

L2-L7 CLASSIFIER & SWITCH FAMILY ZL33042/6

PRODUCT PREVIEW

Zarlink's *ClassSwitch* platform is a family of high-density, high-performance non-blocking Ethernet switches with special Layer 2 to Layer 7 packet classification performance and security features required for network access equipment supporting packet-based applications, including IP video distribution.

The ZL33042 (24 FE + 2 GE ports) and ZL33046 (16 FE+ 2 GE ports) switches integrate high-speed 10/100/1000 Mbps ports and low-speed 10/100 Mbps ports, and a CPU interface for managed switch interfaces.

Zarlink's *ClassSwitch* platform provides high intelligence for network aggregation equipment and embedded "denial of service" and "packet identifier" security features to protect against network attacks, while lowering design costs by integrating multiple features on a single chip. The devices are supported by a field-proven software platform, device driver software and reference designs.

Powerful Packet Classification, L2 Switching & Access Control

- ➔ Up to 24 10/100 Mbps auto-negotiated FE ports with RMII interface
- ➔ Up to 2 auto-negotiated GE ports with GMII, TBI and MII interfaces on per-port basis
- ➔ Frame data buffer using external 64 Mbytes of DDR-SDRAM
 - Supports jumbo frames up to 9 Kbytes
- ➔ L2 switching supports:
 - Up to 12 K MAC addresses self-learning
 - IEEE 802.1D spanning, IEEE 802.1w rapid spanning tree, IEEE 802.1s multiple (per-VLAN) spanning tree
- ➔ VLAN switching supports:
 - Up to 4 K VLANs, supporting both IEEE802.1Q tagged-based and IEEE802.1v Protocol-based VLANs
- ➔ Industrial-grade qualification

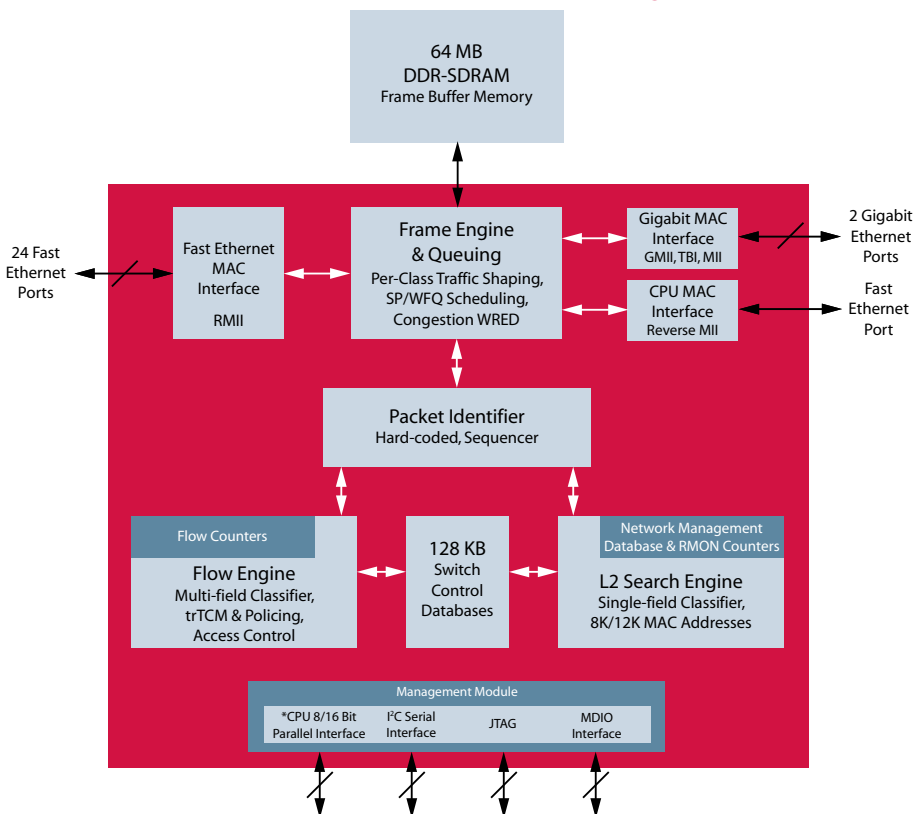
Hardware-Based Security

- ➔ Integrated denial of service attack-flow engine prevents loss of service
- ➔ "Packet identifier" micro-engine pre-filters L2-L7 packets, transmits suspicious traffic to external deep content analysis processors

Classification and QoS

- ➔ Support for service level agreements (SLAs) based on Ethernet type, VLAN ID, 802.1p priority Type of Service (ToS, DSCP), L2/L3 and subnet addresses, L4 port numbers and others are immediately possible at wire-speed
- ➔ Per-flow two-rate, three-color metering and policing
- ➔ Flexible scheduling algorithms, such as SP (strict priority) and WFQ (weighted fair queuing), manage packets and prioritize queued traffic

ZL33042/6 Simplified Block Diagram



Applications

- ➔ Multi-service access equipment
- ➔ IP/Ethernet DSLAMs
- ➔ IP-PBX and VoIP line cards
- ➔ DSP farm cards
- ➔ Ethernet backplanes
- ➔ Base stations
- ➔ MDU/MTU & Enterprise Ethernet switch equipment



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APPLICATION

IP Service Distribution and Security

Facing growing demand for IP-based services, such as IPTV and VoIP, network operators require lower-cost access equipment that can more intelligently prioritize and process time-sensitive voice and multimedia traffic.

Designed into line cards and compact systems, Zarlink's *ClassSwitch* ZL30402/6 devices efficiently aggregate, inspect and modify real-time applications delivered over Fast and Gigabit Ethernet. By integrating multiple features on a single chip, the devices help lower design cost and complexity.

Illustrated below, Zarlink's new *ClassSwitch* family provides high intelligence for aggregation equipment. The devices enable IP multicast packet-forward service distribution, a key element in the first mile delivery of IP video.

Packets entering the device are classified to a flow based on user-defined rules, based on information such as frame source and destination address or applications using L2-L7 fields of incoming packets.

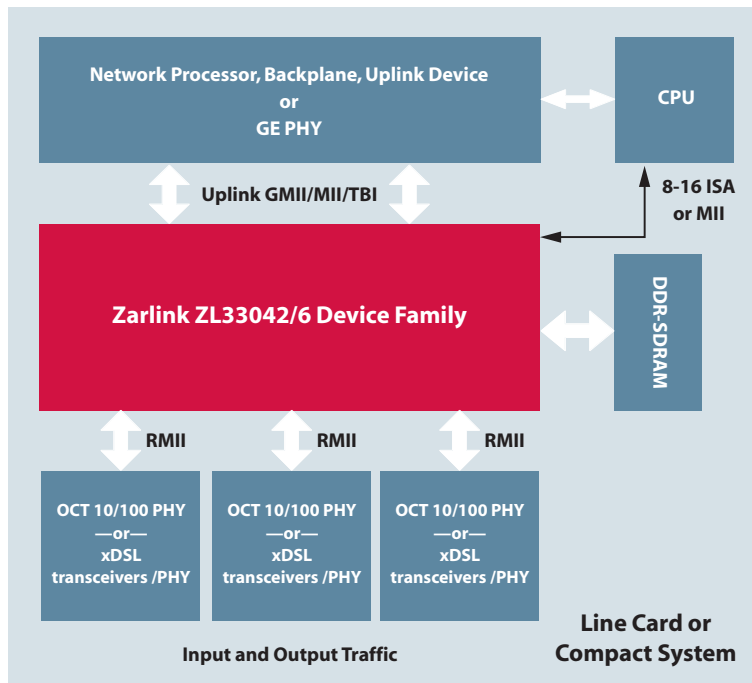
The devices support pre-flow two-rate, three-color metering and policing. Scheduling algorithms (SP, WFQ) manage packets and prioritize queued traffic. Traffic flow classification features allow network operators to better manage

SLAs, precisely monitor network traffic and maintain secure connections.

Zarlink's ZL30402/6 devices include up to 24 MACs for 10/100 Mbps and two GMACs for 10/100/1000 Mbps, all supporting copper or fiber physical interfaces. The devices provide multi-field traffic classification of L2 and L7 fields, IP Multicast and Unicast bandwidth distribution, and a traffic queuing engine.

Fair management of traffic is maintained through an advanced WFQ scheduling algorithm, flexible packet buffer and queue management, and a WRED algorithm. Simplifying equipment design, the platform's parametric programmability allows efficient and flexible system development without requiring additional programming for network processor implementations.

Zarlink's *ClassSwitch* family integrates a hardware-based DoS attack-flow engine to ensure uninterrupted service. The "packet identifier" micro-engine pre-filters L2-L7 packet fields. If suspicious traffic patterns are recognized, packets are forwarded to an off-the-shelf Deep Content Packet Analysis processor for further analysis. The ZL30402/6 devices can be programmed to accept or deny service, based on classification information.



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