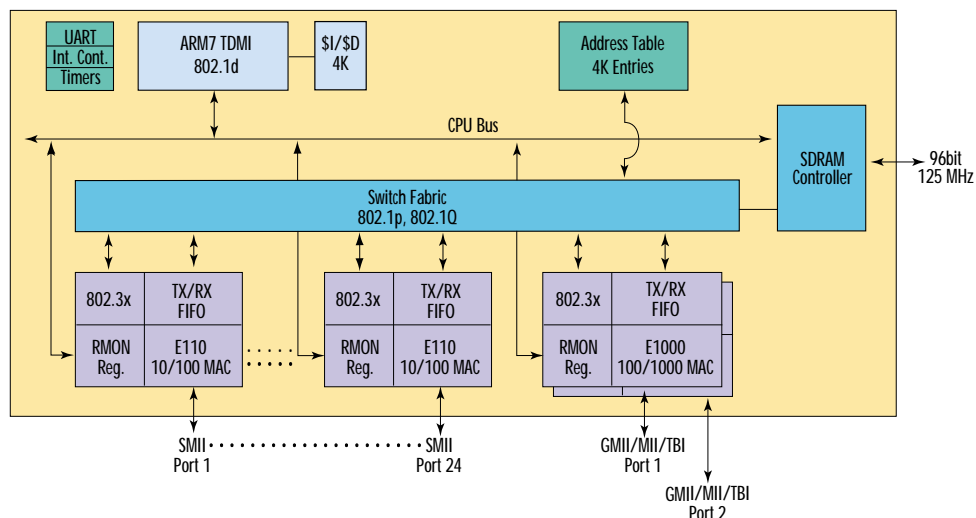# StreamPack™ L64324 Layer 2 Switch

StreamPack ™

24 + 2 10/100/1000 ETHERNET SWITCH WITH EMBEDDED MANAGEMENT PROCESSOR

OVERVIEW:

The StreamPack L64324 is a single chip 24-port Fast Ethernet (10/100) switch with two Gigabit uplinks and an embedded ARM7® processor. This device is based on LSI Logic's industry proven E110 MAC, ARM7 and E1000 MAC cores. Each port contains the Layer-2 Front End - 10/100 MAC, Tx and Rx FIFOs, flow control (IEEE 802.3x), priority queuing (IEEE 802.1p) and VLAN (IEEE 802.1Q). The L64324 non-blocking wire-speed switch fabric can sustain packet transfers of over 13 Mpps. The StreamPack L64324 internal MAC address table holds over 4,000 entries. The embedded ARM7® processor, with 4K unified Instruction and Data cache, may be utilized for network manage- ment related tasks. A 96-bit SDRAM controller at 125 MHz provides up to 12 Gbps in memory bandwidth for packet processing. Two Gigabit uplinks provide connectivity to the backbone or local server farm. This device allows trunking of up to four of the 10/100 ports, or two of the 2-Gigabit uplink ports to provide higher aggregated bandwidth of up to 800 Mbps or 4 Gigabits respectively, with added data integrity. The StreamPack L64324 priority queuing capability allows for time sensitive data to have access to the network with minimal delay. The Serial MII (SMII) enables a lower I/O density package interfacing the phys- ical layer devices to the StreamPack L64324 in a 388 PBGA package. This System-On-a-Chip (SOC) solution enables system designers to develop cost- effective desktop and workgroup fully-managed or partially managed Fast Ethernet switches. StreamPack L64324 is fabricated using LSI Logic's 0.25 micron process technology with the core logic operating at 2.5V.

FEATURES

- Highly Integrated 10/100 and 1000 MAC, Switch Fabric, ARM7® Processor and SDRAM Controller
- 192/264 Byte FIFO for 10/100 and 192/1008 Byte FIFO for Gbit interfaces TX/RX, respectively
- 96-bit external SDRAM @125MHz supporting up to 12 Gbps Bus Interface to sustain packet transfers of over 13 Mpps
- UNH-certified firmware
- 802.3x flow control
- Up to 4-port trunking supporting 800Mbps or 2-Gigabit uplink port trunking supporting 4 Gbps
- 802.1Q VLAN tagging and untag- ging support of up to 32 VLANs
- Per port Broadcast throttle
- MAC Address, port and VLAN port- mirroring
- Per port RMON statistics
- 802.1d Spanning Tree support
- IGMP and IP Multicast
- Security - port locking
- Support for GMII and TBI
- 54-pin SMII Physical Layer Interface (24-ports).
- 388 PBGA

BENEFITS

- Support for Managed and Unmanaged switch in 12 to 48 port configuration expandable to 48-ports of 10/100
- Delivers lower component count/cost for multi-port switch
- Total solution, reference design and third party firmware, time to revenue.
- Versatile uses: desktop switching, chassis-based switch, control plane, Ethernet appliance, etc.

L64324 Functional Block Diagram

StreamPack™ L64324 Layer 2 Switch

DEVELOPMENT ENVIRONMENT:

LSI Logic offers a comprehensive System Development Platform (SDP) BD-EVAL64324 to facilitate evaluation, and performance analysis of the StreamPack. The development system consists of a functional Layer 2 switch, product documentation, schematic, BOM, Gerber file and UNH certified firmware specifically designed to take advantage of the StreamPack L64324 features. This enables the network equipment designers to reduce the overall design and product development cycle.

APPLICATIONS:

StreamPack L64324 can be used for the design of numerous Ethernet applications such as managed or semi managed 12 to 48 10/100 Ethernet ports with Gigabit uplinks option. In a control plane application, the L64324 offers a cost-effective communication between the blades in a modular switch. The StreamPack L64324 Gigabit uplinks are equipped with GMII for copper interface and TBI (Ten Bit Interface) for Fiber connections.
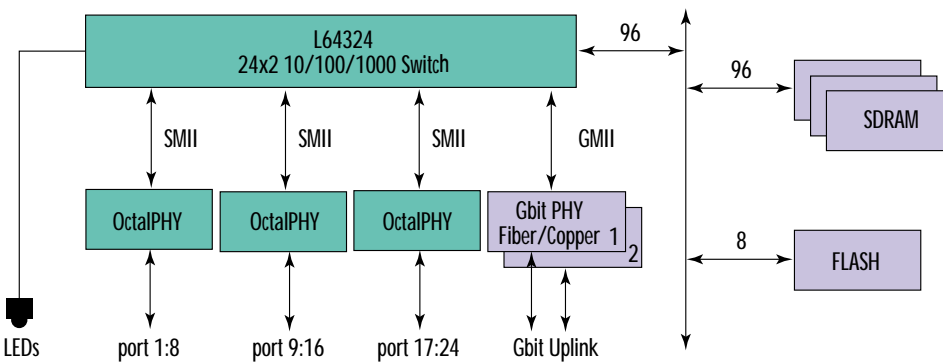

Figure 1: L64324 24x2 typical application with either Gigabit fiber or copper uplinks
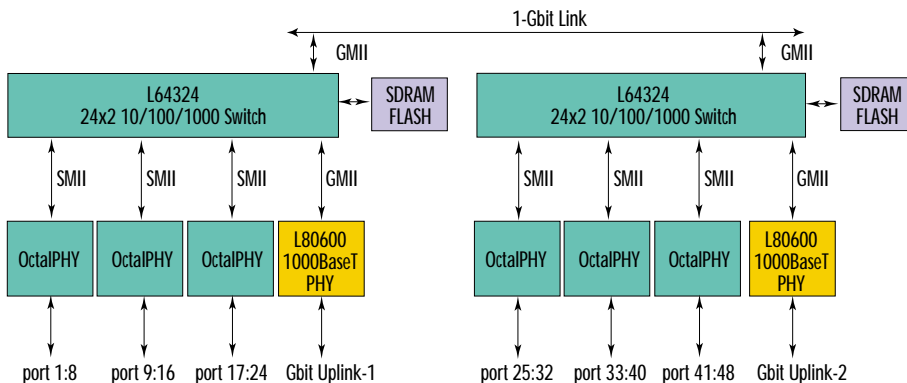

Figure 2: L64324 48x2 typical application using Gigabit copper PHY

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