Run a Sample Program

Once the RCM4300 is connected as described in the preceding pages, start Dynamic C by double-clicking on the Dynamic C icon on your desktop or in your **Start** menu. Dynamic C uses the serial port specified during installation. Select **Code and BIOS in Flash, Run in RAM** on the "Compiler" tab in the Dynamic C **Options > Project Options** menu. Then click on the "Communications" tab and verify that **Use USB to Serial Converter** is selected to support the USB programming cable. Click **OK**.

Use the **File** menu to open the sample program **PONG.C**, which is in the Dynamic C **SAMPLES** folder. Press function key **F9** to compile and run the program.The **STDIO** window will open on your PC and will display a small square bouncing around in a box.

Where Do I Go From Here?

If the sample program ran fine, you are now ready to go on to other sample programs and to develop your own applications. The source code for the sample programs is provided to allow you to modify them for your own use. The *RCM3900 User's Manual* on the Dynamic C CD also provides complete hardware reference information and describes the software function calls for the RCM3900 RabbitCore modules and the Prototyping Board. The *FAT File System* document on the Dynamic C CD describes the FAT file system and discusses the function calls and sample programs available for the Dynamic C implementation of the FAT file system.

Troubleshooting

If Dynamic C cannot find the target system (error message **"No Rabbit Processor Detected."**):

- Check that the RCM3900 is powered correctly — the red **CORE** LED on the Prototyping Board should be lit when the RCM3900 is mounted on the Prototyping Board and the AC adapter is plugged in.

- Check both ends of the programming cable to ensure that they are firmly plugged into the PC and the **PROG** connector, not the **DIAG** connector, is plugged in to the programming port on the RCM3900 with the marked (colored) edge of the programming cable towards pin 1 of the programming header.

- Ensure that the RCM3900 module is firmly and correctly installed in its socket on the Prototyping Board.

- Select a different COM port within Dynamic C. From the **Options** menu, select **Project Options,** then select another COM port from the list on the **Communications** tab, then click **OK**.

- If a program compiles and loads, but then loses target communication before you can begin debugging, it is possible that your PC cannot handle the default debugging baud rate. Locate the **Serial Options** dialog in the Dynamic C **Options > Project Options > Communications** menu. Select a slower Max download baud rate, or choose a lower debug baud rate, then click **OK**.

- If you get an error message when you plugged the programming cable into a USB port, you will have to install USB drivers. Drivers for Windows XP are available in the Dynamic C **Drivers\Rabbit USB Programming Cable\WinXP_2K** folder—double-click **DPInst.exe** to install the USB drivers.

Press **<Ctrl-Y>** to force Dynamic C to recompile the BIOS. The LEDs on the USB programming cable will blink and you should receive a **Bios compiled successfully** message.

If there are any other problems:

- Use the Dynamic C **Help** menu to get further assistance with Dynamic C.

- Check the Rabbit Technical Bulletin Board and forums at www.rabbit.com/support/bb/ and at www.rabbit.com/forums/.

- Use the Technical Support e-mail form at www.rabbit.com/support/.

> **NOTE:** If you purchased your RCM3900 Development Kit through a distributor or through a Rabbit partner, contact the distributor or partner first for technical support.

RabbitCore RCM3900

The RCM3900 RabbitCore module features built-in Ethernet, onboard mass storage (NAND flash, and a swappable flash memory device. These Getting Started instructions included with the Development Kit will help you get your RCM4300 up and running so that you can run the sample programs to explore its capabilities and develop your own applications.

Development Kit Contents

The RCM3900 Development Kit contains the following items

- RCM3900 module.
- Prototyping Board.
- 1 GB *microSD™ Card* with SD Card adapter
- Universal AC adapter, 12 V DC, 1 A (includes Canada/Japan/U.S., Australia/N.Z., U.K., and European style plugs).
- USB programming cable with 10-pin header.
- *Dynamic C*® CD-ROM — with complete product documentation on disk.
- A bag of accessory parts for use on the Prototyping Board.
- Screwdriver and Cat. 5 Ethernet cables.
- *Getting Started* instructions.
- *Rabbit 3000 Processor Easy Reference* poster.
- Registration card.

Visit our online Rabbit store at www.rabbit.com/store/ for the latest information on peripherals and accessories that are available for the RCM3900 RabbitCore modules.

Installing Dynamic C®

Insert the CD from the Development Kit in your PC's CD-ROM drive. If the installation does not auto-start, run the **setup.exe** program in the root directory of the Dynamic C CD. Install any Dynamic C modules after you install Dynamic C.

Hardware Connections

Step 1 — Attach Module to Prototyping Board

Turn the RCM3900 module so that the Ethernet jack is facing the direction shown in Figure 1 below. Align the pins from the module's headers J61 and J62 on the bottom side of the module into header sockets JA and JB on the Prototyping Board. The *microSD™ Card* does not have to be inserted into connector J2 on the RCM3900 at this time—there is a protective space insert that you simply pull out before inserting a *microSD™ Card* for the first time.
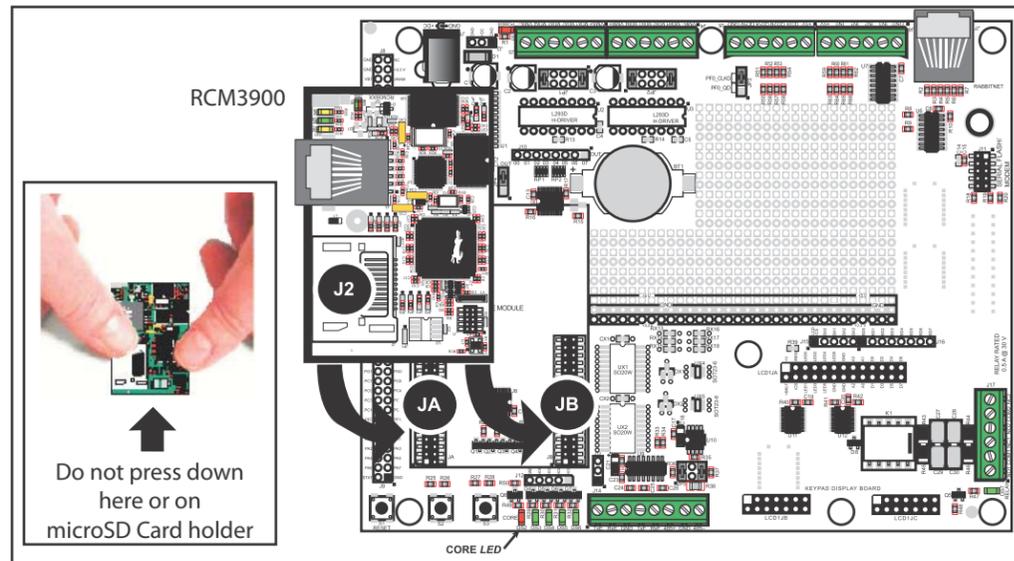
> **CAUTION:** You will sense a soft click once you insert the *microSD™ Card* completely. To remove it, gently press the card towards the middle of the RCM4300 — you will sense a soft click and the card will be ready to be removed. Do **not** attempt to pull the card from the socket before pressing it in — otherwise the ejection mechanism will get damaged. The ejection mechanism is spring-loaded, and will partially eject the card when used correctly.
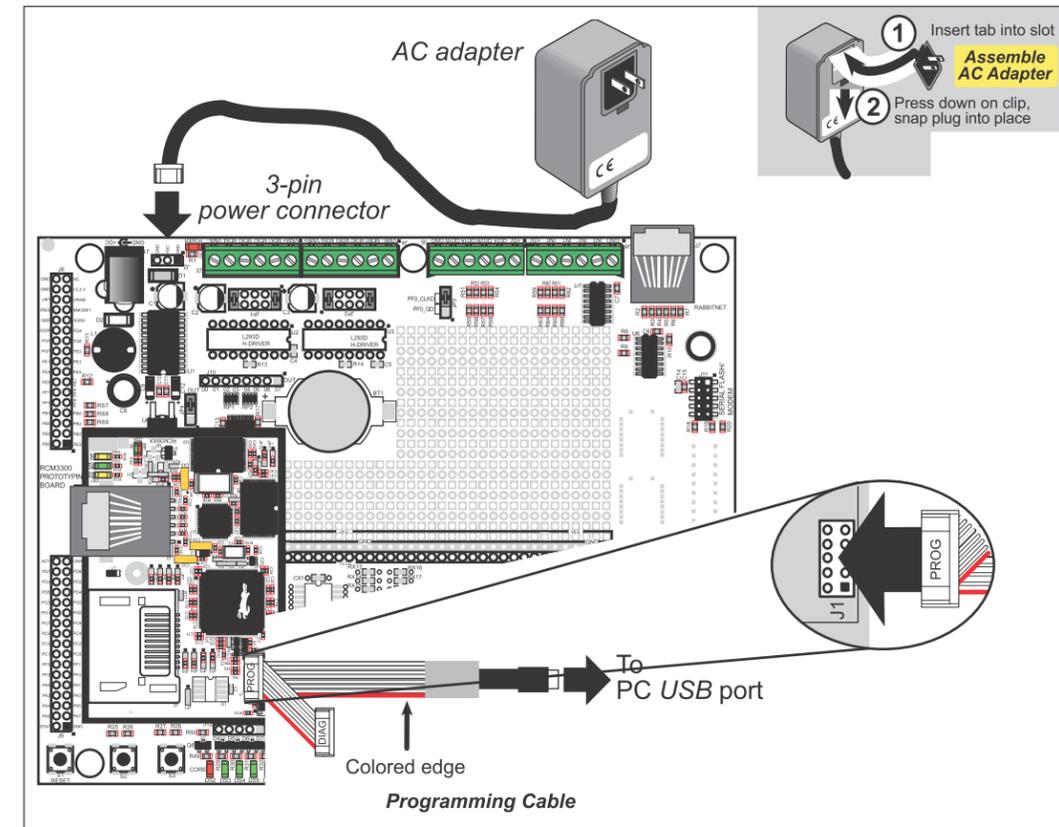

Figure 1. Install the RCM3900 Module on the Prototyping Board

> **NOTE:** It is important that you line up the pins on headers J61 and J62 of the RCM3900 module exactly with the corresponding pins of sockets JA and JB on the Prototyping Board. The header pins may become bent or damaged if the pin alignment is offset, and the module will not work. Permanent electrical damage to the module may also result if a misaligned module is powered up.

Press the module's pins firmly into the Prototyping Board sockets—press down in the area above the header pins using your thumbs or fingers over the header pins as shown in Figure 1. Do *not* press down on the *microSD™ Card* connector (J2) even if the *microSD™ Card* is installed, but rather press down on the circuit board along the edge by the connector. Also, do *not* press down on the middle of the RCM3900 module to avoid flexing the module, which could damage the module or components on the module.

Should you need to remove the RCM3900 module, grasp it with your fingers along the sides by the connectors and gently work the module up to pull the pins away from the sockets where they are installed. Do *not* remove the module by grasping it at the top and bottom.

Step 2 — Connect Programming Cable

The programming cable connects the RCM3900 to the PC running Dynamic C to download programs and to monitor the RCM3900 module during debugging.

Connect the 10-pin connector of the programming cable labeled **PROG** to header J1 on the RCM3900 as shown in Figure 2. Be sure to orient the marked (usually red) edge of the cable towards pin 1 of the connector. (Do not use the **DIAG** connector, which is used for a normal serial connection.)

Figure 2. Connect Programming Cable and Power Supply

Step 3 — Connect Power

Once all the other connections have been made, you can connect power to the Prototyping Board.

First, prepare the AC adapter for the country where it will be used by selecting the plug. The RCM3900 Development Kit presently includes Canada/Japan/U.S., Australia/N.Z., U.K., and European style plugs. Snap in the top of the plug assembly into the slot at the top of the AC adapter as shown in Figure 2, then press down on the spring-loaded clip below the plug assembly to allow the plug assembly to click into place. Release the clip to secure the plug assembly in the AC adapter.

Connect the AC adapter to 3-pin header J1 on the Prototyping Board as shown in Figure 2. The connector may be attached either way as long as it is not offset to one side—the center pin of J1 is always connected to the positive terminal, and either edge pin is ground.

Plug in the wall transformer. The red **CORE** LED on the Prototyping Board (shown in Figure 1) should light up. The RCM3900 and the Prototyping Board are now ready to be used.

> **NOTE:** A **RESET** button is provided on the Prototyping Board next to the battery holder to allow a hardware reset without disconnecting power.