

# Updating Your Application from the RCM3365 to the RCM3900

## Introduction

Rabbit is changing our product offerings to respond to both market requirements and the components available to us.

We can no longer obtain certain components for the RCM3365/RCM3375 RabbitCore modules that support the originally specified  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  temperature range. In addition, our customers have requested a larger removable mass storage device. Instead of changing the design of the RCM3365/RCM3375 RabbitCore modules to handle available components specified for the original temperature range, we decided to develop a new product line — the RCM3900 — that supports the original temperature range and provides a better, longer term removable mass storage solution.

We are introducing the RCM3900/RCM3910 RabbitCore modules in June, 2008. These new modules are identical in form, dimensions, and function to the RCM3365/3375 modules, except we replaced the *xD-Picture Card*<sup>™</sup> mass storage device with a *miniSD*<sup>™</sup> Card. The *miniSD*<sup>™</sup> Card is more readily available today, is in use worldwide, and is expected to remain readily available for a long time. In addition, *miniSD*<sup>™</sup> Cards provide the significantly larger memory capacity that has been requested by our customers. We strongly recommend that existing RCM3365/3375 customers and designers of new systems consider using the new RCM3900/RCM3910 RabbitCore modules.

This Technical Note compares the two series of RabbitCore modules, and provides complete information on how to port your application developed for the RCM3365/RCM3375 to the equivalent RCM3900/RCM3910 RabbitCore modules.

# Comparing the RCM3365/RCM3375 and the RCM3900/RCM3910

## Temperature Specifications

RCM3365/RCM3375 RabbitCore modules manufactured after May, 2008, are specified to operate at 0°C to +70°C. The RCM3900/RCM3910, rated for -20°C to +85°C, are available starting in June, 2008.

## Ethernet Chip

A different Ethernet controller chip is used on the RCM3900/RCM3910. The Ethernet chip is able to detect automatically whether a crossover cable or a straight-through cable is being used in a particular setup, and will configure the signals on the Ethernet jack interface.

## Maximum Current

The RCM3365/RCM3375 draws 250 mA vs. the 325 mA required by the RCM3900/RCM3910.

## Removable Mass Storage

The hot-swappable *xD-Picture Card*<sup>™</sup> mass storage device with up to 128MB of memory has been replaced with the *miniSD*<sup>™</sup> *Card*. with up to 1GB of memory. The trade-off for the larger memory capacity is that the data transfer rate to/from the *miniSD*<sup>™</sup> *Card* is about an order of magnitude slower than to/from the *xD-Picture Card*<sup>™</sup>.

**NOTE:** RCM3365/RCM3375 RabbitCore modules may eventually be discontinued because of changes to the *xD-Picture Card*<sup>™</sup>.

## Serial Ports

Serial Port B, available either as a clocked serial port or as an asynchronous serial port on the RCM3365/RCM3375, is used by the RCM3900/RCM3910 as a clocked serial peripheral interface (SPI) for the *miniSD*<sup>™</sup> *Card*, and is not brought out for customer use.

## General-Purpose I/O

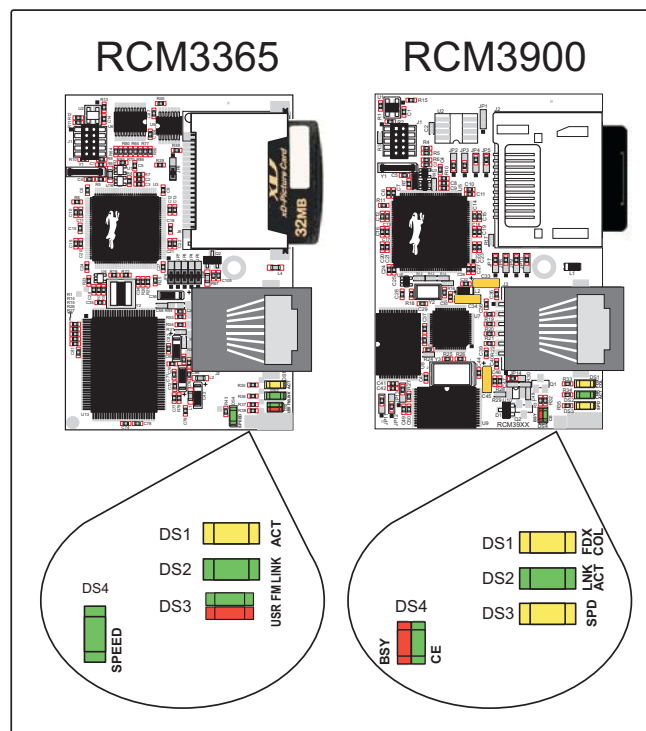
PD2, a configurable I/O pin on the RCM3365/RCM3375, is used to detect whether the *miniSD*<sup>™</sup> *Card* is installed on the RCM3900/RCM3910, and so PD2 is not brought out for customer use on the RCM3900/RCM3910.

If you have an application involving PD2 on the RCM3365/RCM3375 such as the RabbitNet peripheral cards example on the Prototyping Board, you will have to select another available output to use instead of PD2. You will need to modify your program, and remember to change the RabbitNet or other configuration library where PD2 is set up. Your motherboard will have to be changed accordingly.

## LEDs

The **SPEED** and user (**USR/BSY**) LED locations have been swapped between the RCM3365/RCM3375 and the RCM3900/RCM3910, the **LNK/ACT** LEDs have been combined to one LED on the RCM3900/RCM3910, and the RCM3900/RCM3910 has an **FDX/COL** LED instead of the **FM** LED on the RCM3365/RCM3375. The **FDX/COL** LED on the RCM3900/RCM3910 indicates whether the Ethernet connection is in full-duplex mode (steady on) or that a half-duplex connection is experiencing collisions (blinks). The **FM** LED on the RCM3365/RCM3375 blinks when data are being written to or read from the *xD-Picture Card*<sup>™</sup>; the **USR** LED on the RCM3900/RCM3910 can be set up to perform the same role for the *miniSD*<sup>™</sup> Card as explained in the *RabbitCore RCM3900 User's Manual*.

Figure 1 compares the RCM3365/RCM3375 and the RCM3900/RCM3910 component layouts. The LED placements on the boards remain unchanged.



**Figure 1. RCM3365/RCM3375 and RCM3900/RCM3910 LED Layouts**

## Dynamic C

As long as no low-level FAT file system calls or direct *xD-Picture Card* access calls to the **NFLASH.LIB** library were used in your application developed for the RCM3365/RCM3375, you may run that application on the RCM3900/RCM3910 after you recompile it using Dynamic C v. 9.62.

**NOTE:** The Dynamic C RabbitSys option for programming an RCM3365 over an Ethernet link is not supported for the RCM3900.

Dynamic C v. 9.62 now has many of the previously optional modules included in the standard release. Table 1 compares the Dynamic C features available for the two series of RabbitCore modules.

**Table 1. Comparison of Dynamic C Resources**

Dynamic C	RCM3365/RCM3375	RCM3900/RCM3910
Standard Release	v. 9.30	v. 9.62
Optional Modules (purchased separately)	<ul style="list-style-type: none"> <li>• FAT File System v. 2.10 (included in Development Kit)</li> <li>• RabbitWeb</li> <li>• Point-to-Point Protocol (PPP)</li> <li>• Simple Network Management Protocol (SNMP)</li> <li>• <math>\mu</math>C/OS-II Real-Time Kernel</li> <li>• Library Encryption Executable</li> <li>• Modbus TCP</li> </ul>	Included in Standard Release
Optional Security Modules (purchased separately)	<ul style="list-style-type: none"> <li>• Advanced Encryption Standard (AES)</li> <li>• Secure Sockets Layer (SSL)</li> </ul>	<ul style="list-style-type: none"> <li>• Rabbit Embedded Security Pack</li> </ul>
RabbitSys (purchased separately)	RCM3365 only (must be RabbitSys-enabled)	<i>not supported</i>
Other Optional Modules (available separately)	<ul style="list-style-type: none"> <li>• Rabbit Field Utility source code</li> <li>• One-Year Telephone Technical Support Subscription</li> </ul>	<ul style="list-style-type: none"> <li>• Rabbit Field Utility source code</li> <li>• One-Year Telephone Technical Support Subscription</li> </ul>

## Summary

Table 2 summarizes the features for the two series of RabbitCore modules.

**Table 2. Feature Comparison**

Parameter	RCM3365	RCM3375	RCM3900	RCM3910
SRAM	512K program (fast SRAM) + 512K data		512K program (fast SRAM) + 512K data	
Flash Memory (program)	512K		512K	
Memory (data storage)	32MB (fixed NAND flash) + up to 128MB <i>xD-Picture Card™</i>	up to 128MB <i>xD-Picture Card™</i>	32MB (fixed NAND flash) + 128MB–1GB <i>miniSD™ Card</i>	128MB–1GB <i>miniSD™ Card</i>
Operating Temperature	-40°C to +70°C (up to May, 2008) 0°C to +70°C (after May, 2008)		-20°C to +85°C (with <i>miniSD™ Card</i> )	
Board Size	1.850" × 2.725" × 0.86" (47 mm × 69 mm × 22 mm)			
Dynamic C	v. 9.30 (standard release) + FAT File System Module v. 2.10		v. 9.62 (standard release) (includes FAT File System)	

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