

10/100/1000 Ethernet Switched Fabric Board



APPLICATIONS

The FP 110/019 is an entry-level 24-port 10/100/1000Mbps Ethernet Switched Fabric Board for use in CompactPCI® PICMG® 2.16 and VITA 31.1 Packet Switched Backplane environments. It supports up to nineteen node boards, a fabric to fabric link and for user connections, up to four front panel Ethernet interfaces. 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 FP 110/019 is an excellent choice for cost sensitive applications. Typical applications include networking equipment, voice over IP (VoIP) telephony systems and blade-based servers. Options to operate in temperatures ranging from -40°C to +85°C are available. Ruggedized conduction-cooled versions are available and ruggedized air-cooled versions are planned.

HIGHLIGHTS

- 24-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
 - supplied with either 4 front panel Ethernet ports via RJ45 connectors or 2 front panel Gigabit Ethernet LC optical fiber connectors
- 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
- Non-volatile EEPROM storage for board and Ethernet switch configuration data
- Fabric Switch Configuration software
- Speed and Link/Activity status LEDs on all Ethernet ports
- 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
- Extended temperature versions available:
 - -25°C to +70°C (E-Series)
 - -40°C to +85°C (K-Series, includes humidity sealant)
- Ruggedized versions:
 - conduction cooled versions available
 - air cooled versions planned
- 10-port 10/100/1000 Mbps version available:
 - see separate FP 110/008-U datasheet
- Supports hot insertion and removal
- Single slot, 6U CompactPCI form factor

Ethernet Switched Fabric

- 22-port or 24-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 when used with AD FP1/001 transition module
- 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
- 10-port board available:-
 - see separate FP 110/008-U datasheet

Backplane Interfaces

- compatible with CompactPCI® Packet Switched Backplane (PSB):-
 - conforms to the relevant sections of PICMG 2.16 R1.0
 - supports 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

Front Panel Interfaces

- option for Ethernet user ports:-
 - 4 x RJ45 connectors @ 10/100/1000Mbps
 - 2 x SFP LC optical connectors @ 1000Base-SX with multimode optical fiber
- speed and Link/Activity LEDs for all Ethernet ports
- 1 user LED
- reset switch (recessed)

System Management

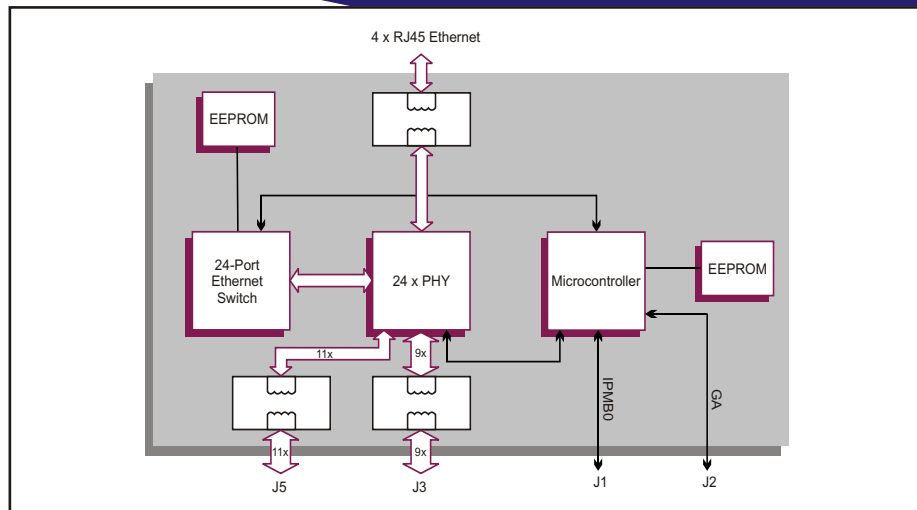
- board health and status management:-
 - conforms to PICMG® 2.9 R1.0 (System Management Specification)
 - implements the IPMB0 interface on J1
 - microcontroller-based Peripheral Management Controller
 - EEPROM for Field Replaceable Unit (FRU) and Sensor Data Record (SDR) storage
- hot swap insertion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

Quality of Service (QoS)

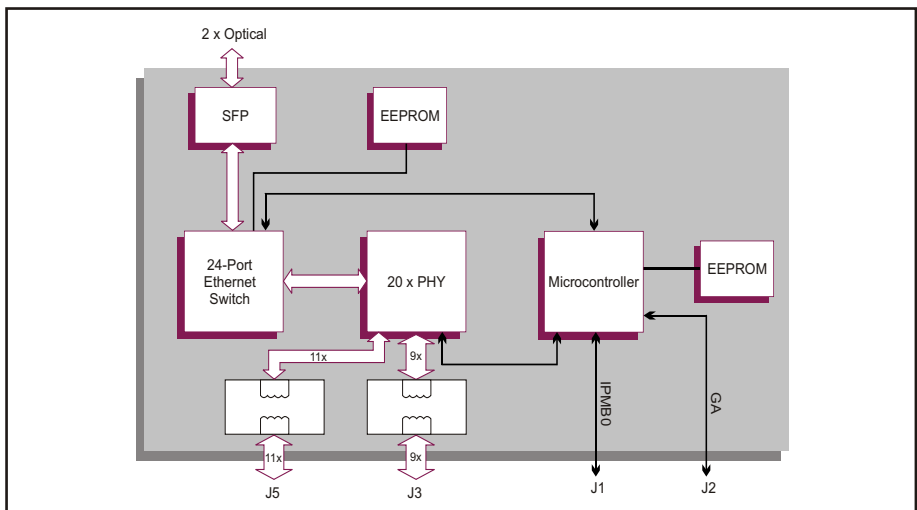
- supports prioritized packet streams for management of voice, video and data
- 4 hardware priority queues per port
- fixed priority or weighted fair queuing
- QoS traffic classification, determined by:-
 - port ID
 - IEEE 802.1p multimedia traffic tags
 - IPv6 Traffic Class

Electrical Specification

- +5V (+5%/-3%) @ 3.8A (typical, with 4 x RJ45 front panel connectors)
- +12V (+5%/-5%) @ 0.01A (maximum)
- +3.3V and -12V supplies are not required



FP 110/019 with 4 x copper RJ45 front panel connectors



FP 110/019 with 2 x fiber LC front panel connectors

Safety

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

Environmental Specification

- operating temperature:-
 - 0°C to +55°C (N-Series)
 - -25°C to +70°C (E-Series)
 - -40°C to +85°C (K-Series)
- 5% to 95% Relative Humidity, non-condensing (operating):-
 - K-Series includes humidity sealant
- -40°C to +85°C (storage)
- 5% to 95% Relative Humidity, non-condensing (storage)
- ruggedized air-cooled version planned (copper only):-
 - see separate FP 110/019-RA datasheet
- ruggedized conduction-cooled version available (copper only):-
 - see separate FP 110/019-RC 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
- shock:
 - 20g, 11ms, ½ sine (operating);
 - 30g, 11ms, ½ sine (non-operating)
- vibration:
 - 5Hz-2000Hz at 2g, 0.38mm peak displacement (operating);
 - 5Hz-2000Hz at 5g, 0.76mm peak displacement (non-operating)

ORDERING INFORMATION

Order Number Product Description (Hardware)

FP 110/019-00 24-port 10/100/1000 Ethernet Switched Fabric Board (19 PSB Ethernet node ports) with 4 copper RJ45 front panel connectors
 FP 110/019-10 22-port 10/100/1000 Ethernet Switched Fabric Board (19 PSB Ethernet node ports) with 2 fiber 1000 Base-SX SFP LC front panel connectors

AD FP1/001-12 CompactPCI Single Slot Ethernet RTM, 12 RJ45 ports
 AD FP1/001-24 CompactPCI Dual Slot Ethernet RTM, 19 RJ45 ports
 SW FSC/001-L0 Fabric Switch Configuration Tool

For extended temperature, E or K-Series, or for front panel fiber optical connection, please contact your local sales office

For ruggedized versions (copper only), see separate datasheets: FP 110/019-RC (conduction-cooled) or FP 110/019-RA (air-cooled)