



Embedded Control

Multi-Port Serial-to-Ethernet Application Kit Getting Started

Application Kit Contents

- **Dynamic C** CD-ROM, with complete product documentation on disk.
- Supplementary CD-ROM with sample programs, software, and information related to the Application Kit.
- RCM3700 module.
- RCM3700 Prototyping Board, with a bag of accessory parts and jumpers for use on the Prototyping Board.
- QKits QK145 Serial Temperature Sensor.
- AC adapter, 12 V DC, 1 A (included only with Application Kits sold for the North American market). A header plug leading to bare leads is provided to allow overseas users to connect their own power supply with a DC output of 7.5–30 V.
- 10-pin header to DE9 programming cable with integrated level-matching circuitry.
- Cables and cable kits to access QK145 temperature sensor and serial and analog input connectors on Prototyping Board.
- Ethernet crossover cable.
- **Getting Started** instructions.
- **Rabbit 3000 Processor Easy Reference** poster.
- Registration card.

Installing Dynamic C®

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

Hardware Connections

1. Attach Module to Prototyping Board

Turn the RCM3700 module so that the Ethernet jack is on the left as shown in Figure 1 below. Insert the module's J1 header into the TCM_SMT_SOCKET socket on the Prototyping Board. The shaded corner at the bottom right corner of the RCM3700 module should face the same direction as the corresponding shaded corner below it on the Prototyping Board.

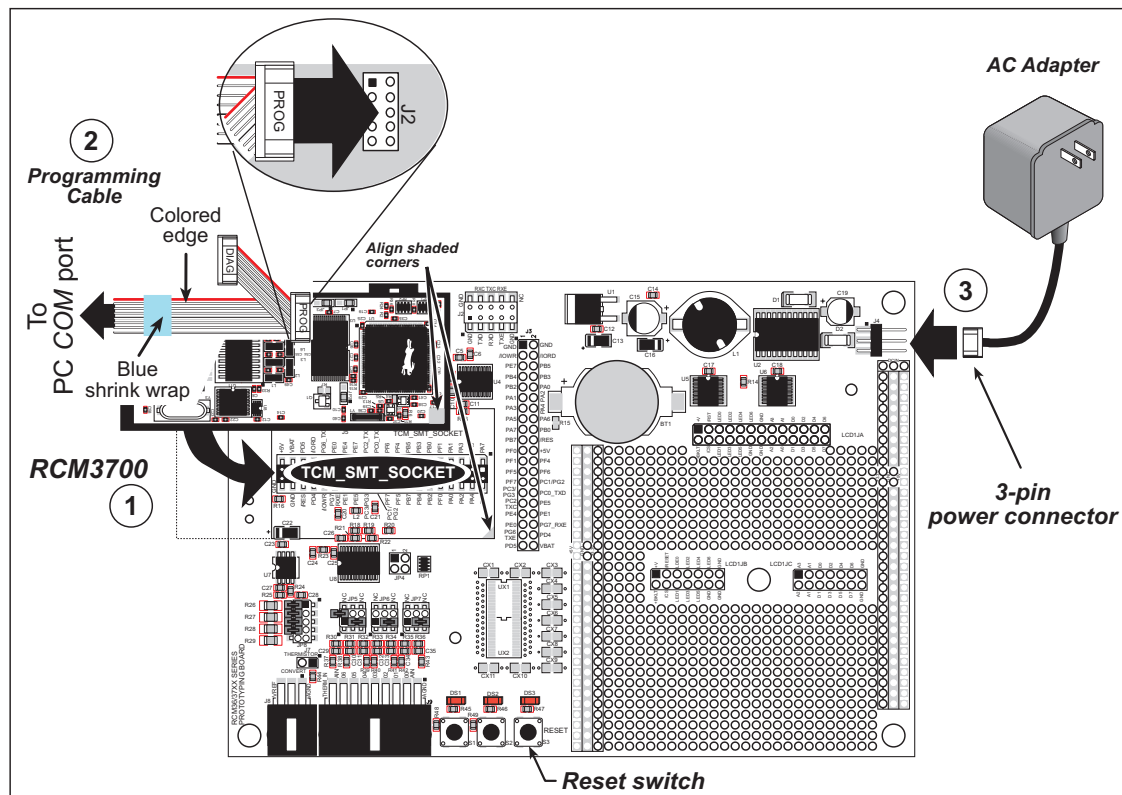


Figure 1. Install the RCM3700 Module on the Prototyping Board

NOTE: It is important that you line up the pins on header J1 of the RCM3700 module exactly with the corresponding holes of the TCM_SMT_SOCKET socket 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 socket.

2. Connect Programming Cable

The programming cable connects the RCM3700 to the PC running Dynamic C to download programs and to monitor the RCM3700 module during debugging.

Connect the 10-pin connector of the programming cable labeled **PROG** to header J2 on the RCM3700 as shown in Figure 1. 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.)

Connect the other end of the programming cable to a COM port on your PC.

NOTE: Be sure to use the programming cable supplied with this Application Kit—the programming cable has blue shrink wrap around the RS-232 converter section located in the middle of the cable. Programming cables from other Z-World or Rabbit Semiconductor kits were not designed to work with RCM3700 modules.

NOTE: Some PCs now come equipped only with a USB port. It may be possible to use an RS-232/USB converter with the programming cable supplied with the RCM3700 series Development Kit. An RS-232/USB converter is available through the Z-World Web store.

3. Connect Power

When all other connections have been made, you can connect power to the Prototyping Board. Connect the wall transformer to 3-pin header J4 on the Prototyping Board as shown in Figure 1. The connector may be attached either way as long as it is not offset to one side.

Plug in the wall transformer. The LED above the **RESET** button on the Prototyping Board should light up. The RCM3700 and the Prototyping Board are now ready to be used.

NOTE: The **RESET** button is provided on the Prototyping Board to allow a hardware reset without disconnecting power.

Overseas Development Kits

Development kits sold outside North America include a header connector that may be connected to 3-pin header J4 on the Prototyping Board. The red and black wires from the connector can then be connected to the positive and negative connections on your power supply. The power supply should deliver 7.5 V–30 V DC at 500 mA.

4. Attach Other Cables and Jumpers

Use the Ethernet crossover cable to connect the RJ-45 jack on the RCM3700 to the RJ-45 jack on your PC. Depending on the sample program and how you run it, you will then either attach one or more jumpers across pins on header J2 of the RCM3700 Prototyping Board, or you will use one of the cables with a 10-pin header and a DE9 connector to connect header J2 to either a PC or to the QK145 temperature sensor.

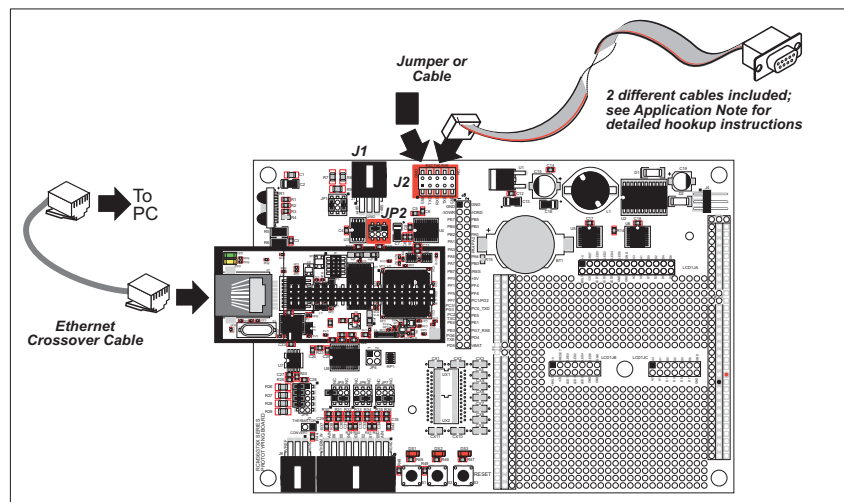


Figure 2. Connect Other Cables and Jumpers

Additional Hardware Information

The *RabbitCore RCM3700 User's Manual* on the Dynamic C CD-ROM provides complete information on using and developing applications for the RCM3700, and includes further information on the Prototyping Board and an optional LCD/keypad module.

Installing and Running Dynamic C

Once the RCM3700 is connected and Dynamic C is installed as described in the preceding pages, start Dynamic C by double-clicking on the Dynamic C icon or by double-clicking on **dcrabXXXX.exe** in the Dynamic C root directory, where **XXXX** are version-specific characters.

Dynamic C uses the serial port specified during installation.

Run a Sample Program

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.

Troubleshooting

If Dynamic C appears to compile the BIOS successfully, but you then receive a communication error message when you compile and load the sample program, it is possible that your PC cannot handle the higher program-loading baud rate. Try changing the maximum download rate to a slower baud rate as follows.

- Locate the **Serial Options** dialog in the Dynamic C **Options > Project Options > Communications** menu. Select a slower Max download baud rate.

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. Try lowering the debugging baud rate as follows.

- Locate the **Serial Options** dialog in the Dynamic C **Options > Project Options > Communications** menu. Choose a lower debug baud rate.

If there are any other problems:

- Check that the RCM3700 is powered correctly — the power LED above the **RESET** button on the Prototyping Board should be lit.
- Check to make sure you are using the **PROG** connector, not the **DIAG** connector, on the programming cable.
- Check both ends of the programming cable to ensure that they are firmly plugged into the PC and the programming port on the RCM3700.
- Ensure that the RCM3700 module is firmly and correctly installed in its connectors on the Prototyping Board.
- Select a different COM port within Dynamic C. From the **Options** menu, select **Project Options**, then select **Communications**. Select another COM port from the list, then click OK. Press **<Ctrl-Y>** to force Dynamic C to recompile the BIOS. If Dynamic C still reports it is unable to locate the target system, repeat the above steps until you locate the active COM port.
- Check the Z-World/Rabbit Semiconductor Technical Bulletin Board at www.zworld.com/support/bb/.
- Use the Technical Support e-mail form at www.zworld.com/support/questionSubmit.shtml.

NOTE: If you purchased your RCM3700 through a distributor or through a Z-World or Rabbit Semiconductor partner, contact the distributor or partner first for technical support.

Where Do I Go From Here?

If the sample program ran fine, you are now ready to go on to other sample programs on the supplementary CD-ROM 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. Application Note AN406, *Will That Be Serial or Ethernet?*, describes the software and sample programs for this Application Kit, and is available on the supplementary CD-ROM.