

Overview

The PmodWiFi is an interface board for the Microchip® MRF24WB0MA Wi-Fi™ radio transceiver module. The PmodWiFi can add Wi-Fi communication to any Digilent system board.

Features include:

- IEEE 802.11-compliant RF transceiver
- serialized unique MAC address
- data rate: 1 and 2Mbps
- IEEE 802.11b/g/n-compatible
- integrated PCB antenna
- range: up to 400m (1300 ft.)
- radio regulation certification for the United States (FCC), Canada (IC), Europe (ETSI), and Japan (ARIB)
- Wi-Fi certified (WFA ID: WFA7150)

Functional Description

The PmodWiFi provides IEEE 802.11b/g/n support for embedded applications at data rates of 1 and 2Mbps. It is designed for use with Microchip microcontroller families (PIC18, PIC24, dsPIC33, and PIC32) and the Microchip TCP/IP Stack (a free *Microchip Application Libraries* download including example applications and source code). The TCP/IP Stack is available at www.microchip.com/wireless.

Interface

The primary communications interface with the PmodWiFi is an SPI bus. An RST pin provides the host with an active low, asynchronous hardware reset for the PmodWiFi. The PmodWiFi also provides an active low interrupt indicator pin (~INT), which is asserted low by the PmodWifi when data is available for the host device. The ~INT line is de-asserted high after the data transfer is complete. The SPI SCK speed can be up to 25MHz.



Interface Connector Signal Description

Connector J1 – SPI Communications		
Pin	Signal	Description
1	~SS	Slave Select
2	MOSI	Master out/Slave in Data
3	MISO	Master in/Slave out Data
4	SCK	Serial Clock
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V)
7	~INT	Interrupt Output
8	~RST	Hardware Reset
9	~WP	Write Protect
10	HIB	Hibernate
11	GND	Power Supply Ground
12	VCC	Power Supply (3.3V)

The SPI interface standard uses four signal lines. These are slave select (~SS), master out slave in (MOSI), master in slave out (MISO), and serial clock (SCK). These signals map to the following signals on the MRF24WB0MA: ~SS corresponds to the Chip Select signal (~CS), MOSI corresponds to Serial Data Input (SDI), MISO corresponds to Serial Data Output (SDO), and SCK corresponds to the Serial Clock signal (SCK).

Power Supply

The PmodWiFi is designed to work with Digilent microcontroller boards that have 12-pin header connectors.

The PmodWiFi requires a 2.7V-3.6V supply voltage. A 3.3V power supply voltage is available on all Digilent system boards and is provided as part of the 12-wire Pmod interface standard.

Digilent system boards with Pmod interface connectors allow jumper selection of the power supply voltage being provided to the Pmod. Ensure that the system board is jumpered to provide 3.3V to the module before applying power to the board.

For more information on the MRF24WB0MA, see the MRF24WB0MA datasheet at the Microchip web site.