E1110 Gigabit Media Access Controller (MAC)

OVERVIEW

The E1110 is a 10/100/1000 BaseT Ethernet media access controller designed to support copper and fiber networks. Designed on LSI Logic's 0.18-micron G12® process technology, the E1110 can support applications requiring speeds ranging from 10 to 1000 Megabits per second (Mbps) on a single platform and is an ideal solution for a variety of embedded applications to include switches, routers, servers, and high-performance desktop computing systems.

The E1110 is designed as a modular hard macro and can be used with or without the legacy support for the 10/100 Megabit Ethernet. An integrated E110 Flow Control Module allows the E1110 CoreWare® to interface directly with the E110 CoreWare for the full 10 to 1000 Mbps support. The E1110 can also be used as a stand alone MAC to support 1Gigabit Ethernet only applications. This flexibility allows the designer to optimize the ASIC for legacy support or minimum die size.

The Physical Interface Multiplexer offers maximum system flexibility with interfaces for MII, GMII and TBI (fiber). The E1110 is fully MAC Layer IEEE 802.3z compliant. It also includes additional capabilities for 802.3x complaint flow control (Symmetric/Asymmetric pause frame control), VLAN frames, RMON, Jumbo packets, and more.

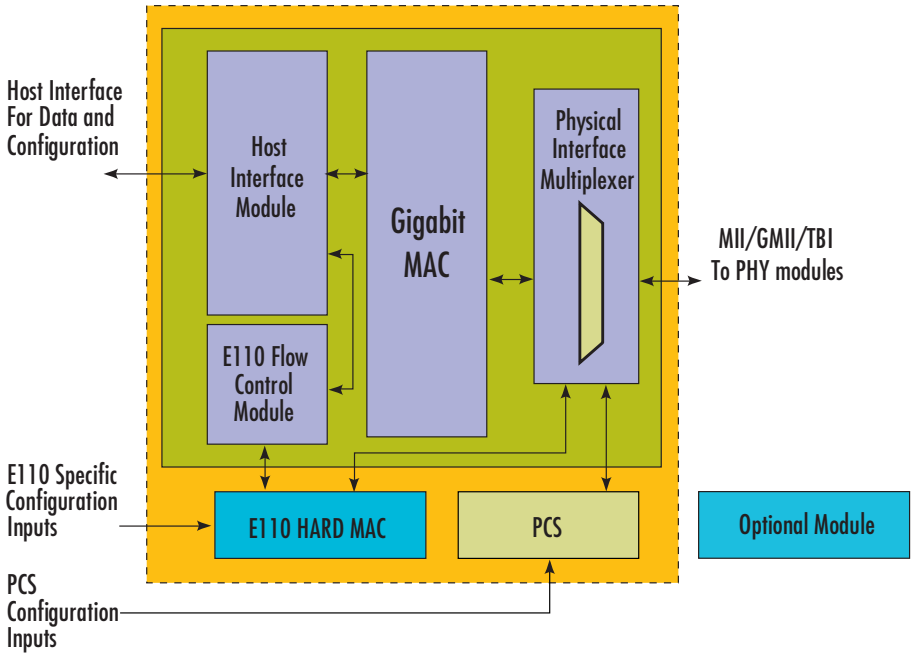

Figure 1. Simplified E1110 Block Diagram

FEATURES/BENEFITS

- Advanced 0.18 micron based hard macro reduces system cost by providing predictable timing, lower power and high port density integration
- A programmable 10/100/1000 data rate option that can support Jumbo frames of up to 10,000 Bytes, highest performance with large data transfer
- Programmable Auto padding of frames less than 64 bytes on transmit that ensures minimum Ethernet packet compliancy
- Industry compliance for the IEEE 802.3x Flow Control and IEEE 802.3z MAC Layer to ensure system compatibility with legacy and future products that are designed to industry standards
- Support for VLAN is included in the hard macro, which simplifies its implementation
- Wide variety of PHY interfaces is supported to include MII, GMII and TBI, which offers the most flexibility for PHY chip selection
- Statistic vector support for RMON is included and can be used for managed switching solutions
- Indication based addresses for Multicast, Broadcast and Unicast packets to support standard conventional traffic, streaming video, movies on demand, and other multimedia applications

LSI LOGIC®

E1110 Gigabit Media Access Controller

The E1110 complements LSI Logic's existing CoreWare portfolio that includes E110, CAMs, embedded FPGA, high speed I/Os, ARM®, MIPS® and ZSP™-based cores. By collaborating with LSI Logic, designers can have access to a variety of verified building blocks to quickly design unique solutions that provide a competitive edge for today's marketplace. In addition, LSI Logic is a total Gigabit Ethernet solutions partner that supports the entire design solution including application and design support, physical layout, prototyping, and production manufacturing.

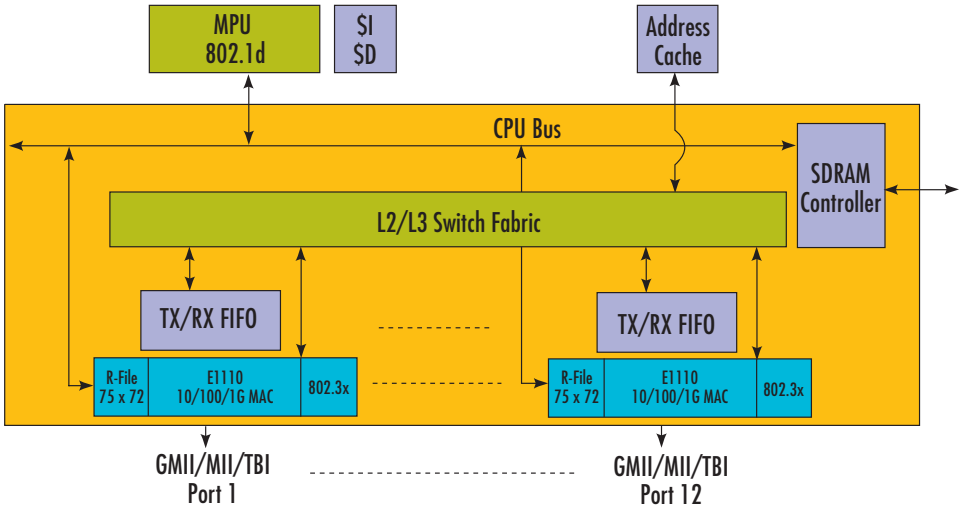

Figure 2. Block Diagram of a 12 Port L2/L3 Switch Using 12 E1110 MACs

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