

# RCM4100 RabbitCore™

MODELS | RCM4100 | RCM4110 | RCM4120 |

Microprocessor Core Module

## Key Features

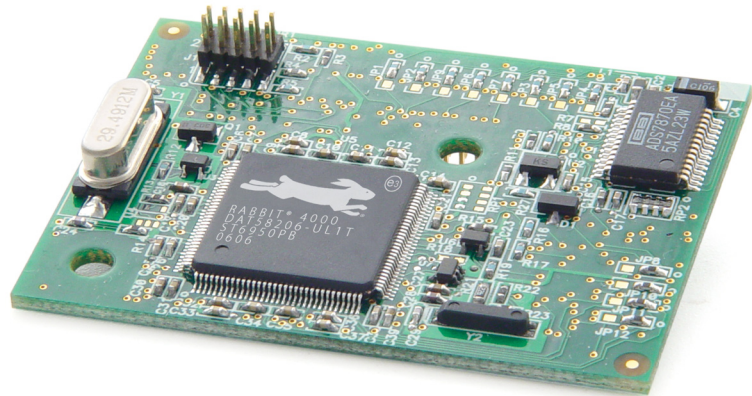
- Rabbit® 4000 at up to 58.98 MHz
- Up to 40 GPIO with multi-level alternate pin functions
- 6 CMOS-compatible serial ports
- 512K Flash, 256K/512K Data SRAM
- Low-power modes
- 8-channel, 12-bit A/D converter (RCM4100)
- Auxiliary I/O feature for reducing processor bus loading
- Small footprint at 36 mm x 48 mm
- Optimized for use with Dynamic C®, a powerful integrated development environment

## Design Advantages:

- Ideal for device intelligence and control
- Well suited for easy integration with peripheral technologies such as GPS, cellular modems, RFID readers, sensors, etc.
- Support for hardware DMA, variable phase PWM, and parity
- Security-key feature with “tamper detect” and encryption capabilities adds peace of mind for OEM’s and system integrators
- Complete microprocessor, on-board memory, and hundreds of sample programs reduce time-to-market by months

## Applications

- Device-level control
- Remote data logging
- Asset management
- Security Access Systems
- Wireless device/data management



## RCM4100 - Control and Connectivity in a Small Package

The RCM4100 microprocessor core modules are compact, powerful control devices for embedded applications that require I/O control, data handling, and peripheral connectivity.

The RCM4100 series is the first of the next generation core modules to take advantage of the new Rabbit 4000 microprocessor. The Rabbit 4000 features a clock speed of up to 60 MHz, hardware DMA, auxiliary I/O, quadrature decoder, input capture, 40 GPIO lines shared with up to six serial ports, and four levels of alternate pin functions that include variable phase PWM. The 500+ new operational code instructions increase processing efficiency. The RCM4100 series features a small footprint of 1.41" x 1.88" (36 mm x 48 mm), complete with the Rabbit 4000 microprocessor, 512K Flash, and 256K/512K data SRAM. The RCM4100 model adds an

8-channel A/D converter. Three versions are available for varying speeds and memory options. The RCM4100 core modules provide the I/O control and connectivity for a wide range of real-world embedded applications.

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 Dynamic C development system, a C language environment 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 ensures optimal support for Rabbit 4000-based solutions. 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.

## Software Add-On Modules

Select from a wide range of add-on library modules for your programming needs. These low-cost modules are sold separately, allowing you to customize the software your application requires, while at an affordable price.



### Advanced Encryption Standard

128-bit encryption for transfer of sensitive data



### Library Encryption Executable

Program to encrypt Dynamic C library source files



### Point-to-Point Protocol

TCP/IP functionality for serial and PPPoE connections



### Rabbit Field Utility

Source code for the Rabbit Field Utility

### µC/OS-II Real-Time Kernel

Real-time preemptive, prioritized operating system

RCM4110 RabbitCore Specifications			
Features	RCM4100	RCM4110	RCM4120
Microprocessor	Rabbit 4000 @ 58.98 Mhz	Rabbit 4000 @ 29.49 MHz	Rabbit 4000 @ 58.98 Mhz
Flash	512K		
Data SRAM	512K	256K	512K
Program-Execution Fast SRAM	512K	—	512K
General-Purpose I/O	29 parallel digital I/O lines configurable with four layers of alternate functions		40 parallel digital I/O lines configurable with four layers of alternate functions
Analog Inputs	8 channels single-ended or 4 channels differential. Programmable gain 1, 2, 4, 5, 8, 10, 16, and 20 V/V		—
A/D Converter Resolution	12 bits (11 bits single-ended)		—
A/D Conversion Time (including 120 µs raw count and Dynamic C)	180 µs		
Additional Inputs	Startup mode (2), reset in, CONVERT	Startup mode (2), reset in	
Additional Outputs	Status, reset out, analog VREF	Status, reset out	
Auxiliary I/O Bus	8 data lines and 6 address lines (shared with parallel I/O lines), plus I/O read/write		
Pulse-Width Modulator	Four channels synchronized PWM with 10-bit counter Four channels variable-phase or synchronized PWM with 16-bit counter		
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		
	1 clocked serial port shared with A/D converter	—	
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) and one 10-bit timer with 2 match registers, 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 (pins unloaded)	3.0–3.6 V.DC		
	125 mA (typ.) @ 3.3 V	65 mA (typ.) @ 3.3 V	125 mA (typ.) @ 3.3 V
Operating Temp.	-40°C to +85°C	0°C to +70°C	-40°C to +85°C
Humidity	5-95%, noncondensing		
Connectors - Headers	One 2 x 25, 1.27 mm pitch IDC signal header One 2 x 5, 1.27 mm pitch IDC programming header		
Board Size	1.41" x 1.88" x 0.49" ( 36 mm x 48 mm x 12 mm)		
Pricing			
Pricing (qty. 1/100)	\$75/61	\$45/39	\$64/52
Part Number	20-101-1105	20-101-1093	20-101-1154
Development Kit	\$229	\$199	—
Part Number	U.S. 101-1157 Int'l 101-1158	U.S. 101-1101 Int'l 101-1102	—



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