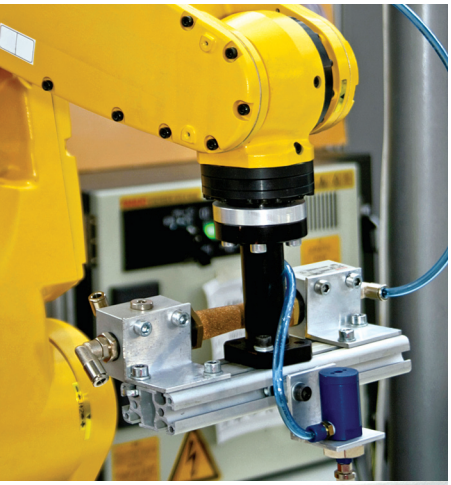


LAN931x Family – 10/100 Ethernet Switches

Full-Featured Switching Functions Targeting Cost-competitive Embedded Applications

The LAN931x family of embedded Ethernet switches supports the ever-increasing proliferation of networked devices in home consumer electronics. These devices supply system designers with 2/3-port switching technology to solve network connectivity requirements using 16 and 32-bit non-PCI as well as MII interfaces. They also provide support for time-critical industrial applications by incorporating the IEEE 1588 Precision Time Protocol. SMSC offers LANCheck® complimentary and confidential online design review service for customers who have selected our products for their application design-in.*

Highlights

- Flexible interface options for a wide variety of embedded CPUs
  - LAN9311 – 16-bit non-PCI interface with 2 ports
  - LAN9312 – 32-bit non-PCI interface with 2 ports
  - LAN9313 – 3-port switch (1-port MII)
- Serial management via SPI/I^2C or SMI
- High-performance, full-featured 2/3-port switches with VLAN, QoS packet prioritization, rate limiting, IGMP monitoring and management functions
- Unique virtual PHY feature simplifies software development by mimicking a multiple port switch as a single port MAC/PHY or PHY
- On-chip hardware time stamping blocks for IEEE 1588 Precision Time Protocol increases timing synchronization accuracy
- Industrial temperature range (-40° to 85°C) options available (LAN9311i/LAN9313i)
- 128-pin VTQFP and XVTQFP package options available

Target Applications

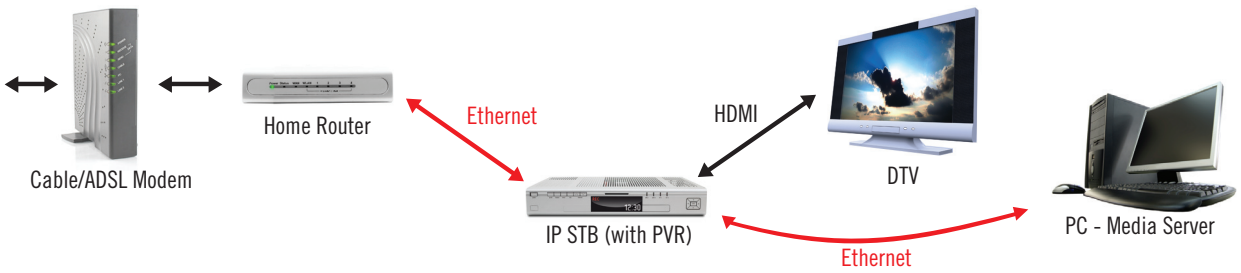
- Cable, Satellite and IP Set-top Boxes
- Digital Televisions
- Digital Video Recorders (DVRs)
- VoIP/Video Phone Systems
- Home Gateways
- Programmable Logic Controller (PLC)
- Test/Measurement Equipment
- Industrial Automation and Control

Features and Benefits

FEATURES	BENEFITS
Non-PCI interface (LAN9311/9312)	One-chip solution for two Ethernet ports where SoCs do not have integrated MAC functionality
MII interface (LAN9313)	Industry-standard, low pin-count interface
Virtual PHY	Simplifies software development by mimicking a multiple port switch as a single port MAC/PHY or PHY
VLAN (16/4096 groups)	Increased security options and network performance by filtering packets if ports are not members of VLAN groups
QoS packet prioritization	Ensures higher priority packets delivered first, minimizing packet delay – critical to IP multimedia streaming applications
IGMP monitoring	Effectively reduces multicast traffic from streaming and other bandwidth-intensive IP applications
IEEE 1588 Precision Time Protocol	Microsecond to sub-microsecond accuracy to synchronize time on the network for time-critical/real-time applications
Spanning tree	Disables redundant network paths eliminating broadcast storms

*LANCheck online design review service requires an SMSC e-Services account and is subject to the terms and conditions stated on SMSC's website.

LAN931x FAMILY: CONSUMER APPLICATION EXAMPLE - IP SET-TOP BOX (STB)

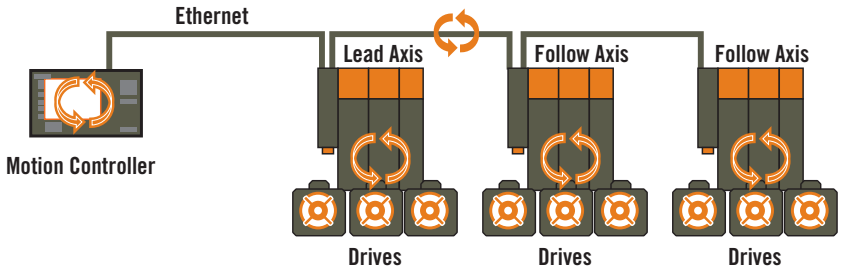


Trend:	Benefits:
Adding 2-port switches into the IP STB	• Efficient cabling • QoS functions enhance quality of IP streaming applications

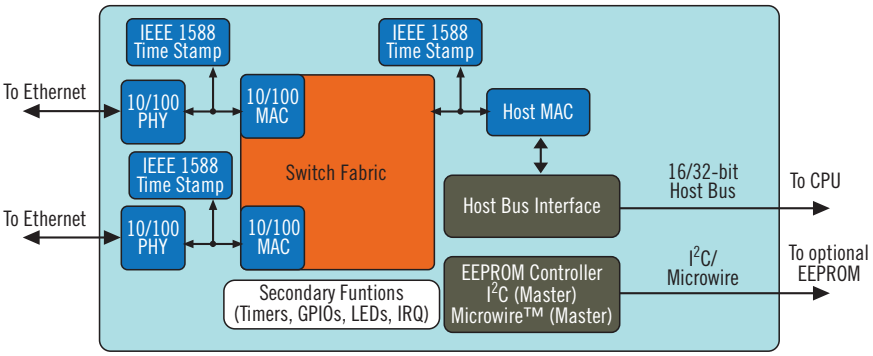
LAN931x FAMILY: INDUSTRIAL APPLICATION EXAMPLE

Benefits:

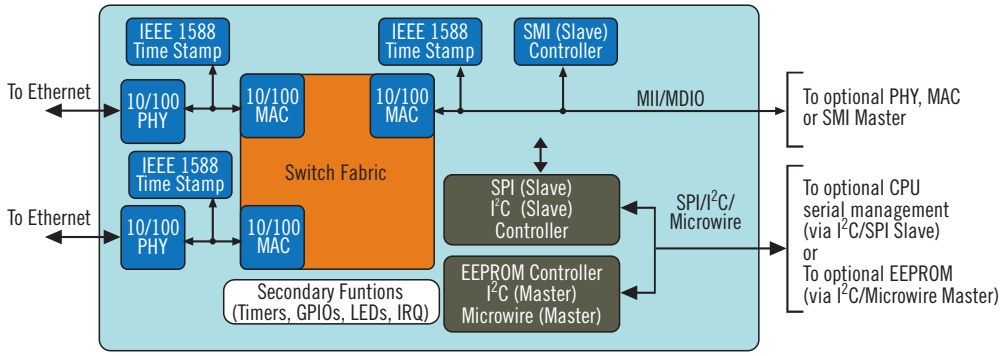
- Ease of cabling/daisy chain topology instead of connecting every device to a router
- Traffic control and trouble reporting



LAN9311/9312 BLOCK DIAGRAM



LAN9313 BLOCK DIAGRAM



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