

RCM4510W RabbitCore®

MODELS | RCM4510 |

ZigBee® RF Core Module

Key Features

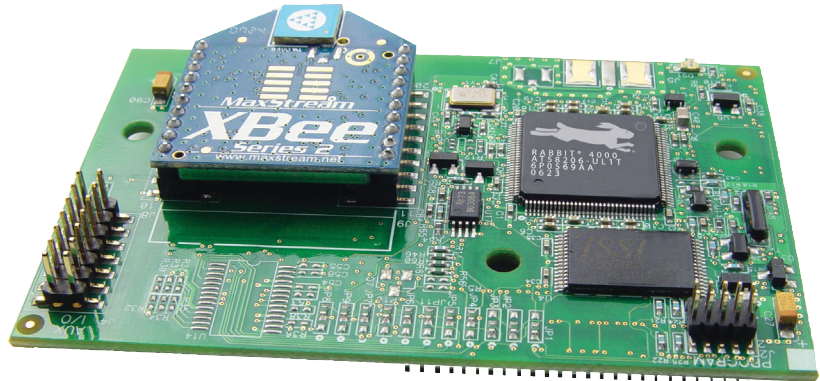
- RabbitCore module running @ 29.49 MHz
- Designed for ZigBee®/802.15.4 wireless connectivity
- 512K flash memory, 512K data SRAM
- Up to 40 general-purpose I/O lines configurable
- Up to 9 additional general-purpose I/O lines (up to 4 of which may be set up as analog inputs) available through the on-board ZigBee compliant RF module
- Small size: 1.84" × 2.85" × 0.54" (47 mm × 72 mm × 14 mm)

Design Advantages

- Wireless mesh networking
- Low power

Applications

- Data Acquisition
- Point-of-Sale (POS)
- Building Automation



RCM4510W RabbitCore – Designed for ZigBee Connectivity

The RCM4510W RabbitCore module mounts directly on a user-designed motherboard and acts as the controlling microprocessor for the embedded system. The motherboard supplies power to the RCM4510W and allows many different CMOS-compatible devices to interface with the core module. Integrated on the RCM4510W is a Digi® XBee™ ZNet 2.5 RF module for ZigBee/802.15.4 embedded implementation.

The RCM4510W RabbitCore module is equipped with an on-board ZigBee/802.15.4 modem for low-cost, low-power, wireless connectivity. This Rabbit® 4000 microprocessor based core module lets you create a low-power, wireless mesh network as part of your control solution for your embedded application.

The ZigBee Protocol

The ZigBee protocol is engineered by the ZigBee Alliance, a non-profit consortium of leading semiconductor manufacturers, technology providers, OEMs and end-users worldwide. The protocol is designed to provide OEMs and integrators with an easy-to-use wireless data solution characterized by low-power consumption, support for multiple network structures and secure connections.



www.rabbit.com

For more information about the ZigBee wireless standard, go to www.digi.com/technology/rf-articles/wireless-zigbee.jsp.

Developing with the RCM4510W RabbitCore Module

The RabbitCore line of microprocessor core modules is designed to facilitate rapid development and implementation of embedded systems.

The RCM4510W Development Kit has the essentials that you need to design your own wireless microprocessor-based system. The kit come complete with a RabbitCore module, a prototyping board, accessory parts and all development tools specifically designed to get you up and running in minutes.

Development kits come with our industry-proven Dynamic C[®] integrated development software that includes an editor, compiler and in-circuit debugger. Download the program from your PC via USB or serial port, and debug right on the target hardware – no in-circuit emulation is required. This environment reduces effort and speeds hardware and software integration. Rabbit provides an extensive library of drivers and sample programs, along with royalty-free TCP/IP stack with source.

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* These I/O pins from the ZigBee modem are available on auxiliary I/O leader J4.

RCM4500W RabbitCore [®] Specifications	
Features	RCM4510W
Microprocessor	Rabbit [®] 4000 @ 29.49 MHz
Flash Memory	512K
Data SRAM	512K
Backup Battery	Connection for user-supplied backup battery (to support RTC and data SRAM)
General Purpose I/O	Up to 49 parallel digital I/O lines: <ul style="list-style-type: none"> • Up to 40 Rabbit 4000 pins configurable with 4 layers of alternate functions • Up to 9 ZigBee modem pins, 4 of which may be configured as analog inputs *
Additional Inputs	Startup mode (2), reset in
Additional Outputs	Status, reset out
Analog Inputs *	4 channels single-ended 0–1.2 VDC
• A/D Converter Resolution	10 bits
• A/D Conversion Time (including raw count and Dynamic C)	40 ms
Auxiliary I/O Bus	Can be configured for 8 data lines and 6 address lines (shared with parallel I/O lines), plus I/O read/write
Serial Ports	6 high-speed, CMOS-compatible ports: <ul style="list-style-type: none"> • All 6 configurable as asynchronous (with IrDA), • 4 as clocked serial (SPI), and 2 as SDLC/HDLC • 1 asynchronous clocked serial port shared with programming port
Serial Rate	Maximum asynchronous baud rate = CLK/8
Slave Interface	Slave port allows the RCM4510W to be used as an intelligent peripheral device slaved to a master processor
Real Time Clock	Yes
Timers	Ten 8-bit timers (6 cascadable from the first), one 10-bit timer with 2 match registers, and one 16-bit timer with 4 outputs and 8 set/reset registers 4 channels synchronized PWM with 10-bit counter
Watchdog/Supervisor	Yes
Pulse-Width Modulators	4 channels variable-phase or synchronized PWM with 16-bit counter
Input Capture	2-channel input capture can be used to time input signals from various port pins
Quadrature Decoder	2-channel quadrature decoder accepts inputs from external incremental encoder modules
Power with ZigBee Modem (pins unloaded)	3.3 VDC ±5% 150 mA @ 3.3 V while transmitting/receiving 80 mA @ 3.3 V while not transmitting/receiving <20 µA @ 3.3 V while asleep
Operating Temperature	-40° C to +85° C
Humidity	5% to 95%, non-condensing
Connectors	One 2 × 7, 2 mm pitch IDC signal header One 2 × 25, 1.27 mm pitch IDC signal header One 2 × 5, 1.27 mm pitch IDC programming header
Board Size with ZigBee Modem	1.84" × 2.85" × 0.54" (47 mm × 72 mm × 14 mm)
ZigBee Modem Specifications	
Features	ZigBee Modem
RF Module	XBee ZNet 2.5
Protocol	802.15.4/Designed for ZigBee
Part Number	20-101-1207
Development Kit Part Number	U.S. 101-1188 Int'l 101-1189



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