



LAN9210/9211 Ethernet Controllers

Small Form Factor, Single-Chip, Non-PCI 10/100 Ethernet Controllers with HP Auto-MDIX Support

SMSC's LAN9210 and LAN9211 are designed for embedded applications where performance, flexibility, ease-of-integration and system cost control are required. The LAN9210 provides an optimized price/performance ratio, and the LAN9211 is well-suited for applications requiring maximum performance. Both are fully IEEE 802.3 10BASE-T and 802.3u 100BASE-TX-compliant and support HP Auto-MDIX*.

The LAN9210/9211 both include an integrated Ethernet MAC/PHY with a high-performance SRAM-like slave interface. The simple, yet highly functional host bus interface provides a glue-less connection to most common 16-bit microprocessors and microcontrollers as well as 32-bit microprocessors with a 16-bit external bus. The integrated Checksum Offload Engine enables the automatic generation of the 16-bit Checksum for received and transmitted Ethernet frames, offloading the task from the CPU.



Target Applications

LAN9210

- Basic Cable, Satellite and Standard-definition IP Set-top Boxes (STBs)
- Printers, Kiosks and Security Systems
- Digital Video Recorders (DVRs)
- Audio Distribution Systems
- Video-over IP Solutions, IP PBX and Video Phones
- Wireless Routers and Access Points

LAN9211

- High-end Cable, Satellite and High-definition IP STBs
- High-definition Televisions
- DVRs and DVD Recorders/Players
- Digital Media Clients/Servers and Home Gateways
- Video-over IP Solutions, IP PBX and Video Phones
- Wireless Routers and Access Points

Highlights

- Efficient architecture with low CPU overhead
- Easily interfaces to most 16/32-bit embedded CPUs with 16-bit external bus interfaces
- Integrated PHY with HP Auto-MDIX support*
- Integrated Checksum Offload Engine helps reduce CPU load
- Low pin count and small footprint package for small form factor system designs

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

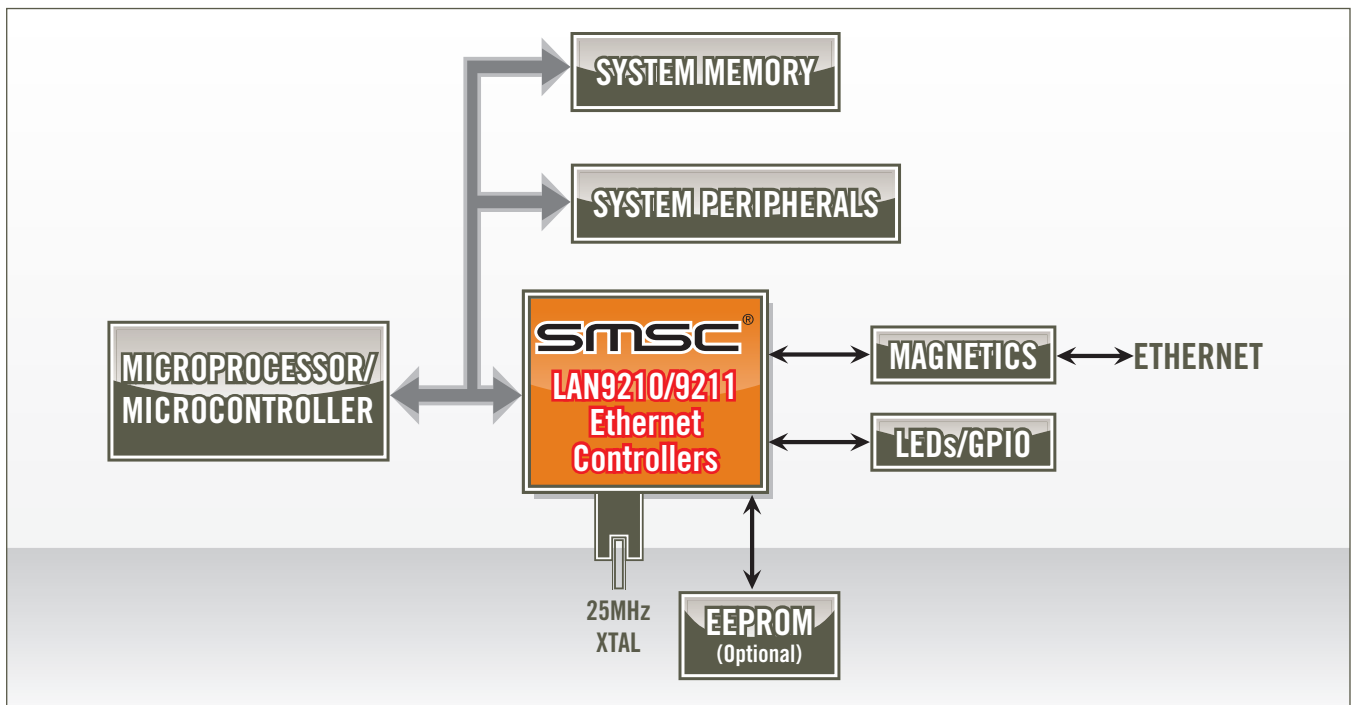


Features and Benefits

FEATURES	BENEFITS
56-pin QFN small form factor packaging	Up to 68% PCB space savings compared to previously available SMSC Ethernet products
TX/RX Checksum Offload Engine	Reduces CPU overhead and improves system performance
Mixed Endian	Prevents byte swapping during configuration register accesses, regardless of big or little endian CPU
16k byte internal SRAM with flexible TX/RX allocation	Stores up to 200 packets
Scalable performance options	Pin-compatible LAN9210/9211 enables flexible system design with scalable performance
Memory Alignment Technology	Eliminates buffer copying and maximizes memory utilization
Support for DMA mode	Reduces CPU overhead and improves system performance
Flow Control	Significantly reduces dropped packets
Various reduced power modes	Well-suited for low-power applications



Typical System Block Diagram Application Example



Which Ethernet product is right for your design?

	LAN9211	LAN9210	LAN9217	LAN9215	LAN9218
Host Bus Interface	16-bit	16-bit	16-bit	16-bit	32-bit
Performance	High	Standard	High	Standard	High**
Package	56-pin QFN (8x8mm)	56-pin QFN (8x8mm)	100-pin TQFP (14x14mm)	100-pin TQFP or 100-pin LFBGA (14x14mm)	100-pin TQFP (14x14mm)
Checksum Offload Engine	●	●			
Mixed Endian	●	●			
Industrial Temperature Range Option Available (-40° to 85°C)				●	●
External MII			●	●	
HP Auto-MDIX Support*	●	●	●	●	●
16k Byte Memory	●	●	●	●	●
Memory Alignment Technology	●	●	●	●	●
Supports DMA Mode	●	●	●	●	●
RoHS-compliant	●	●	●	●	●
Reduced Power Modes	●	●	●	●	●

** SMSC's highest performing Ethernet Controller with a 32-bit interface.

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