruggedized air-cooled version (copper only) see separate FP 110/019-RA datasheet or the commercial non-rugged version (copper or fiber) then see separate FP 110/019 datasheet, alternatively please contact your local sales office