PM5992/PM5993 META-240G

High Capacity 24x 10G / 6x 40G / 2x 100G Converged Ethernet / OTN Framer

The PM5992 (with encryption) and PM5993 (without encryption) are members of Microsemi's family of Router PHY devices that enable high density Ethernet and OTN line cards on routers, carrier Ethernet switches and packet-optical transport equipment. By providing converged OTN and Ethernet interfaces in 24x 10G, 6x 40G or 2x 100G configurations, the META-240G delivers a single-chip solution that OEMs can use for multiple applications.

The META-240G delivers the rich set of mapping options required by carrier router and switch line cards. It supports GFP packet traffic mapping, including Ethernet and IP/MPLS into OTN, and transparent Ethernet mapping using GMP or BMP as specified in G.709. All 10G ports support mapping 10GE traffic into OTU2 in accordance with G.709/G.Sup43. Integrated 10G/40G/100G Ethernet MAC/PCS provide standards-compatible, rich performance monitoring.

Designed for leading edge carrier routing and switching solutions, the META-240G provides OEMs with industry-leading carrier Ethernet functions. In addition to 802.3ah Link OAM, the device supports packet-based timing distribution via Synchronous Ethernet and IEEE 1588v2 Precision Timing Protocol. This enables carriers to deliver the performance required for packet-based wireless backhaul infra-structure.

Applications

OTN wrapper line cards on carrier routers and switches

Multi-service OTN/Ethernet line and client cards on routers, switches, P-OTPs and P-OTNs

10G, 40G or 100G IPoDWDM optical uplink cards

Highlights

Provides flexible OTN wrapping and packet service delivery of:

- OTU1e, OTU2, OTU2e, OTU3, OTU3e2 and OTU4
- 10GE, 40GE and 100GE
- Support for Ethernet Private Line Services (EPL), Ethernet
- Virtual Private Line Services (EVPL), E-LAN and MPLS services
- IP, Ethernet or MPLS/MPLS-TP over OTN

Connects directly to a wide range of 10G, 40G and 100G optical module types:

- XFP, SFP+ (limiting), QSFP+, QSFP28, CFP, CFP2 and CFP4

Reduces bill of materials and footprint by utilizing a single external reference clock

Supports IEEE 1588v2 PTP and Synchronous Ethernet timing protocols, enabling:

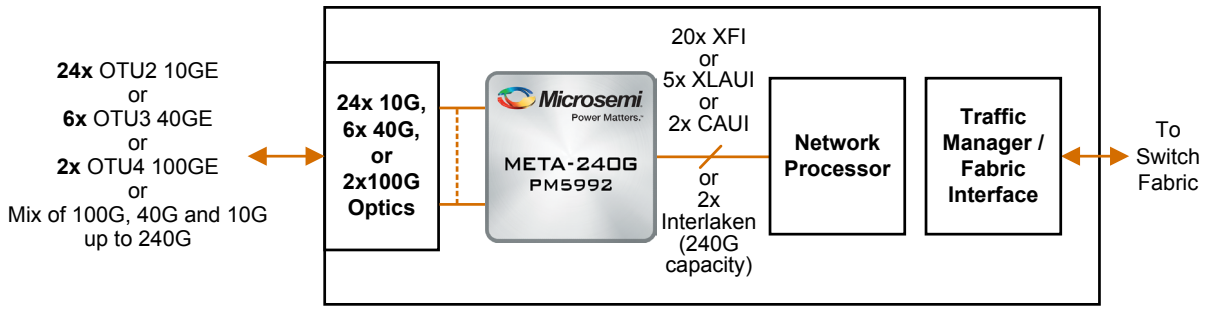
- Packet-based mobile backhaul
- Packet transport networks (PTNs)

Supports glueless interconnect to next generation NPs and switches via Interlaken or Ethernet system interfaces

Supports per-port LLDP packet monitoring capabilities for 10GE/40GE/100GE clients

- Enables WAN topology auto-discovery in DCI and SDN-enabled applications

24x 10G / 6x 40G / 2x 100G L2+ Line / Client Card



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Line/Client Interfaces

Multi-rate SERDES support up to 28 Gbps and can be configured to operate with 10G, 40G or 100G optical modules

Service configurable support for:

- OTU2/1e/2e, 10GE
- OTU3/3e2, 40GE
- OTU4, 100GE

Comprehensive per-port ingress and egress client monitoring

Forward Error Correction (FEC)

Industry compatible ITU-T 10G, 40G, and 100G FECs

Dedicated FEC statistics interface for statistics gathering and performance monitoring for use in EDC and amplifier tuning

OTN Subsystem

OTU4, OTU3/3e2, OTU2/1e/2e processing

Flexible OTU, ODU and OPU overhead insertion (OH) and extraction over a dedicated OH interface

ODUk tandem connection monitoring (TCM)

OTN Payload Encryption (CrypOTN) - PM5992 only

NIST FIPS 197-certified wire-speed, protocol-agnostic AES-256 datapath encryption/decryption

Ethernet Subsystem

Integrated IEEE 802.3 compatible physical coding sub-layer (PCS) and media access controllers (MAC) for 10GE, 40GE and 100GE

Supports frame sizes from 64 bytes to 9.6 Kbytes

Comprehensive per-port Ethernet statistics and performance monitoring

Integrated 10GE and 40GE Transcoders

Transmit and receive IEEE 802.3ah Link OAM, LACP and management VLAN messages

Firmware-based, hardware-assisted G.8261 Synchronous Ethernet (SyncE) and IEEE 1588v2 PTP timing-over-packet support

Integrated on-chip central packet buffer

Integrated per-port LLDP packet monitoring for 10/40/100GE clients

Interlaken System Interfaces

Configurable single or dual Interlaken, up to 24-lanes

Multi-rate, multi-reach SERDES supporting flexible 6.25 Gbps to 25 Gbps lane configurations

Segment/burst interleaved mode and packet mode may be configured independently on transmit and receive interfaces

Client Ethernet System Interfaces

Standard Ethernet system interfaces configurable as:

- Up to 20x XFI for 10GE
- Up to 5x XLAUI or XLPPI for 40GE
- 2x CAUI, CPPI for 100GE

Support Interfaces

PCIe for microprocessor access

125 MHz reference clock interface

Optional:

- IRIG/TOD/1PPS Interface for PTP/1588v2 synchronization
- Programmable recovered clock Interface
- OTN overhead insert/extract interface
- Management Ethernet port for PTP, SyncE and link OAM
- FEC statistics interface

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