

# Wireless Gateway

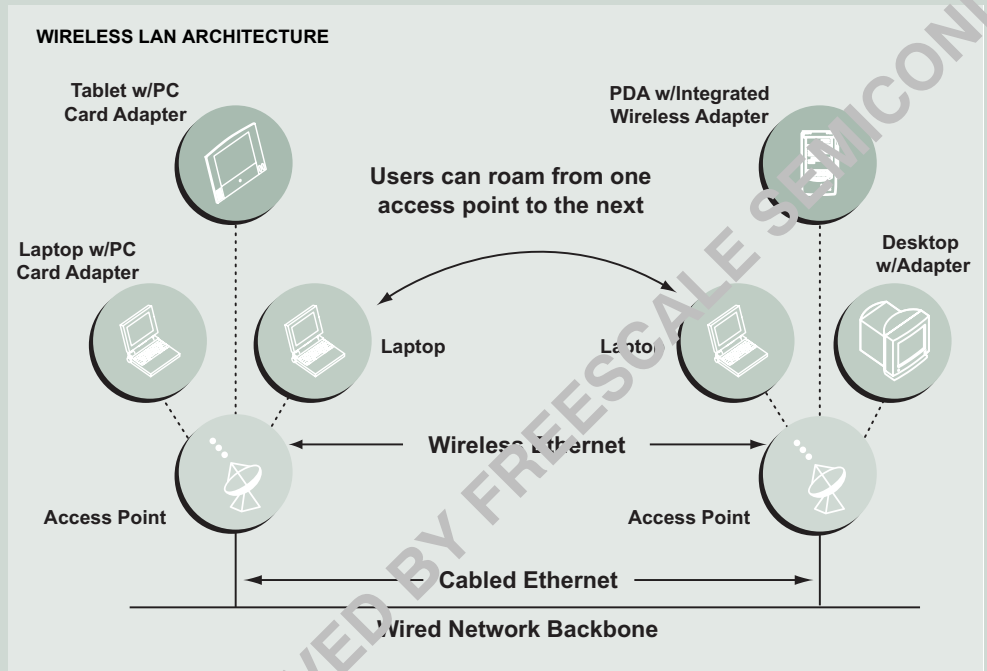
## Overview

In a typical wireless LAN configuration, a transceiver device, called an access point, connects to the wired network from a fixed location using standard cabling. The access point receives and transmits data between the wireless LAN and the wired network infrastructure. A single access point can

support a small group of users. Users access the wireless LAN through WLAN adapters, implemented as PC cards in notebook or desktop computers or integrated within personal digital assistants (PDAs) and other devices.

## Key Benefits

- > Provides comprehensive network infrastructure processor portfolio with intelligence for smart development of wireless gateway platforms



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## Freescale Ordering Information

Part Number	Product Highlights	Additional Information
MPC850	<ul style="list-style-type: none"> <li>&gt; 80 MHz maximum speed</li> <li>&gt; 2K-bytes cache-L1 instructional</li> <li>&gt; 1K-byte cache-L1 data</li> <li>&gt; 8-entry translation lookaside buffers</li> </ul>	<a href="http://www.freescale.com/netcomm">www.freescale.com/netcomm</a>
MPC184	Security co-processor designed to interface with 32-bit PCI devices. Ideal for use with Freescale Semiconductor MPC824x and 8xx devices.	<a href="http://www.freescale.com/securityprocessor">www.freescale.com/securityprocessor</a>

### Design Challenges

As with many market-making applications, wireless gateway access point designs face significant cost pressures placing severe constraints on the optimization of cost/performance trade-offs. The designer faces the challenges of simplifying the manufacturing process, accommodating system compatibility issues while air-interface and protocol standards are being settled. Designers also face ongoing concerns over wireless link security, requiring a flexible solution including one capable to support WEP and IPsec.

### Freescale Semiconductor Solution

Freescale Semiconductor's PowerQUICC™ family of integrated communications processors enables a new approach delivering a broad solution set within a single hardware architecture. As a direct result of its dual-core architecture, the dedicated

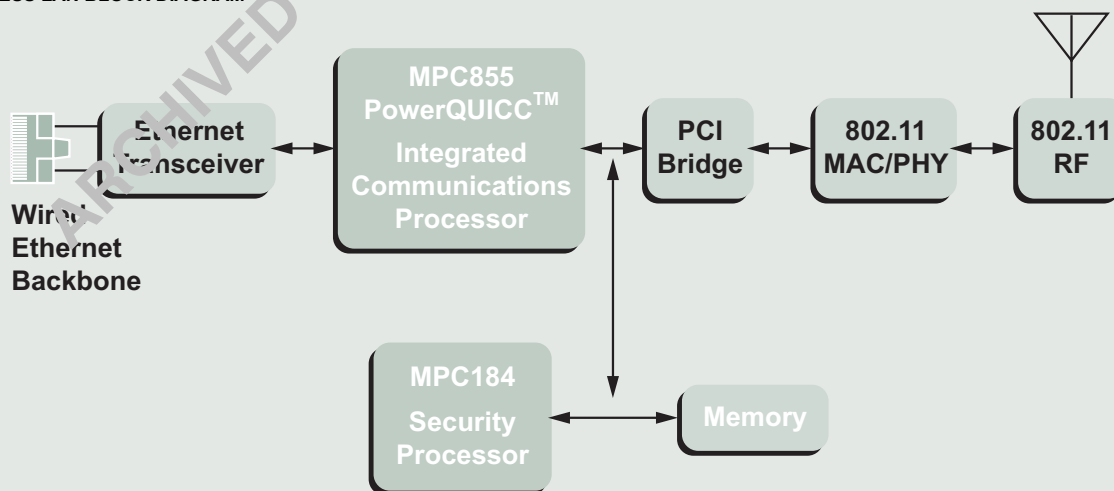
RISC communications processor and on-board memory enable a single PowerQUICC-based interface to be built with a variety of different PHY interface types in order to create a common platform. Protocol software can be implemented within the PowerQUICC processor, while the core, compliant with PowerPC architecture, handles control/management plane functions. The external bus, compliant with PowerPC architecture, supports a PCI bridge interfacing with 802.11 MAC/PHY layer providing a total solution for a wireless LAN gateway.

Additionally, protocols can be added by microcode packages designed to be downloaded into the on-board RAM space. The established code base and broad third party support from Freescale Semiconductor's Smart Networks Alliance Program members further enable cost-efficient solutions and accelerated time-to-market for wireless

gateway equipment suppliers. The Figure below illustrates how MPC184 easily integrates with the 8xx bus of the MPC855 to process the security protocols associated with WLAN (802.11i), while also supporting IPsec, SSL, and TLS used in several alternate security schemes for WLAN. The ability to support WEP and IPsec allows the MPC855 and MPC184 to act as a wireless gateway connecting the otherwise insecure WLAN to the perpetually insecure WAN.

The MPC184 supports the public key and authentication algorithms used in WEP session establishment, while also accelerating DES/3DES, AES, and ARC-4. The MPC184 has a small footprint (252 MAPBGA) and utilizes existing system memory, resulting in significant savings of both board space and system cost.

WIRELESS LAN BLOCK DIAGRAM



### Development Tools

Tool Type	Product Name	Vendor	Description
Hardware	MPC8XXFADSMB	Freescale Semiconductor	For MPC8xx Family Application Development System Motherboard

#### Related Information

##### **Freescale Semiconductor's Smart Networks Alliance Program**

Freescale Semiconductor's Smart Networks Alliance Program is designed to enable the broadest suite of solutions for communications OEM customers leveraging the Smart Networks Platform.

##### **PowerQUICC Integrated Communications Processors**

- > MPC850 family
- > MPC855T with Fast Ethernet support
- > MPC857T with Fast Ethernet and enhanced ATM support
- > MPC860 family
- > MPC862 with enhanced ATM support
- > MPC8250, MPC8255, MPC8260, MPC8264, MPC8265, and MPC8266

##### **PowerQUICC and PowerQUICC II**

PowerQUICC and PowerQUICC II microcodes packages provide enhanced forwarding plane features PowerQUICC II next-generation family

- > MPC184 Security Processor
- > Tundra's QSpan™ PCI Bridge connects gluelessly to the PowerQUICC family memory bus

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## Notes

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