RCM4000 RabbitCore™

MODELS | RCM4000 | RCM4010 |

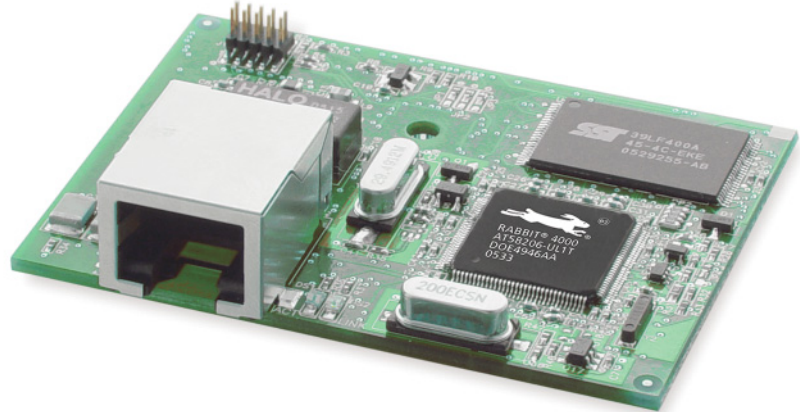*Microprocessor Core Module*

Key Features

- Rabbit® 4000 microprocessor with integrated Ethernet

- Clock speed at 58.98 MHz with 16-bit memory

- 32 MB NAND flash for data

- 512K Flash / 512K SRAM

- 8-channel, 12-bit A/D converter

- Up to 25 GPIO with multi-layer alternate pin functions

- Up to 5 CMOS-compatible serial ports

- Low-power modes and speeds as low as 2 kHz

- Low-EMI

- Optimized for use with Dynamic C® v. 10 – a powerful integrated development environment

Design Advantages:

- Designed for embedded networking with intelligence and I/O control

- Serves web pages, controls remote devices, links equipment to the Internet

- Security-key feature with "tamper detect" and encryption capabilities adds peace of mind for OEMs and systems integrators

- Complete microprocessor, on-board memory, development software with royalty-free TCP/IP stack, and hundreds of sample programs reduce time-to-market

Applications

- Serial-to-Ethernet applications

- Remote monitoring and communications

- Web-enabling devices

- Device/data management and control

RCM4000 RabbitCores – Embedded Networking & Control

The RCM4000 microprocessor core module is a powerful embedded Ethernet control device that has the intelligence and internet connectivity that allows your devices to be remotely monitored and controlled from anywhere in the world.

The RCM4000 is the first RabbitCore module to take advantage of the integrated Ethernet on the new Rabbit 4000 microprocessor. Running at 58.98 MHz, equipped with 16-bit memory, on-chip DMA channels and 500+ new code instructions, the RCM4000 can handle both communications and intelligence of your embedded device. The microprocessor also features GPIO lines shared with up to five serial ports, four levels of alternate pin functions that include variable phase PWM, quadrature decoder, and input capture.

The RCM4000 series feature a small footprint of 1.84" × 2.41" × 0.77" (47 mm × 61 mm × 20 mm), complete with the Rabbit 4000 microprocessor, 512K Flash, 512K SRAM, 10Base-T Ethernet, and 32MB NAND flash and eight channels of 12-bit A/D on the RCM4000 model. The RCM4000 core module is ready for network connectivity and I/O control for true device internet communication and control.

RabbitCores mount directly onto a user-designed motherboard, and can interface with CMOS-compatible digital devices via the user's motherboard. Programs are developed with our industry-proven

RABBIT Semiconductor®

Dynamic C development system that includes an editor, compiler, and in-circuit debugger.

Programming is easy with hundreds of samples and libraries that are pre-developed, for a user to be up and running in no time. No in-circuit emulator is required, no third party tools needed. Dynamic C enhanced compiler generates smaller code, support for far pointers and far data for easy access to external memory devices, improvements to AES encryption libraries, and a new I/O configuration utility that helps assign pin functions and guides those selections so that conflicts can be avoided.

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
Easily create web interfaces to monitor and control embedded applications

Fat File System
Popular, network-accessible file system for flash memories

Advanced Encryption Standard
128-bit encryption for transfer of sensitive data

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

Library Encryption Executable
Program to encrypt Dynamic C library source files

RCM4000 RabbitCore Specifications		
Features	RCM4000	RCM4010
Microprocessor	Rabbit 4000 @ 58.98 MHz	
EMI Reduction	Spectrum spreader for reduced EMI (radiated emissions)	
Ethernet Port	10Base-T, RJ-45, 2 LEDs	
Flash	512K (16-bit)	
SRAM	512K (16-bit)	
NAND Flash	32 MB	—
General-Purpose I/O	19 digital I/O lines, configurable with up to four layers of alternate functions	25 digital I/O lines, configurable with up to four layers of alternate functions
Analog Inputs	8 channels single-ended (11-bit resolution) or 4 channels differential (12-bit resolution)	—
Additional Inputs	2 Startup Mode, Reset In, CONVERT	2 Startup Mode, Reset In
Additional Outputs	Status, Reset Out, Analog VREF	Status, Reset Out
Auxiliary I/O Bus	8 data and up to 6 address (shared with I/O), plus I/O read/write	
Pulse-Width Modulators	—	Two channels synchronized PWM with 10-bit counter Two channels variable-phase or synchronized PWM with 16-bit counter
Serial Ports	Five shared high-speed, CMOS-compatible ports • All 5 are configurable as asynchronous (with IrDA) • 4 configurable as clocked serial (SPI) • 1 configurable as SDLC/HDLC • 1 clocked serial port dedicated for A/D converter (RCM4000) • 1 asynchronous serial port dedicated for programming	
Serial Rate	Max. asynchronous baud rate = CLK/8	
Backup-Battery	Connection for user-supplied battery (to support RTC and data SRAM)	
Slave Interface	Slave port permits use as master or intelligent peripheral with master controller	
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	
Watchdog/Supervisor	Yes	
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	3.0 – 3.6 V DC, 90 mA @ 3.3 V (preliminary, pins unloaded)	
Operating Temp.	0°C to +70°C	
Humidity	5–95%, non-condensing	
Connectors - Headers	One 2 x 25, 1.27 mm pitch IDC signal header. One 2 x 5, 1.27 mm IDC programming header	
Board Size	1.84" x 2.41" x 0.77" (47 mm × 61 mm × 20 mm)	
Pricing		
Pricing (qty. 1/100) Part Number (RoHs)	$89/$72 20-101-1094	$69/$56 20-101-1112
Development Kit Part Number	$249 US. 101-1145 Int'l 101-1146	$239 U.S. 101-1114 Int'l 101-1115

RCM4000 and RCM4010 Development Kits come complete with:

• RCM4000 or RCM4010 RabbitCore Module
• Prototyping Board
• Serial cable for programming and debugging
• Dynamic C® integrated development software
• Getting Started Instructions

• Complete product documentation on CD including the Rabbit 4000 reference manual
• AC adapter (U.S. only)
• Rabbit 4000 pin specifications poster
• Connectors and accessories

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