

LAN874x Family



Small-Footprint, 10/100 PHY Family Featuring Energy Efficient Ethernet and Wake-On-LAN

SMSC's LAN8740, LAN8741 and LAN8742 are the latest generation of low-power, 10/100 Fast Ethernet PHYs featuring Energy Efficient Ethernet (IEEE 802.3az) and Wake-On-LAN functionality, which provides system sleep modes for improved power savings. The LAN874x family features deterministic loop back delay, assuring real-time system performance as well as cable diagnostics which reduce network installation costs. All devices are available in both commercial (0° to 70°C) and industrial (-40° to 85°C) temperature ranges. The LAN874x family is well-suited for set-top box, PVR/DVR, industrial and test/measurement instrumentation applications. Additionally, these devices support auto-negotiation, auto-polarity correction, HP Auto-MDIX* and are compliant with IEEE 802.3 and 802.3u standards. SMSC also offers its complimentary and confidential LANCheck® online design review services to customers who select our products for their application design-in.**

Highlights

- Single-chip Ethernet PHY
- Comprehensive flexPWR® technology
 - Flexible power management architecture
 - LVCMOS variable I/O voltage range +1.6V to +3.6V
 - Integrated 1.2V regulator with disable feature
- Energy Efficient Ethernet (IEEE 802.3az)
- Cable diagnostics
- Deterministic latency
- Uses a low-cost 25MHz crystal for RMI mode to drive 50MHz output
- Wake-On-LAN
- HP Auto-MDIX support
- Supports commercial (0° to 70°C) and industrial (-40° to 85°C) temperature ranges
- 32-pin, 5x5mm and 24-pin, 4x4mm SQFN, RoHS-compliant packages

Target Applications

- Set-top Boxes
- DVRs/PVRs
- Digital TVs/iPTVs
- Printers
- IP and Video Phones
- Industrial
- Embedded/Telecom
- Test/Measurement Instrumentation
- Wireless Access Points
- Power over Ethernet (PoE)

Features

Benefits

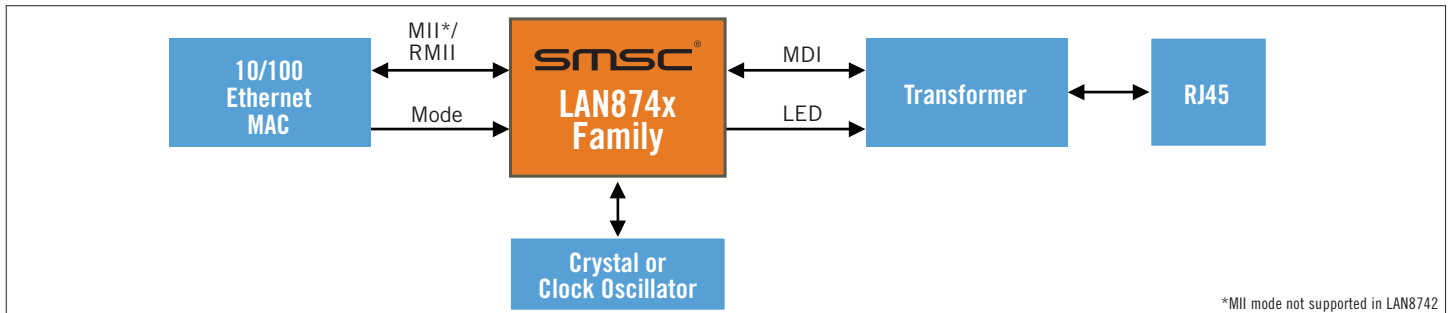
Energy Efficient Ethernet (IEEE 802.3az)	When used with an Energy Efficient Ethernet MAC, LAN8740 and LAN8741 detect when no activity is occurring, signal the MAC to enter a low power mode and enable low latency recovery
Wake-On-LAN	Allows the SoC's integrated MAC to be powered down while system retains the ability to wake from select activity
Power management features	Energy detect power-down reduces power usage when the Ethernet cable is unplugged
Cable diagnostics	Detects and reports cable shorts, opens and measure of cable length for proactive system maintenance
Deterministic latency	Assures precision timing in industrial applications
Single crystal for RMI mode	LAN874x can generate a 50MHz clock from a 25MHz crystal, if required, reducing BOM and overall system cost
Industrial temperature (-40° to 85°C) range options available	Designed to perform in rugged industrial environments



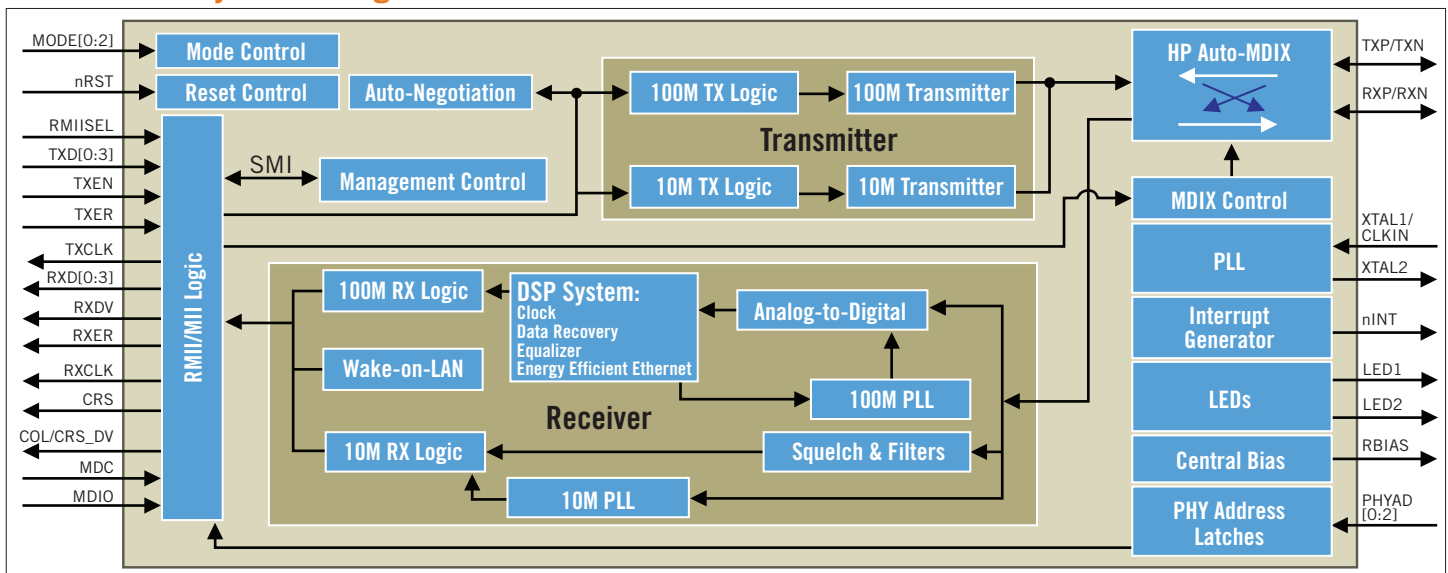
Which LAN874x Family Member is Right for Your Design?

Features	LAN8740	LAN8741	LAN8742
MAC Interface(s)	MII/RMII	MII/RMII	RMII
Media	Cu	Cu	Cu
Energy Efficient Ethernet	Yes	Yes	–
Wake-on-LAN	Yes	–	Yes
Cable Diagnostics	Yes	–	Yes
RMII REF_CLK_OUT	–	–	Yes
Pin Compatible	with LAN8710	with LAN8710	with LAN8720
Package Size	32-pin, 5x5mm SQFN	32-pin, 5x5mm SQFN	24-pin, 4x4mm SQFN

LAN874x Family System Diagram



LAN874x Family Block Diagram



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

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