

FEATURES

- IEEE 802.11 wireless adapter module
- Supports Intel, Broadcom, Atheros and other 802.11 miniPCI modules
- Available with or without a miniPCI card installed
- RP-SMA external antenna connector
- Optional diversity second antenna connector
- PC/104-Plus compatible module
- Small size: 90-mm x 96-mm
- Onboard 3.3 volt regulator allows the board to operate from a single +5 V supply
- Developer's kit includes wireless module, antenna, and cables

WinSystems' PPM-Wireless is a PC/104-Plus module that supports 802.11b/g wireless communications. The technology provides a high-speed, industrial data network based upon miniPCI wireless modules and the Ethernet utilizing a TCP/IP protocol stack. This means that standard CAT5 Ethernet cable is replaced by a radio channel which simplifies cabling installation and configuration issues.

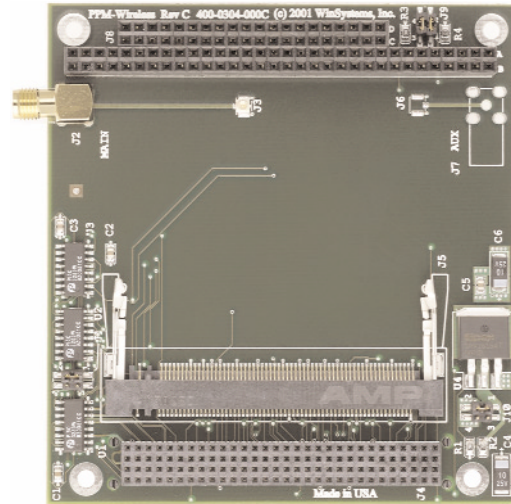
Lack of cabling makes moves, additions, and changes easy for installed networks. Also, the portable nature of wireless networks lets engineers pre-configure and troubleshoot entire networks before installing them at remote locations. Once configured, a system can be moved from place to place with little or no modification.

Applications include high bandwidth remote communications, MPEG video streaming, mobile environments, remote surveillance, and protocol conversion.

FUNCTIONAL CAPABILITY

The PPM-Wireless is a small, PC/104-Plus-compliant module that measures only 90-mm x 96-mm. The PPM-Wireless can be stacked on top of a host PC/104-Plus, EPIC, or EBX single board computer. On board the PPM-Wireless are the interface electronics, a miniPCI connector, power supply, and antenna connector.

WinSystems' PPM-Wireless converts the PC/104-Plus PCI signals into miniPCI-compatible signals. A miniPCI card is a small version of a standard desktop PCI card with the same features and functionality of a normal PCI card but at about one quarter the size. Ideally suited for embedded applications, the miniPCI card measures only 51 x 60-mm. The PPM-Wireless supports the same miniPCI cards used worldwide in laptop computers.

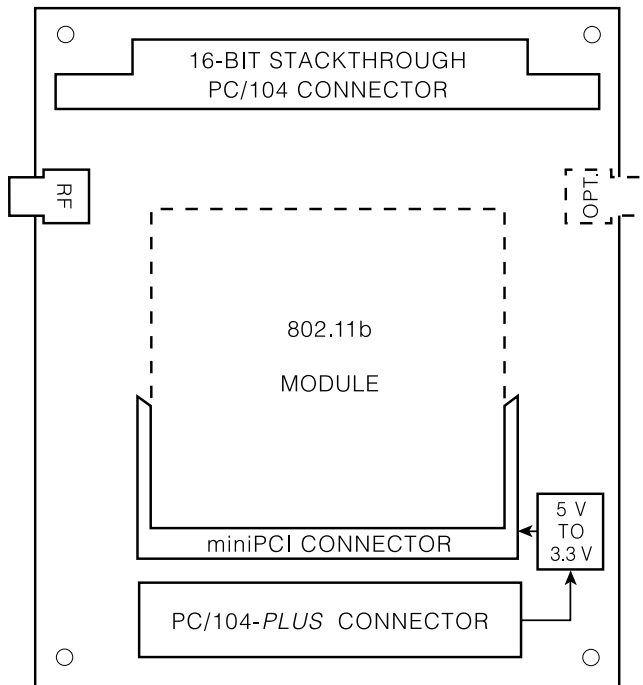


Configuration Options - The PPM-Wireless is shipped with an empty miniPCI socket so that a user can install their own cards from Intel, Broadcom, Foxconn (Atheros), and others or with an Intel® PRO/Wireless 2200BG miniPCI card installed by WinSystems.

An Intel PRO/Wireless 2200BG card is a standards-based and Wi-Fi Certified wireless local area network (WLAN) solution that allows up to 54 million bits of data to be transferred per second. It is designed to maintain high throughput at longer ranges depending upon the type of antenna used. The Intel PRO/Wireless 2200BG is also software upgradeable to provide future security and other service enhancements. The Intel PRO/Wireless 2200BG network connection fully supports today's security standards such as Wi-Fi Protected Access (WPA) and can be upgraded via software downloads for as future security standards such as 802.11i become available.

Software - Normally 802.11 cards are automatically recognized by operating systems such as Windows®XP. Also, the individual miniPCI card manufacturer will typically have drivers either with their card or at their web site. Please contact them directly for specific operating systems that their card will support.

RF Antenna Connection - The PPM-Wireless has a reverse polarized (RP) SMA external connector to enable the selection of an antenna having characteristics



PPM-WIRELESS BLOCK DIAGRAM

best suited for the application. Typical indoor range for an omni-directional is 100 ft (30m) @ 54 Mbps or 300 ft (91m) @ 1 Mbps; however, it is dependent upon the type and placement of the antenna, and any sources of interference in the environment.

The most common antenna types for wireless LANs are omni-directional, but directional radiation patterns are sometimes needed depending upon the application. Also, a second RF connector can be added to the PPM-Wireless board as a factory option to support diversity antenna configurations for improved performance.

Wireless network architecture - Users need very little new information to take advantage of wireless LANs (WLAN). Because the wireless nature of a WLAN is transparent to a user's network operating system (NOS), applications work the same as they do on LANs using cables. The 802.11 protocol can be deployed in ad hoc mode for peer-to-peer communication between wireless stations or in infrastructure mode enabling communication between stations and access points (APs).

PC/104-Plus Interface - The PPM-Wireless provides a high-performance, 32-bit PCI interface using the PC/104-Plus bus. Multiple PC/104-Plus modules can be

installed and supported on a single stack. There is a jumper to select the module slot position.

There is also a PC/104 connector on the PPM-Wireless board to support mixed PC/104 and PC/104-Plus modules on a stack. No control or data signals are wired to the PC/104 connector. It simply feeds the signals through the connector to the next module in a stack.

+5V only - An onboard 3.3V regulator allows the board to support either +5V/3.3V tolerant or +3.3V only PC/104-Plus signaling. A jumper selects the voltage range. The voltage source is not wired back to the 3.3V pin on the PC/104-Plus connector.

Quick Start Kit - A development kit is available that includes the PPM-Wireless, Intel miniPCI 802.11b/g card, antenna, and cables. It provides a known-good platform to use during initial product design.

SPECIFICATIONS

Electrical

Power: Requirements are determined by the miniPCI module selected. Please check the manufacturer's specifications.

Mechanical

Dimensions: 3.6" x 3.8" (90-mm x 96-mm)
Weight: 3.0 oz. (84 gm)

Connectors

RF: RP-SMA
MiniPCI: 124-pin, 0.8-mm
PC/104-Plus: 120-pin (4 x 30; 2-mm) stackthrough with shrouded header
PC/104: 16-bit stackthrough (feed through only)

Environmental

Operating Temperature: -40° to +85°C without the miniPCI module
Non-condensing relative humidity: 5% to 95%

ORDERING INFORMATION

PPM-WIRELESS-1 PC/104-Plus board without the miniPCI module and cable installed
KIT-PPM-WIRELESS-1 Quick start kit that includes the PPM-Wireless board with an Intel 2200BG card, antenna, and cables

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