



## PRODUCT OVERVIEW

The Marvell<sup>®</sup> Prester<sup>TM</sup>-EX family of packet processors delivers multi-layer enterprise switching with exceptional price/performance ratios and industry-leading features. The Prester-EX110/EX115 integrates 48 Fast Ethernet (FE) ports, 4 Gigabit Ethernet (GbE) ports and a high-performance uplink bus for uncompromising non-blocking performance and system scalability. It is a highly integrated system-on-a-chip (SoC) that supports full-wire-speed L2 bridging, L3 routing and L2-L4 advanced traffic classification, filtering and prioritization. The Prester-EX110/EX115 48 FE + 4 GbE packet processor provides the ideal solution for rapid development of high-port density FE standalone, stackable and chassis switching systems.

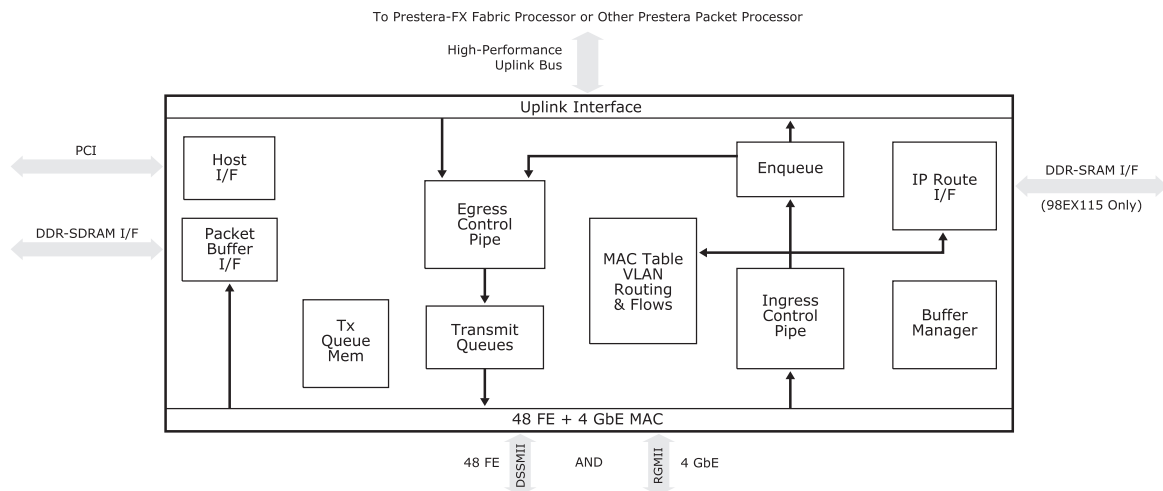


Fig 1. Prester Packet Processor (98EX110/98EX115) Block Diagram

## FEATURES

- Forty-eight 10/100 Mbps Ethernet ports with DDR-SSMII interface and four 10/100/1000 Mbps Ethernet ports with RGMII interface
- High-performance uplink bus
- Wire-speed Layer 2 switching capabilities
  - 16K Media Access Controller (MAC) addresses
  - Compliant with 802.3x flow control and back pressure
  - 802.1p support; 8 traffic classes per port
  - Support 4K VLANs based on port, subnet and protocol (802.1Q and 802.1v)
  - 802.3ad-compliant link aggregation/port trunking
  - Support for 7 trunk groups
  - Support single and multiple spanning tree (802.1D and 802.1s)
  - Rapid spanning tree (802.1w)
- Advanced Layer 3 routing engine
  - Wire-speed IPv4 forwarding in hardware
  - Integrated IPv4 Longest Prefix Match (LPM) table with 4K subnets
  - Support to extend IPv4 LPM table to 256K subnets (98EX115 only)
  - Supports IP multi-cast routing including source-based multi-cast protocols like PIM-SM/DM and DVMRP

## BENEFITS

- Support both copper and fiber connections with the Marvell Alaska<sup>®</sup> Gigabit PHYs and FE PHYs
- Enables scalability for high-port density standalone, stackable and chassis systems by connecting with the Prester-FX family of fabric processors
  - Large MAC table for access aggregation applications
  - Allow flexible flow control on packet transaction
  - Extensive Quality of Service (QoS) support
  - Support virtual bridged Local Area Network (LAN)
  - Combine multiple Gigabit ports in one logical link to support higher bandwidth
  - Enhanced network-wide reliability and efficiency
  - Prevent loops in a switched network; multiple spanning tree enables improved load balancing and network resiliency
  - Minimize the convergence time of spanning tree protocol
- Enables fast router that performs L3 forwarding at line speeds
- Powerful implementation of the LPM algorithm, designed for both minimal search time and forwarding table space
- Scale system routine capability across enterprise to the metro
- Supports emerging multi-cast applications





## FEATURES

- Powerful multi-layer traffic classification processor
  - Examines packet data 80 bytes deep
  - Supports advanced marking of DSCP, EXP and 802.1p fields
  - Supports policy-based and application-aware QoS and filtering
- Policy control list with up to 1K rules
- Integrated ACL support
- Bandwidth monitoring and traffic metering

- Sophisticated traffic scheduler
  - 8 priority queues per port for traffic classes
  - 3 drop precedences
  - Weighted Random Early Detection (WRED)
  - Strict priority scheduling
  - Minimum and maximum bandwidth guarantees per class

- General
  - Jumbo frame support
  - 32-bit/66 MHz PCI bus interface
  - IEEE 1149.1 (JTAG) support
  - 1044 PBGA package
  - Low power: 5W

## BENEFITS

- Greater flexibility for extracting relevant fields for classification
- Full support for IETF DiffServ
- Allows service providers to offer differentiated services based on Service Level Agreement (SLA)
- Enables granular control of traffic flows
- Support advanced security and filtering
- For traffic policing and billing purposes

- Meets QoS requirement for 802.1p, DiffServ and IntServ
- Differentiate among three conformance levels of the traffic
- WRED for TCP/IP-friendly congestion control
- Strict priority for delay-sensitive or critical applications
- Weighted fair queuing for guaranteeing minimum bandwidth; maximum bandwidth limitation prevents starvation of lower priority traffic

- Improved server application performance
- Extensive network management support
- Enhanced testability
- Cost-effective package
- Enables low system cost

## APPLICATIONS

The Prestera-EX110 48 FE + 4 GbE packet processor delivers the optimal switching solution for a broad range of applications in the enterprise LAN environment. The Prestera-EX110/EX115 device enables high-port density FE Layer 2/3 desktop switches with 4 GbE ports for stacking or dedicated server connections. It also provides an ideal solution for FE switch blade in aggregation mini-chassis switches or campus chassis switching systems.

The Prestera-EX family provides a complete line of FE, GbE and 10 GbE switching solutions with 100% software compatibility. To shorten system manufacturers' design cycle and accelerate time-to-market, Marvell provides complete Prestera-EX development platforms and reference designs with schematics, layout files and API software. Layer 2 and Layer 3 enterprise software for Prestera-EX solutions, including QoS and stacking capabilities, are available from third party software vendors.

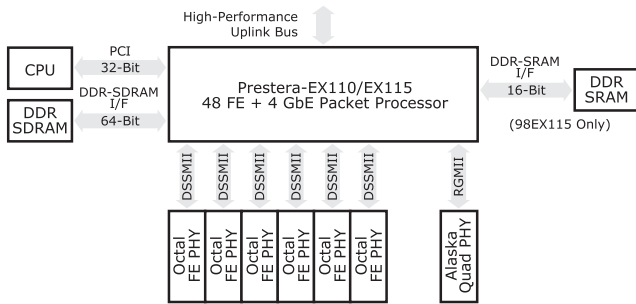


Fig 2. 48 FE + 4 GbE Integrated Multi-Layer Desktop Switching Solution Diagram

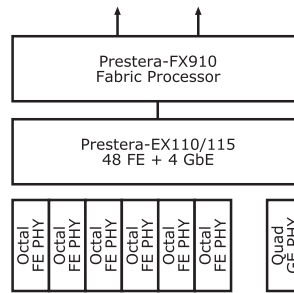


Fig 3. 48 FE + 4 GbE Multi-Layer Switching Solution Diagram

**THE MARVELL ADVANTAGE:** The Marvell Prestera-EX110/EX115 packet processor comes with a complete set of hardware and software development tools to assist network hardware engineers with product evaluation. Marvell's worldwide field applications engineers collaborate closely with network equipment vendors to develop and deliver new competitive products to market on time. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low cost total solutions.

For more information, visit our website at [www.marvell.com](http://www.marvell.com).



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