10/100 Ethernet Switched Fabric Board

APPLICATIONS

The FP 100/008 is an entry-level 10-port 10/100Mbps Ethernet Switched Fabric Board for use in CompactPCI® PICMG® 2.16 and VITA 31.1 Packet Switched Backplane environments. It supports up to eight node boards, a front panel Ethernet interface for user interface and a fabric to fabric link. It offers high speed, non-blocking Layer 2 switching 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. Virtual LAN (VLAN) operation is also supported, e.g. layer 2 firewall protection.

System monitoring is provided by the PICMG 2.9 compliant IPMI subsystem, supporting the IPMB0 serial management bus. The FP 100/008 is an excellent choice for cost sensitive applications or those requiring only a small number of node boards. Typical applications include networking equipment, voice over IP (VoIP) telephony systems and blade-based servers.

HIGHLIGHTS

- 10-port 10/100Mbps Ethernet Switched Fabric Board:
  - compatible with PICMG 2.16 Packet Switched Backplane (PSB)
  - 8 PSB Ethernet ports for PSB node boards
  - PSB Ethernet port for fabric board to fabric board link
  - front panel Ethernet port via RJ45 connector
- Low cost, low power, high performance switched fabric:
  - non-blocking Layer 2 for full wire throughput
  - supports up to 2K MAC addresses with automatic learning and aging
  - full Virtual LAN (VLAN) support
- Auto-negotiation on all Ethernet ports:
  - 10Mbps/100Mbps
  - full duplex/half duplex
- Speed and Link/Activity status LEDs on all Ethernet ports
- Non-volatile EEPROM storage for:
  - board configuration data
  - Ethernet switch configuration data

- Hardware support for Quality of Service (QoS):
  - 4 priority queues per port
  - variety of classification services
  - fixed priority or weighed packet streams
- Hardware support for Virtual LAN (VLAN) operation:
  - IEEE 802.1Q VLAN support for up to 64 VLANs
  - port-based VLANs
- Extensive registers for collection of traffic statistics:
  - support for Remote Monitoring (RMON)
- IPMI (Intelligent Platform Management Interface):
  - PICMG 2.9 (System Management Specification)
  - access to network management registers
- Low power design
- Extended temperature versions available:
  - -25°C to +70°C (E-Series)
  - -40°C to +85°C (K-Series, includes humidity sealant)
- 10/100/1000Mbps version available:
  - see separate FP 110/008 datasheet
- Supports hot insertion and removal

Ethernet Switched Fabric
- 10-port 10/100Mbps Ethernet Switched Fabric board:-
  - → for use with PICMG® 2.16 and VITA 31.1 Packet Switched Backplanes
- high performance Ethernet Switched Fabric:-
  - → implemented by Marvell® 88E6083 single-chip switch
  - → Layer 2 non-blocking fabric
  - → 2048 MAC address cache with automatic learning and aging
  - → full Virtual LAN (VLAN) support
- auto-negotiation on all ports:-
  - → 10/100Mbps
  - → full/half duplex
- EEPROM storage for user configuration data
- 10/100/1000Mbps version available:-
  - → see separate FP 110/008 datasheet

Rear Panel Interfaces
- compatible with CompactPCI® Packet Switched Backplane (PSB):-
  - → conforms to the relevant sections of PICMG 2.16 R1.0
- compatible with ANSI/VITA 31.1-2003 (Ethernet on VME64x backplanes)
- 8 PSB Ethernet ports for PSB node boards
- Ethernet port for linking with second fabric board:-
  - → enables redundant fabric board or
  - → increases the number of Ethernet ports in the system
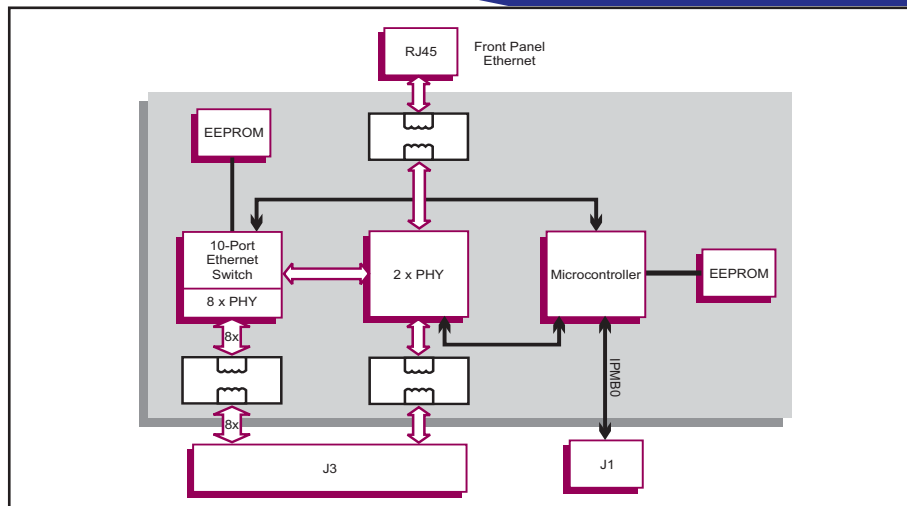- J1 and J3 connectors fitted as standard

Front Panel Interfaces
- RJ45 connector for 10/100Mbps Ethernet User port
- speed and Link/Activity LEDs for all 10 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
- network management:-
  - → 40 statistics counters per port
  - → SNMP support for Remote Monitoring (RMON)
  - → IGMP snooping (IPv4)
  - → MLD snooping (IPv6)
  - → accessible via the IPMB0 interface
- hot swap insertion and removal

Virtual LAN (VLAN)
- hardware based VLAN operation supporting:-
  - → port-based membership
  - → IEEE 802.1Q VLAN (up to 64 VLANs)
- offering security through:-
  - → controlling group membership
  - → providing Layer 2 firewall protection

Quality of Service (QoS)
- 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:-
  - → MAC address (SA or DA)
  - → port ID
  - → IEEE 802.1Q VLAN ID
  - → IEEE 802.1p multimedia traffic tags
  - → IPv4 Type of Service (TOS) or DiffServ
  - → IPv6 Traffic Class

Electrical Specification
- +5V (+5%/-3%) @ 0.1A (maximum)
- +3.3V (+5%/-5%) @ 0.6A (maximum)
- +12V (+5%/-5%) @ 0.01A (maximum)

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)
- 10% to 90% Relative Humidity, non-condensing (operating):-
  - → K-Series includes humidity sealant
- -40°C to +85°C (storage)
- 10% to 90% Relative Humidity, non-condensing (operating)

Mechanical Specification
- 6U form factor: 9.2 inches x 6.3 inches (233mm x 160mm)
- single slot: 0.8 inches (20.3mm)
- connectors: IEC-1076-4-101 for J1 and J3
- 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 100/008-00	10-port 10/100 Ethernet Switched Fabric Board (8 PSB Ethernet node ports)

For extended temperature, E-Series or K-Series, please contact your local sales office