

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/I²C 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

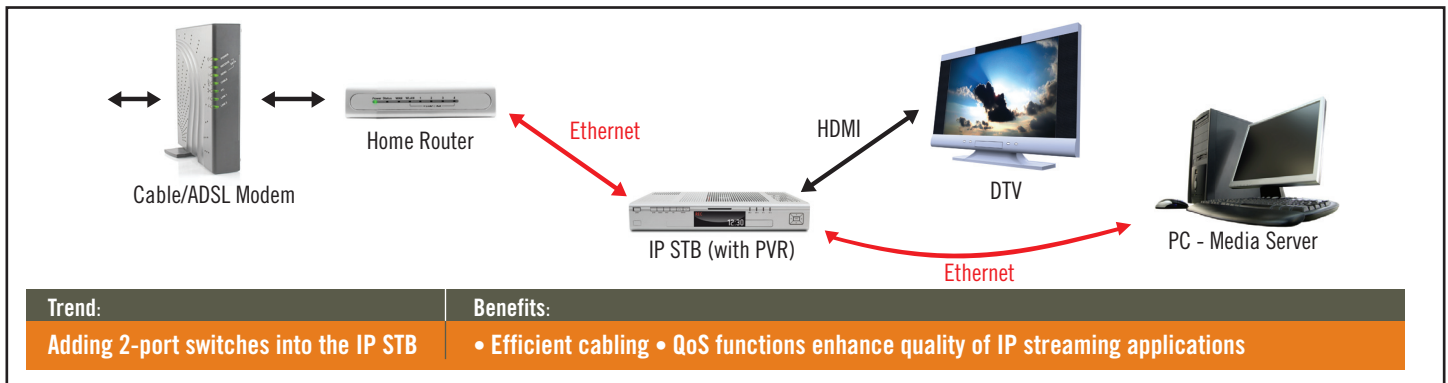
- Cable, Satellite and IP Set-top Boxes
- Digital Televisions
- Digital Video Recorders (DVRs)
- VoIP/Video Phone Systems
- Home Gateways
- Programmable Logic Controller (PLC)
- Test/Measurement Equipment
- Industrial Automation and Control

Features and Benefits

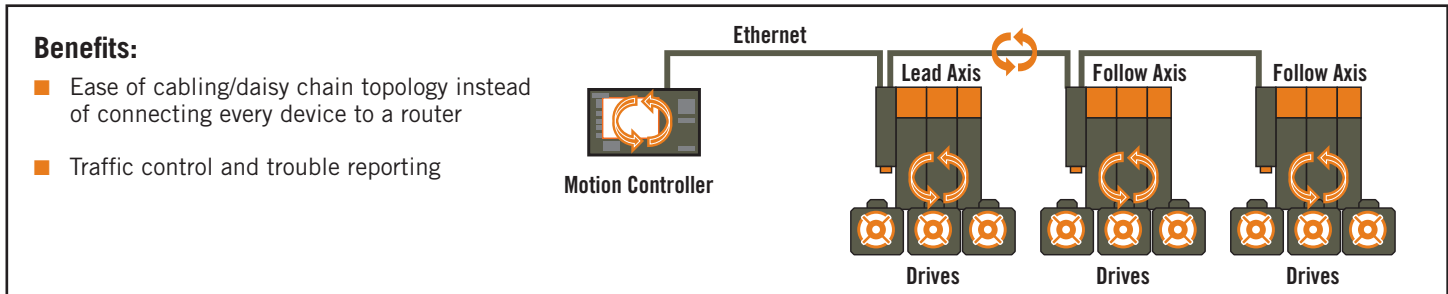
FEATURES	BENEFITS
Non-PCI interface (LAN9311/9312)	One-chip solution for two Ethernet ports where SoCs do not have integrated MAC functionality
MII interface (LAN9313)	Industry-standard, low pin-count interface
Virtual PHY	Simplifies software development by mimicking a multiple port switch as a single 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.

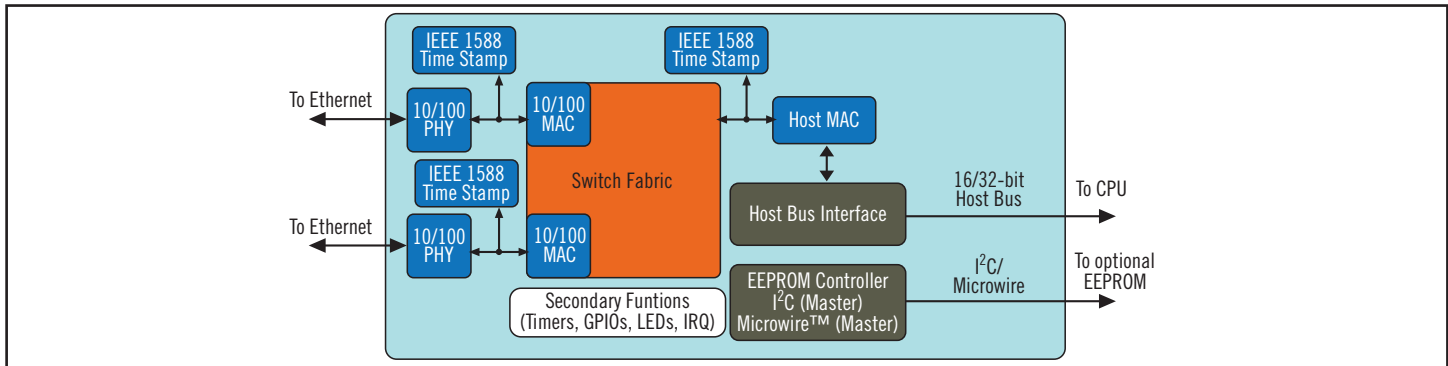
LAN931x FAMILY: CONSUMER APPLICATION EXAMPLE - IP SET-TOP BOX (STB)



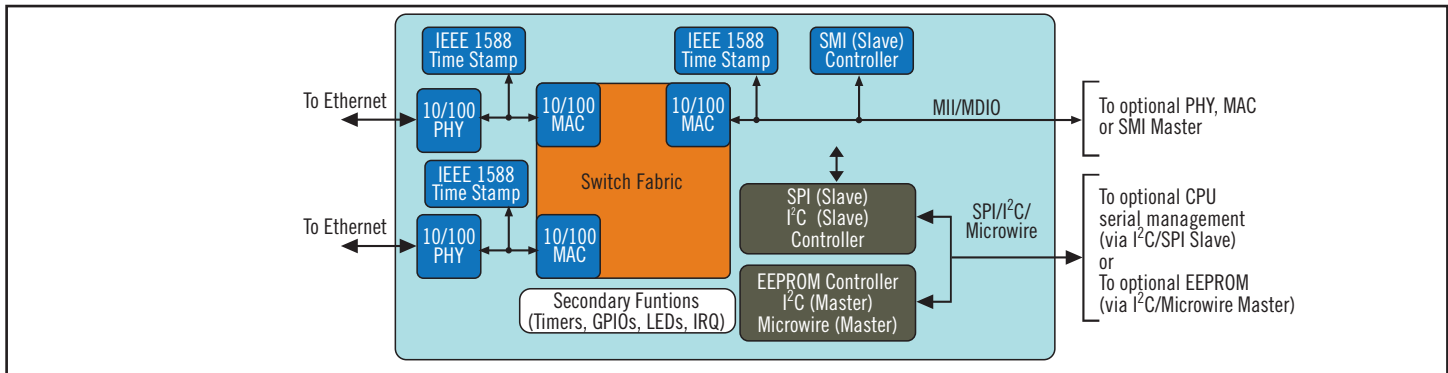
LAN931x FAMILY: INDUSTRIAL APPLICATION EXAMPLE



LAN9311/9312 BLOCK DIAGRAM



LAN9313 BLOCK DIAGRAM



Copyright ©2010 SMSC or its subsidiaries. All rights reserved. Although the information in this document has been checked and is believed to be accurate, no responsibility is assumed for inaccuracies. SMSC reserves the right to make changes to product descriptions and specifications at any time without notice. Contact your local SMSC sales office to obtain the latest specifications before placing your product order. The provision of this information does not convey any licenses under any patent rights or other intellectual property rights of SMSC or others. All sales are expressly conditional on your agreement to the terms and conditions of the most recently dated version of SMSC's standard Terms of Sale Agreement dated before the date of your order. Products may contain design defects or errors known as anomalies which may cause a product's functions to deviate from published specifications. Anomaly sheets are available upon request. SMSC products are not designed, intended, authorized or warranted for use in any life support or other application where product failure could cause or contribute to personal injury or severe property damage. Any and all such uses without prior written approval of an Officer of SMSC and further testing and/or modification will be fully at the risk of the customer. Copies of this document or other SMSC literature, as well as the Terms of Sale Agreement, may be obtained by visiting SMSC's website at <http://www.smsc.com>. SMSC, the SMSC logo and LANCheck are registered trademarks of Standard Microsystems Corporation ("SMSC"). Other names mentioned may be trademarks of their respective holders. All claims made herein speak as of the date of this material. The company does not undertake to update such statements. (02/10)