RCM4510W RabbitCore®

MODELS | RCM4510 |

ZigBee Core Module

Key Features

- RabbitCore module running
 @ 29.49 MHz
- On-board 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
- 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



RCM4500W RabbitCore – The ZigBee is On-board

The RCM4500W series of next-generation RabbitCore modules 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 RCM4500W RabbitCore modules are 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

Semiconductor

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 RCM4500W RabbitCore modules are easily interchangeable with other RCM4xxx based products due to electrical and functional compatibility. With a small footprint of 1.84"x2.42" (47mm x 61mm),

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the RCM4200 is compact and can easily be mounted directly onto a user-designed motherboard, along with CMOS-compatible digital devices.

Developing with the RCM4500W

The RCM4500W 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.

Dynamic C Add-on Modules

Dynamic C Add-on modules provide added functionality and customization to your embedded applications. Software is available via download or CD-ROM.



Secure Socket Layer

Industry standard web security for embedded applications



RabbitWeb

sensitive data

Easily create web interfaces to monitor and control embedded applications



Advanced Encryption Standard

Point-to-Point Protocol TCP/IP functionality for serial and

128-bit encryption for transfer of

PPPoE connections µC/OS-II Real-Time Kernel

Real-time preemptive, prioritized operating system

	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/0 lines: up to 40 Rabbit 4000 pins configurable with four layers of alternate functions up to 9 ZigBee™ modem pins, four 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 V DC
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: 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 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
Operating Temperature	-40°C to +85°C
Humidity	5% to 95%, non-condensing
Connectors	One 2 \times 7, 2 mm pitch IDC signal header One 2 \times 25, 1.27 mm pitch IDC signal header One 2 \times 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
RF Module	AaxStream XBee™ Series 2
Compliance	802.15.4 standard (ZigBee™ compliant)
	Pricing
Pricing (qty. 1/100) Part Number	\$89/\$72 20-101-1170
Development Kit	\$299
Part Number	U.S. 101-1188 Int'l 101-1189



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