

## Description

The RCM4510W next-generation RabbitCore module adds ZigBee®/802.15.4 connectivity to the existing Rabbit® 4000 microprocessor features allowing you to create a low-cost, low-power, wireless network as part of your control solution for your embedded application.

The RCM4510W RabbitCore module is equipped with an on-board ZigBee/802.15.4 modem for wireless connectivity. Features also include 512K flash memory and SRAM, 40 general-purpose I/O, and up to 9 general-purpose I/O 4 of which can be set up as analog inputs via the ZigBee module.

At the heart of the RCM4510W is the Rabbit 4000 microprocessor which features a clock speed of up to 29.49 MHz. Other features include hardware DMA, auxiliary I/O, quadrature decoder, input capture, GPIO lines shared with up to five serial ports, and four levels of alternate pin functions that include variable phase PWM. The Rabbit 4000 boasts an additional 500+ new operational code instructions that increases the processing efficiency, from its predecessor the Rabbit 3000.

The RCM4510W RabbitCore module is easily interchangeable with other RCM4xxx based products due to electrical and functional compatibility. With a small footprint of 1.84" x 2.42" (47 mm x 61 mm), the RCM4510W is compact and can easily be mounted directly onto a user-designed motherboard, along with CMOS-compatible digital devices.

## Developing with the RCM4510W

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. Programming is easy with hundreds of samples and libraries that can be used as building blocks to your code.

## 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 four of which may be set up as analog inputs) available through the ZigBee modem 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



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**Applications**

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

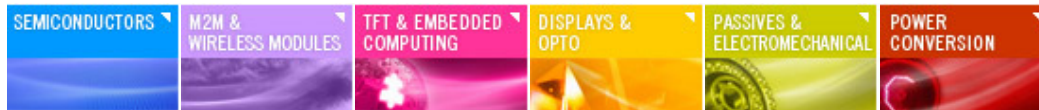
**RCM4510W Series Specifications**

<b>Features</b>	<b>RCM4510W</b>
<b>Microprocessor</b>	Rabbit® 4000 @ 29.49 MHz
<b>Flash Memory</b>	512K
<b>Data SRAM</b>	512K
<b>Backup Battery</b>	Connection for user-supplied backup battery (to support RTC and data SRAM)
<b>General Purpose I/O</b>	Up to 49 parallel digital I/O lines: <ul style="list-style-type: none"> <li>• up to 40 Rabbit 4000 pins configurable with four layers of alternate functions</li> <li>• up to 9 ZigBee® modem pins, four of which may be configured as analog inputs*</li> </ul>
<b>Additional Inputs</b>	Startup mode (2), reset in
<b>Additional Outputs</b>	Status, reset out
<b>Analog Inputs *</b>	4 channels single-ended 0–1.2 V DC
<b>A/D Converter Resolution</b>	10 bits
<b>A/D Conversion Time (including raw count and Dynamic C)</b>	40 ms
<b>Auxiliary I/O Bus</b>	Can be configured for 8 data lines and 6 address lines (shared with parallel I/O lines), plus I/O read/write
<b>Serial Ports</b>	6 high-speed, CMOS-compatible ports: <ul style="list-style-type: none"> <li>• all 6 configurable as asynchronous (with IrDA),</li> <li>• 4 as clocked serial (SPI), and 2 as SDLC/HDLC</li> <li>• 1 asynchronous clocked serial port shared with programming port</li> </ul>
<b>Serial Rate</b>	Maximum asynchronous baud rate = CLK/8
<b>Slave Interface</b>	Slave port allows the RCM4510W to be used as an intelligent peripheral device slaved to a master processor
<b>Real Time Clock</b>	Yes
<b>Timers</b>	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



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Features	RCM4510W
<b>Watchdog/Supervisor</b>	Yes
<b>Pulse-Width Modulators</b>	4 channels variable-phase or synchronized PWM with 16-bit counter
<b>Input Capture</b>	2-channel input capture can be used to time input signals from various port pins
<b>Quadrature Decoder</b>	2-channel quadrature decoder accepts inputs from external incremental encoder modules
<b>Power with ZigBee® Modem (pins unloaded)</b>	3.3 V.DC ±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
<b>Operating Temperature</b>	-40°C to +85°C
<b>Humidity</b>	5% to 95%, non-condensing
<b>Connectors</b>	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
<b>Board Size with ZigBee® Modem</b>	1.84" × 2.85" × 0.54" (47 mm × 72 mm × 14 mm)
<b>Part Number</b>	20-101-1207
<b>Development Kit</b>	101-1188
	<b>ZigBee® Modem</b>
<b>RF Module</b>	XBee™ ZNet 2.5
<b>Protocol</b>	802.15.4/Designed for ZigBee