

LAN9730(i)

Hi-Speed Inter-Chip (HSIC) USB 2.0 to 10/100 Ethernet Controller



SMSC's LAN9730 was specifically designed to provide a high-performance, low-cost USB to 10/100 Ethernet connectivity solution with a Hi-Speed Inter-Chip (HSIC) interface. Taking advantage of the broad availability of existing USB drivers and software, SMSC's proprietary HSIC technology incorporates a 2-pin digital bus that enables the use of USB as a low-power, chip-to-chip interconnect at speeds up to 480 Mbps. The internal device controller is USB 2.0-compliant and the HSIC interface is HSIC USB Electrical Specification Revision 1.0-compliant. The device implements Control, Interrupt and Bulk-in and Bulk-out USB endpoints. SMSC's UniClock™ technology simplifies the clocking scheme and reduces system BOM costs by using a single 25MHz crystal for both USB and Ethernet connectivity – without the need for additional components when adding USB hubs.

Applications well-suited for the LAN9730 and LAN9730i (industrial temperature range option) include embedded systems, set-top boxes, PVRs as well as USB port replicators and test instrumentation. The LAN9730 also supports auto-negotiation, auto-polarity correction, HP Auto-MDIX* and is compliant with IEEE 802.3 and 802.3u standards. An external MII interface provides support for an external PHY which enables HomePNA® (HPNA) or HomePlug® functionality. Multiple power management features are provided, including various low-power modes, as well as Magic Packet, Wake-on-LAN and Link Status Change wake events. These events can be programmed to initiate a remote USB wakeup. A PCI-like PME wake is also supported when the USB host controller is disabled. Additionally, SMSC offers its complimentary and confidential LANCheck® online design review services to customers who select our products for their application design-in.**

Highlights

- Single-chip HSIC USB 2.0 to 10/100 Ethernet controller
- Integrated 10/100 Ethernet MAC with full-duplex support
- Integrated 10/100 PHY with HP Auto-MDIX support
- Integrated USB 2.0 Hi-Speed device controller
- Supports commercial (0° to 70°C) and industrial (-40° to 85°C) temperature ranges
- 56-pin QFN, 8x8mm RoHS-compliant package
- External MII and Turbo MII (available for speeds up to 200Mbps)

Target Applications

- Embedded Systems
- Set-top Boxes
- Printers
- Consumer Electronics Devices
- USB Port Replicators
- Test Instrumentation

Key Features

Multiple power management features enable overall system power reduction

HSIC interface

Software compatibility

UniClock technology utilizing a single 25MHz crystal

Industrial temperature range (-40° to 85°C) option available (LAN9730i)

Benefits

Various low-power modes, Magic Packet, Wake-on-LAN and Link Status Change wake events. These wake events can be programmed to initiate a remote USB wakeup. A PCI-like PME wake is also supported when the host controller is disabled.

The low pin count interface enables printers, mobile PCs, ultra-mobile PCs, PCs and tablets to reduce their power budget while taking full advantage of USB connectivity.

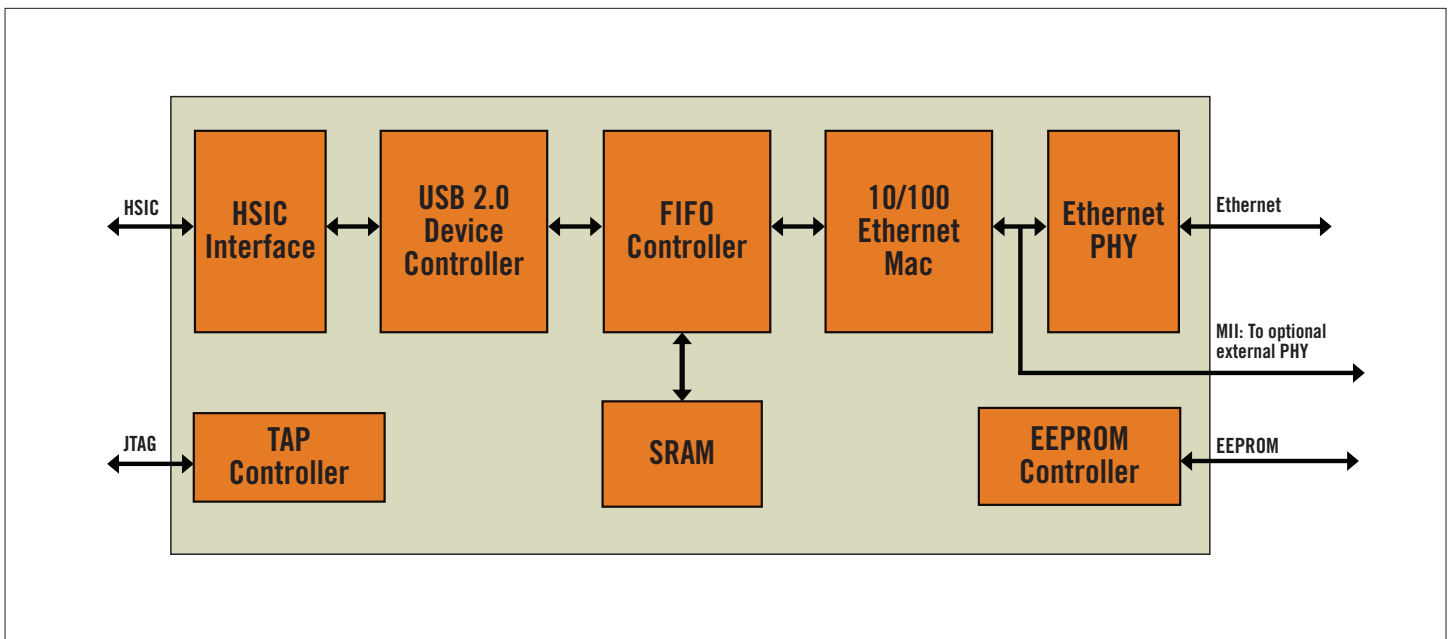
HSIC software and driver are fully backward-compatible with USB 2.0 software and drivers, enabling a seamless transition to HSIC.

Reduces BOM component count and cost

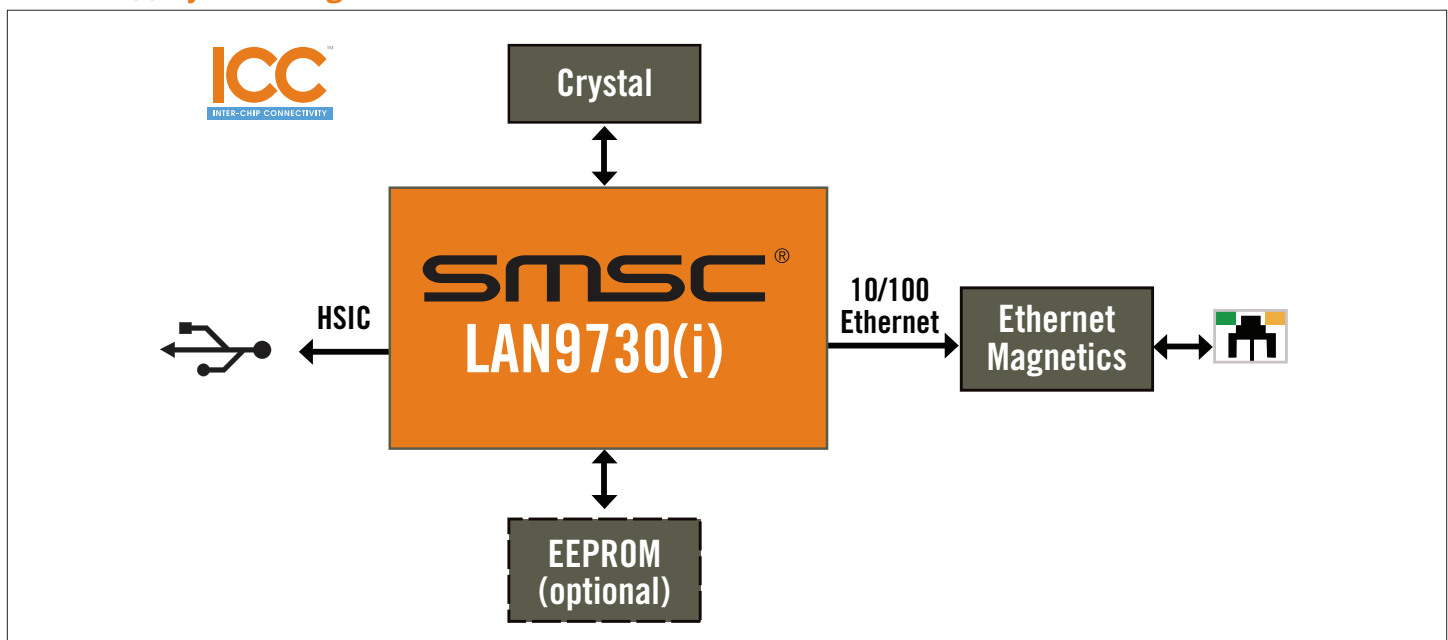
Designed to perform in rugged industrial environments



LAN9730(i) Block Diagram



LAN9730(i) System Diagram



*HP Auto-MDIX eliminates the need for special "crossover" cables when connecting LAN devices together.

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