

CORELIS

CodeRunner

CodeRunner Hardware Key Version

Installation Manual

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New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition is published.

A software code may be printed before the date; this indicates the version of the software product at the time the manual or update was issued. Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one to one correspondence between product updates and manual updates.

Edition 1, August 2005

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Table of Contents

CHAPTER 1 PRODUCT OVERVIEW	1-2
Introduction	1-2
License Types	1-2
Single user with a parallel port key.....	1-2
Single user with a software key	1-2
CHAPTER 2 CODERUNNER INSTALLATION	2-1
Host System Requirements	2-1
Software Installation	2-2
PCI-1149.1 Boundary-Scan Controller Installation	2-11
PCI-1149.1/Turbo Boundary-Scan Controller Installation	2-12
PIO-1149.1/E Boundary Scan Controller Installation.....	2-13
USB-1149.1/E Boundary Scan Controller Installation	2-13
NETUSB-1149.1 Boundary Scan Controller Installation	2-14
PCMCIA-1149.1/E Boundary Scan Controller Installation	2-16
MIPS Connector Information	2-17
PowerPC Connector Information	2-19
ARM9 Connector Information.....	2-21

Table of Figures

<i>Figure 2-1. Windows Run Dialog Box.....</i>	<i>2-2</i>
<i>Figure 2-2. Initial Setup Screen.....</i>	<i>2-3</i>
<i>Figure 2-3. License Agreement Screen.....</i>	<i>2-4</i>
<i>Figure 2-4. Select Installation Type Screen.....</i>	<i>2-5</i>
<i>Figure 2-5. Select Processor Screen.....</i>	<i>2-6</i>
<i>Figure 2-6. Select Destination Folder.....</i>	<i>2-7</i>
<i>Figure 2-7. Select Backup Directory.....</i>	<i>2-8</i>
<i>Figure 2-8. Ready to Install Screen.....</i>	<i>2-9</i>
<i>Figure 2-9. Installation Completed Screen.....</i>	<i>2-10</i>
<i>Figure 2-10. Reboot Dialog Box.....</i>	<i>2-10</i>
<i>Figure 2-11 NetUSB-1149.1 Configuration Utility.....</i>	<i>2-15</i>
<i>Figure 2-12. MIPS TAP connector (top view).....</i>	<i>2-17</i>
<i>Figure 2-13. PowerPC TAP connector (top view).....</i>	<i>2-19</i>
<i>Figure 2-14. ARM9 TAP connector (top view).....</i>	<i>2-21</i>

Table of Tables

<i>Table 2-1. Recommended MIPS 14 pin Header Connector.....</i>	<i>2-17</i>
<i>Table 2-2. MIPS 14-Pin Connector Assignments</i>	<i>2-18</i>
<i>Table 2-3. Recommended PowerPC 16 pin Header Connector</i>	<i>2-19</i>
<i>Table 2-4. PowerPC 16-Pin Connector Assignments.....</i>	<i>2-20</i>
<i>Table 2-5. ARM9 20-Pin Connector Assignments</i>	<i>2-22</i>

Chapter 1

Product Overview

Introduction

This manual shows you how to install the Corelis software products with a parallel port key (dongle) license scheme. Read this product overview before you launch the installation wizard (“Setup”). Setup asks you to select a configuration type, and this overview describes the configurations available.

The following chapters explain the installation procedure you will follow when you run Setup. Chapter 2 describes a Single User Parallel Port Key (Dongle) Software Installation.

This manual will use the CodeRunner-BCM1250 as an example, but these same steps will work with any Corelis CodeRunner software product to install.

License Types

All Corelis software products validate its license before it runs. There are two license types:

- Single user with a parallel port key (Dongle) – See Chapter 2
- Single user with a software key — See the Single User Software Key Installation Manual.

Before you install any Corelis software product, determine the license type that you ordered.

Single user with a parallel port key

You can move the software to a different computer simply by installing it on the new computer and physically moving the Dongle. The parallel port key enables you to run the software on any computer. Should it become lost or damaged, contact Corelis to obtain a replacement.

Single user with a software key

When you purchase a Corelis software product for a single user with the software key option, you must obtain the software key from Corelis via fax or email to complete your installation. When you run Setup on your computer it generates a Site Code that uniquely identifies your computer. Corelis generates a single-user software key based on this Site Code, so the key will work for your computer only. Setup includes an option to transfer the key to another computer, disabling the key on the original computer. You can order additional licenses for other computers if you need to run the software simultaneously on multiple computers.

Chapter 2

CodeRunner Installation

Installing the CodeRunner software and hardware

This package consists of the user's manual that you are currently reading, and the following other components:

1. CodeRunner Installation CD-ROM
2. A Corelis Boundary-Scan Controller board
3. CodeRunner parallel port software security key

Follow the installation procedure in the order listed in this chapter. **Note that the CodeRunner software should be installed before installing the boundary-scan controller hardware in the host PC.**

Host System Requirements

CodeRunner is a Microsoft Windows 2000/ XP 32-bit application. The PC on which it will be installed should meet the following minimum requirements:

- Microsoft Windows 2000 or Windows XP installed
- CD-ROM drive
- Pentium 2 or better processor
- 128 megabytes (MB) of RAM
- 50 MB of free hard disk space
- Display adapter supporting at least 1024x768 resolution and 256 colors
- A standard 25-pin parallel printer port. The ScanPlus Runner software is protected with a hardware key attached to the printer port. The hardware key has a pass-through feature that will not affect the operation of a printer.
- One of the following supported boundary-scan controllers:
 - NetUSB-1149.1
 - PIO-1149.1/E
 - PCI-1149.1/Turbo
 - USB-1149.1/E
 - PCMCIA-1149.1/E

Software Installation

The CodeRunner CD-ROM has an installation program that will copy the necessary files to your hard disk. If you are installing the software on Windows 2000, you must have Administrator access rights. If you are installing the software on Windows XP, you must have Administrator or Power User rights.

To install the software:

1. Close any other Windows applications that may be running. You should also disable any memory resident virus checking software, which can sometimes interfere with the installation process.
2. Insert the CodeRunner CD-ROM into your CD drive.
3. The installation program should start up automatically, in which case you may skip to step 4. Otherwise, select **Run** from the **Start** menu. In the **Run** dialog box, type “D:\Setup.exe” (where D:\ is the CD-ROM drive) as shown in Figure 2-1.

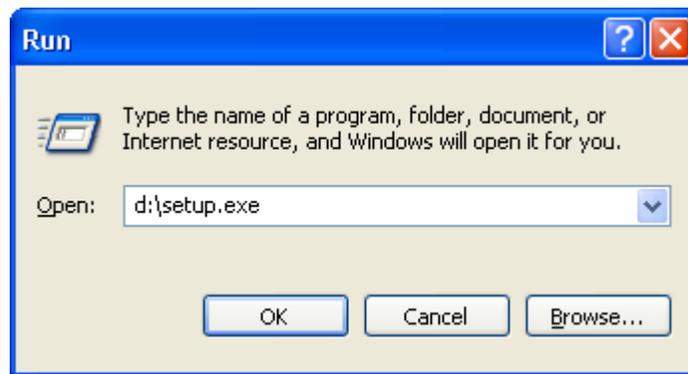


Figure 2-1. Windows Run Dialog Box

4. Click on the **OK** button in the **Run** dialog box and follow the installation program instructions. The setup program will first display the window in Figure 2-2.

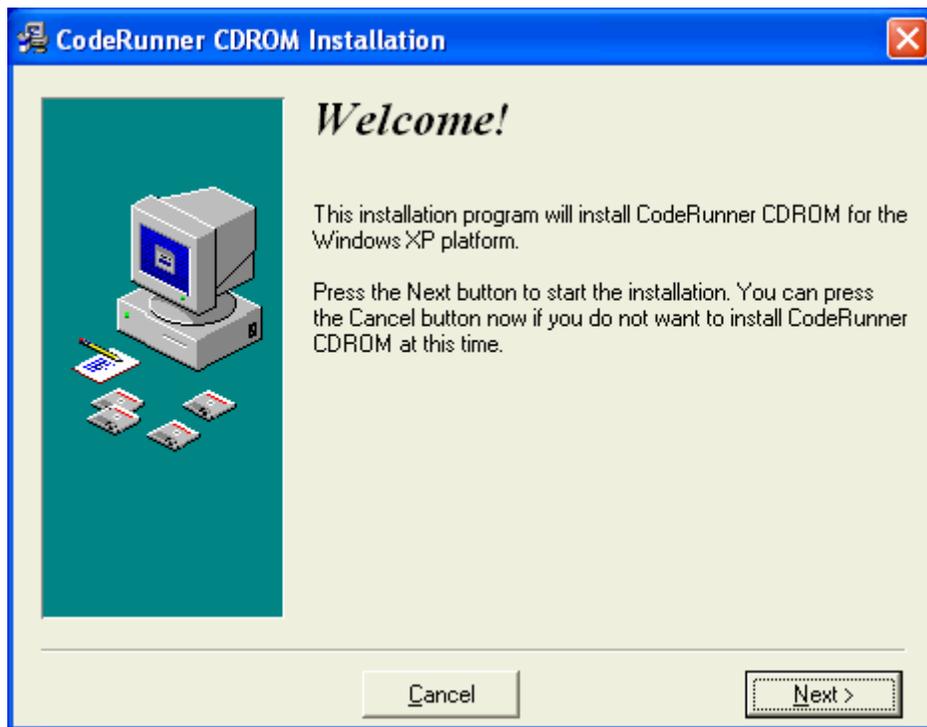


Figure 2-2. Initial Setup Screen

5. The **License Agreement** screen shown in Figure 2-3 will appear. Review the agreement, and if you agree to it, select the **I Agree** radio button. Click on the **Next** button to proceed to the processor selection screen.

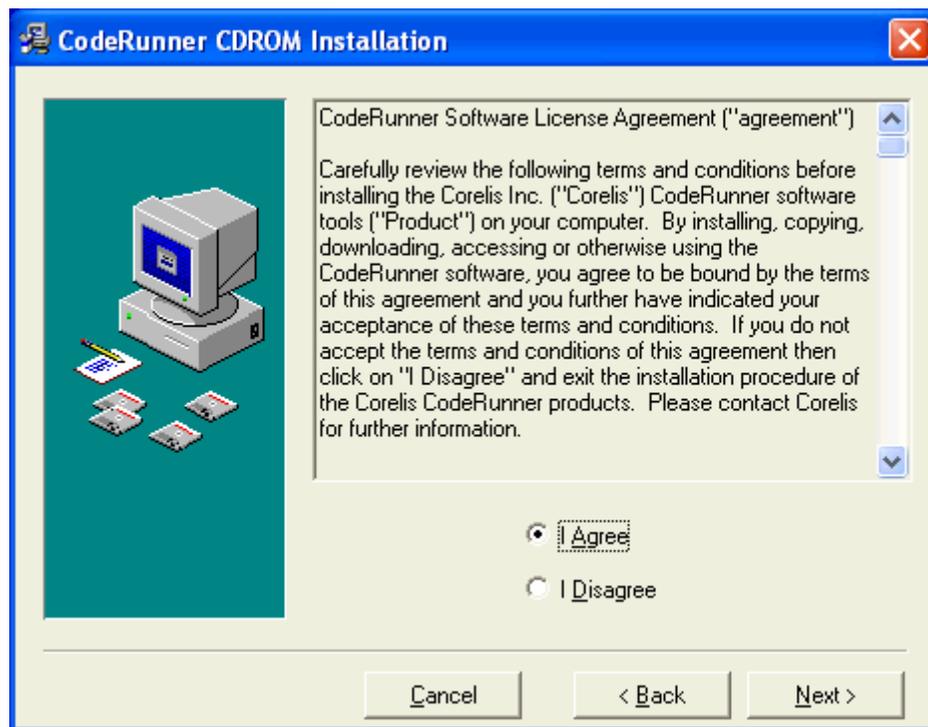


Figure 2-3. License Agreement Screen

- From the **Select Installation Type** screen shown in **Error! Reference source not found.** click on the **Single User Parallel Port Key (Dongle)** radio button. To proceed with the installation, click the **Next >** button.

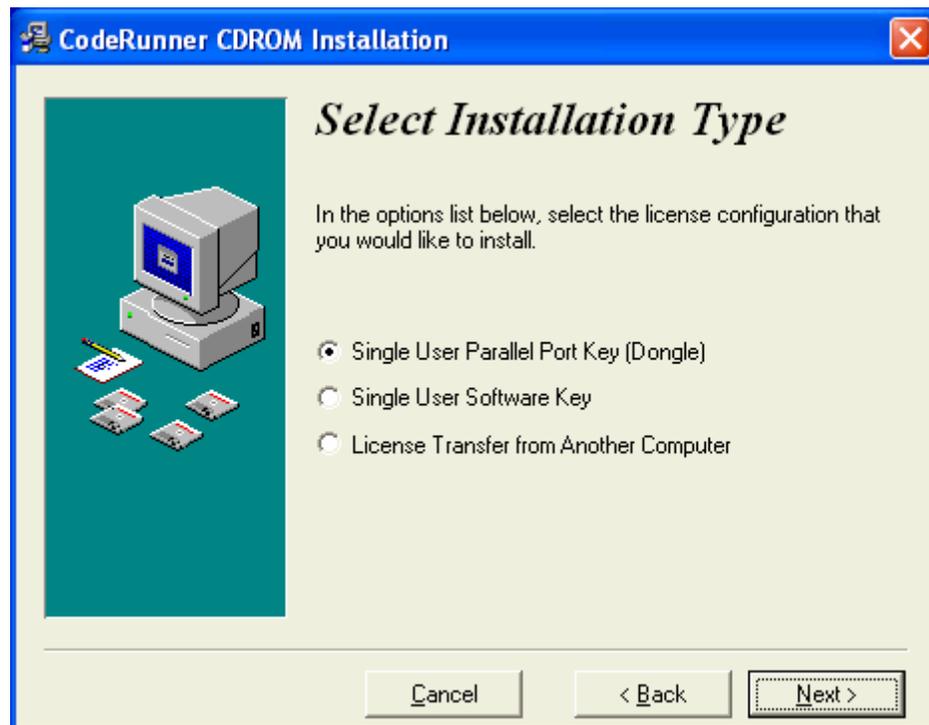


Figure 2-4. Select Installation Type Screen

7. The **Select Processor** screen shown in Figure 2-5 will appear. Select the target processor and click on the **Next** button to proceed to the controller selection screen.

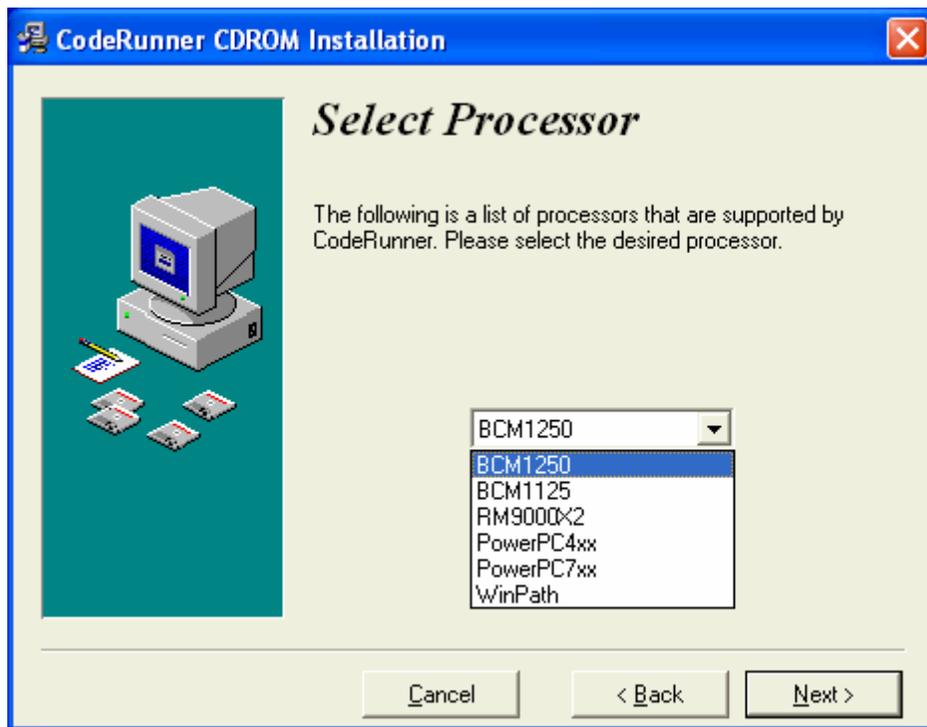


Figure 2-5. Select Processor Screen

- Setup will next prompt you for an installation folder with the **Select Destination Folder** screen shown in Figure 2-6. You may accept the default folder, or choose a different one. To proceed with the installation, click the **Next** button.

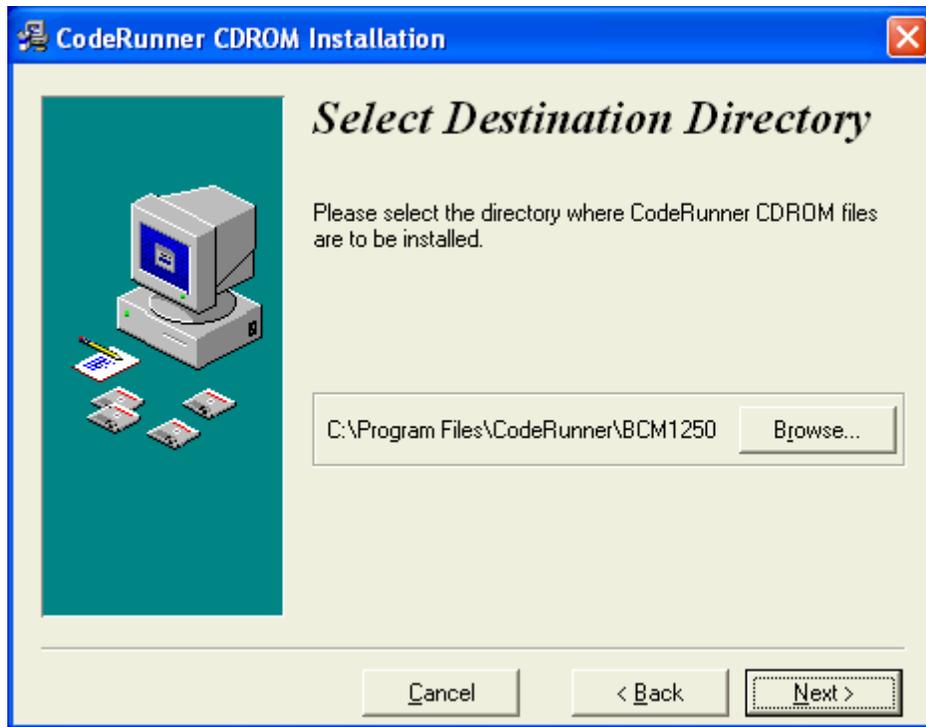


Figure 2-6. Select Destination Folder

9. Setup will prompt you with the **Select Backup Directory** screen shown in. You may accept the default folder, or choose a different one. To proceed with the installation, click the **Next** button

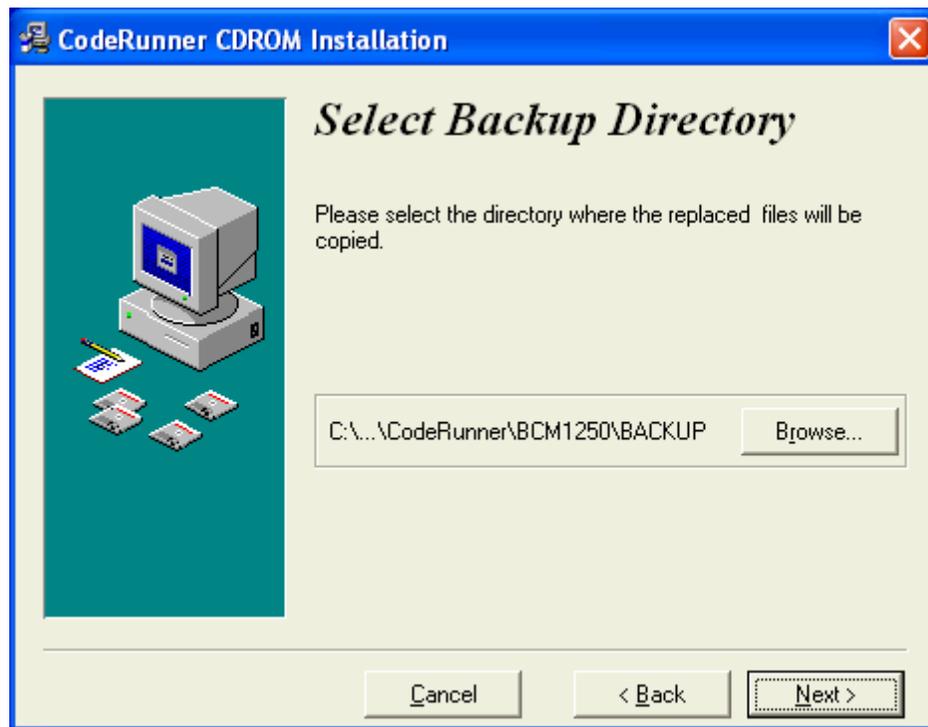


Figure 2-7. Select Backup Directory

10. The **Ready to Install** screen shown in Figure 2-8 will now appear and is the last screen to appear before the application files are copied to your computer. If you need to change any of the installation parameters, click on the Back button. Otherwise, click on the **Next** button and the installation process will begin.

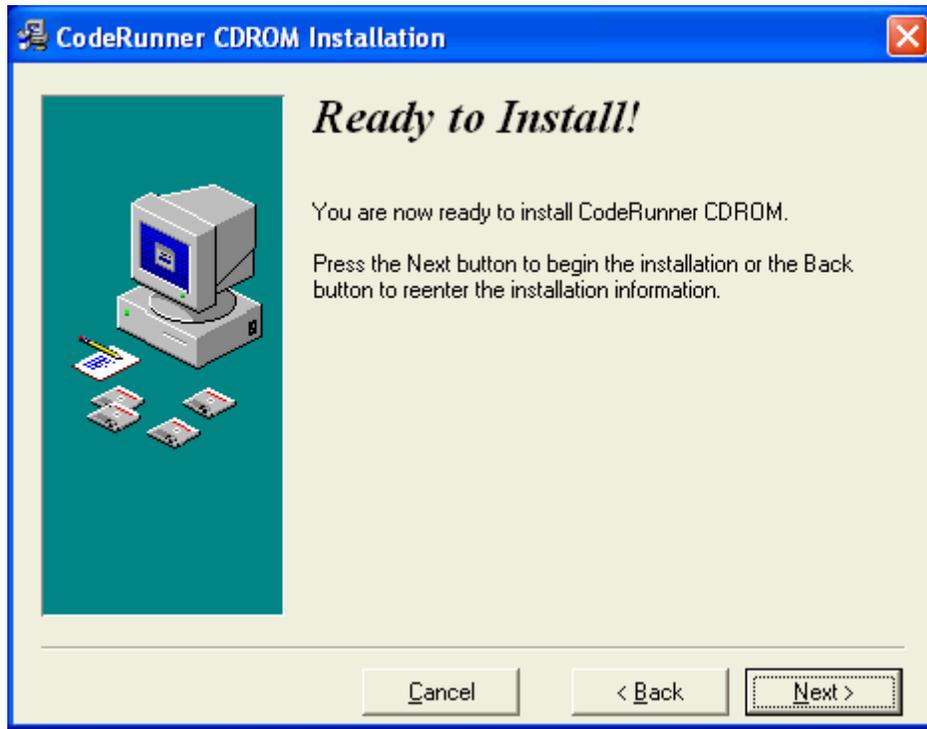


Figure 2-8. Ready to Install Screen

Setup will copy the program files to the folder specified as well as some support files to the Windows system folders. Finally, setup will create a **Start** menu group called **CodeRunner-BCM1250** from which you can run CodeRunner.

11. The **Installation Completed** screen shown in Figure 2-9 will appear to indicate that the installation is complete. Click on the **Finish** button to exit from the installation program. You will then be prompted to reboot your computer to complete the installation by the dialog box shown in Figure 2-10. You may press the **Cancel** button to avoid rebooting your computer now, but you must reboot before running CodeRunner.

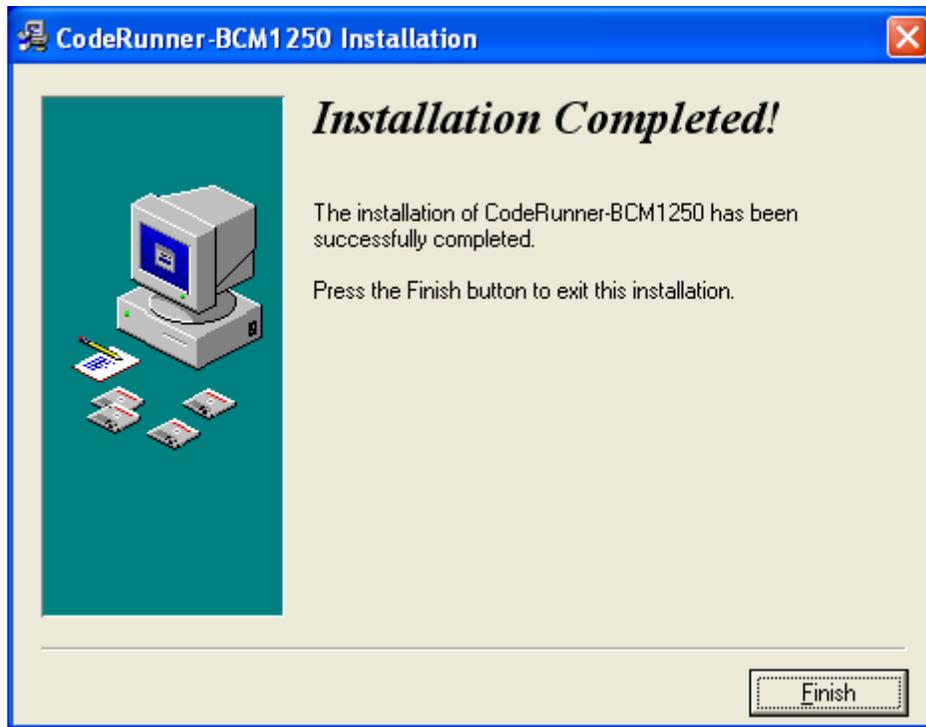


Figure 2-9. Installation Completed Screen

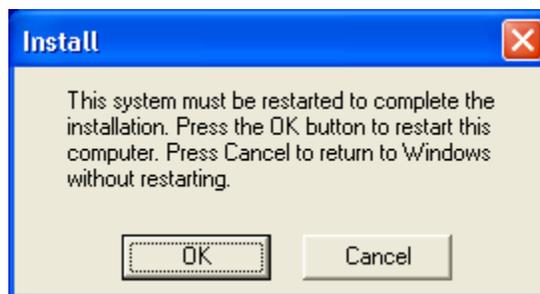


Figure 2-10. Reboot Dialog Box

12. The CodeRunner package includes a protection key. This key (often called a “dongle”) must be connected to the parallel printer port of the host PC for CodeRunner to execute.

PCI-1149.1 Boundary-Scan Controller Installation

This section explains how to install the **PCI-1149.1** card. If you ordered a different type of boundary-scan controller for your CodeRunner product (**NetUSB-1149.1**, **PCI-1149.1/Turbo**, **PIO-1149.1/E**, **USB-1149.1/E**, or **PCMCIA-1149.1/E**) then please refer the relevant section later in this chapter that describes the installation of the boundary-scan controller type that you ordered.

The PCI-1149.1 card is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The CodeRunner software should be installed before installing the PCI-1149.1. The PCI-1149.1 is a Plug and Play device, and its drivers are installed with the CodeRunner software. Windows will automatically recognize and configure the PCI-1149.1 the first time it is detected in your system. Please note that during the installation under **Windows XP**, a hidden message box will warning you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue.

1. Insert the PCI-1149.1 board in one of your computer's available PCI-bus slots. Make sure the board is properly seated and fastened.
2. Connect the provided boundary-scan controller cable to the PCI-1149.1.

In the event that you mistakenly install the PCI-1149.1 card before installing the software, follow these instructions. When the PC is powered up, Windows will prompt you to insert the manufacturer's diskette for the newly detected device. When this occurs, click on the **Cancel** button. Then proceed by installing the CodeRunner software as described in the beginning of this chapter.

PCI-1149.1/Turbo Boundary-Scan Controller Installation

CodeRunner can be ordered with a wide variety of different Corelis boundary-scan controllers. In this section the PCI-1149.1/Turbo installation procedure is provided.

The PCI-1149.1/Turbo card is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The CodeRunner software should be installed before installing the PCI-1149.1/Turbo card.

The PCI-1149.1/Turbo is a Plug and Play device, and its drivers are installed with the CodeRunner software. Windows will automatically recognize and configure the PCI-1149.1/Turbo the first time it is detected in your system. Please note that during the installation under **Windows XP**, a hidden message box will warn you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue.

1. Insert the PCI-1149.1/Turbo board in one of your computer's available PCI-bus slots. Make sure the board is properly seated and fastened.
2. Connect the provided boundary-scan controller cable to the PCI-1149.1/Turbo.

In the event that you mistakenly install the PCI-1149.1 card before installing the software, follow these instructions. When the PC is powered up, Windows will prompt you to insert the manufacturer's diskette for the newly detected device. When this occurs, click on the **Cancel** button. Then proceed by installing the CodeRunner software as described in the beginning of this chapter.

PIO-1149.1/E Boundary Scan Controller Installation

CodeRunner can be ordered with a wide variety of different Corelis boundary-scan controllers. In this section the PIO-1149.1/E installation procedure is provided.

The PIO-1149.1/E controller is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The PIO-1149.1/E controller requires your computer's Parallel Port to be in "ECP Mode". This must be configured in your computer's BIOS setup program, which is typically accessed by the user shortly after power-up (before booting). Refer to your computer's User's Manual or contact your computer manufacturer for information regarding accessing the BIOS Setup program and switching your Parallel Port to ECP mode. This only needs to be done once.

Installation of the Windows drivers for this device will occur when you run the install shield "setup.exe", contained on the distribution CD. This will copy all the necessary drivers to your hard drive and update the system registry. After this installation process is done, restart your computer when prompted, and you will be ready to use the PIO-1149.1/E controller. Please note that during the installation under **Windows XP**, a hidden message box will warn you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue.

USB-1149.1/E Boundary Scan Controller Installation

CodeRunner can be ordered with a wide variety of different Corelis boundary-scan controllers. In this section the USB-1149.1/E installation procedure is provided.

The USB-1149.1/E controller is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The USB-1149.1/E controller can support both USB 1.1 and USB 2.0. However, using USB 1.1 will greatly reduce performance.

Installation of the Windows drivers for this device will occur when you run the install shield "setup.exe", contained on the distribution CD. This will copy all the necessary drivers to your hard drive and update the system registry. Please note that during the installation under **Windows XP**, a hidden message box will warn you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue. After this installation process is done, plug in the USB-1149.1/E controller, Windows will automatically detect the USB-1149.1/E controller and install the necessary drivers. You may see another message box unsigned driver warning, please press OK and continue with the installation.

NETUSB-1149.1 Boundary Scan Controller Installation

CodeRunner can be ordered with a wide variety of different Corelis boundary-scan controllers. In this section the NETUSB-1149.1 installation procedure is provided.

The NETUSB-1149.1 controller is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The NETUSB-1149.1 controller can communicate with the host PC via USB 2.0 (compatible with USB 1.1) or an Ethernet 10/100BaseT network. However, using USB 1.1 will greatly reduce performance.

Installation of the Windows drivers for this device will occur when you run the install shield “setup.exe”, contained on the distribution CD. This will copy all the necessary drivers to your hard drive and update the system registry. Please note that during the installation under **Windows XP**, a hidden message box will warn you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue. After this installation process is done, plug in the NETUSB-1149.1 controller, Windows will automatically detect the NETUSB-1149.1 controller and install the necessary drivers. You may see another message box unsigned driver warning, please press OK and continue with the installation.

After the NETUSB-1149.1 controller has powered up, please wait 10-15 seconds before starting CodeRunner to allow the controller to boot up.

If you are using the NETUSB-1149.1/E controller use TAP1 instead of the Expansion port.

Setting the NetUSB-1149.1 IP Address

To configure the NetUSB-1149.1 for Ethernet communication, please do the following:

1. Plug the controller into any available USB mating connector on your PC using a standard USB 2.0 compatible cable between them.
2. Start **NetUSBConfig.exe** which can be found in the main directory of CodeRunner. (By default, CodeRunner-SiByte is installed in the local hard drive at C:\Program Files\CodeRunner\BCMxxxx\ where xxxx is the chip type, e.g. 1250, 1125, 1155, 1180, etc.) A dialog box as shown below will pop up.

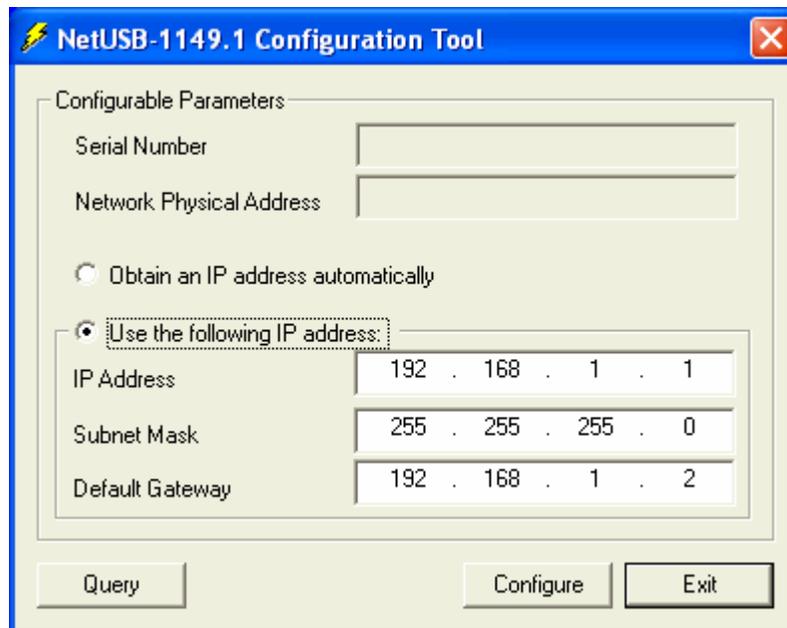


Figure 2-11 NetUSB-1149.1 Configuration Utility

3. Click on the **Query** button to read the current network configuration.
4. Change the settings as required and click on **Configure** button to save it.
5. Remove the USB cable from the NETUSB-1149.1 controller. If the cable remains connected, the controller will not respond to network connection since it defaults to USB connection first.
6. Power off the unit and power it back on to have the new settings to take effect.

PCMCIA-1149.1/E Boundary Scan Controller Installation

CodeRunner can be ordered with a wide variety of different Corelis boundary-scan controllers. In this section the PCMCIA-1149.1/E installation procedure is provided.

The PCMCIA-1149.1/E controller is packaged in anti-static protective material and should be carefully removed to avoid destroying the packing. Retain this along with the other packing materials for possible future transport.

The USB-1149.1/E controller interfaces between a host PC with a CardBus (32-bit) Type II PC Card socket and the target.

Installation of the Windows drivers for this device will occur when you run the install shield “setup.exe”, contained on the distribution CD. This will copy all the necessary drivers to your hard drive and update the system registry. Please note that during the installation under **Windows XP**, a hidden message box will warn you that the driver you are about to install is not digitally signed. To switch over to this message box, simultaneously press **ALT** and **TAB**. Then press OK and the installation will continue. After this installation process is done, plug in the PCMCIA-1149.1/E controller, Windows will automatically detect the PCMCIA-1149.1/E controller and install the necessary drivers. You may see another message box unsigned driver warning, please press OK and continue with the installation.

Check the Readme.txt file on the distribution CD for the latest information on supported revisions. To use CodeRunner with a particular target, the Broadcom processor on the target must be on its own dedicated JTAG scan chain.

MIPS Connector Information

A Corelis-supplied cable can be used to connect a MIPS-based target with the Corelis Boundary Scan Controller. The target connector is a 0.1" pitch 14 pin shrouded header connector. The 14 pins are allocated to 6 signals, 2 spare pin and 6 ground pins. The connector spacing is the convenient 0.1" x 0.1" and provides easy cabling to external equipment.

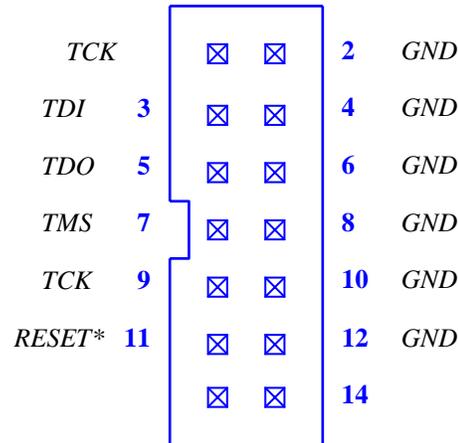


Figure 2-12. MIPS TAP connector (top view)

The following are two of many brand name part numbers for the above connector. Both are 0.1" x 0.1" headers. Note that there are many other manufacturers who would have similar parts as well:

<i>Part Number</i>	<i>Manufacturer</i>	<i>Connector Description</i>
30314-6002HB	3M	Straight 4 wall header, 14 pin, 0.10" pitch
104128-2	AMP	Straight header, Shrouded, with Ejection Latches
TSW-107-23-L-D	SAMTEC	Surface mount header connector

Table 2-1. Recommended MIPS 14 pin Header Connector

The MIPS-based target must bring the necessary signals out to an emulator connector. Below is the connector and cable information for the 14-pin MIPS connector.

<i>Pin</i>	<i>Signal</i>	<i>Direction</i>	<i>Termination</i>
1	TRST*	Input to the UUT	2.2K pull-down
2	GND		
3	TDI	Input to the UUT	1K pull-up
4	GND		
5	TDO	Output of the UUT	33 ohm series
6	GND		
7	TMS	Input to the UUT	1K pull-up
8	GND		
9	TCK	Input to the UUT	1K pull-up
10	GND		
11	RESET*	Input to the UUT	1K pull-up
12	GND		
13		No connect	
14		No connect	

Table 2-2. MIPS 14-Pin Connector Assignments

Notes

1. The 2.2K pull-down resistor on the TRST* signal is required to make sure that the EJTAG interface remains in reset state while the CPU is running in normal mode.
2. The 1K pull-up resistors on the TAP signals are required to minimize cross talk in the EJTAG cable. The combination of 6 GND signals and relatively low impedance (1K) assures adequate signal quality at the other end of the cable.
3. The RESET* signal can either be connected directly to the CPU reset input pin or alternatively can be connected to the target board reset circuitry and get logically-OR'ed with power-on reset, manual switch reset, etc.
4. For further information regarding the EJTAG signal please refer to the EJTAG specification version 2.5.

PowerPC Connector Information

A Corelis-supplied cable can be used to connect a PowerPC-based target with the Corelis Boundary Scan Controller. The target connector is a 0.1" pitch 16 pin shrouded header connector. The 16 pins are allocated to 7 signals and 1 ground pin. The connector spacing is the convenient 0.1" x 0.1" and provides easy cabling to external equipment.

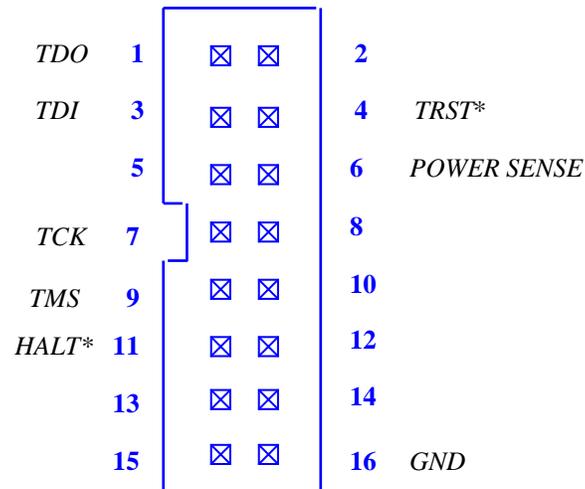


Figure 2-13. PowerPC TAP connector (top view)

The following are two of many brand name part numbers for the above connector. Note that there are many other manufacturers who would have similar parts as well:

Part Number	Manufacturer	Connector Description
2516-6002UB	3M	Straight 4 wall header, 16 pin, 0.10" pitch
87227-8	AMP	Straight header, Shrouded, with Ejection Latches

Table 2-3 Recommended PowerPC 16 pin Header Connector

The target must bring the necessary signals out to an emulator connector. Below is the connector and cable information for the 16-pin PowerPC connector.

<i>Pin</i>	<i>Signal</i>	<i>Direction</i>	<i>Termination</i>
1	TDO	Output from the UUT	
2		No connect	
3	TDI	Input to the UUT	1K pull-down
4	TRST*	Input to the UUT	2.2K pull-down
5		No connect	
6	Power Sense	Output from the UUT	1K series
7	TCK	Input to the UUT	1K pull-up
8		No connect	
9	TMS	Input to the UUT	1K pull-up
10		No connect	
11	HALT*	Input to the UUT	1K pull-up
12		No connect	
13		No connect	
14	KEY	No connect	
15		No connect	
16	GND		

Table 2-4 PowerPC 16-Pin Connector Assignments

Notes

- The 2.2K pull-down resistor on the TRST* signal is required to make sure that the EJTAG interface remains in reset state while the CPU is running in normal mode.
- The 1K pull-up resistors on the TAP signals are required to minimize cross talk in the EJTAG cable. The combination of GND signal and relatively low impedance (1K) assures adequate signal quality at the other end of the cable.

ARM9 Connector Information

A Corelis-supplied cable can be used to connect a ARM-based target with the Corelis Boundary Scan Controller.

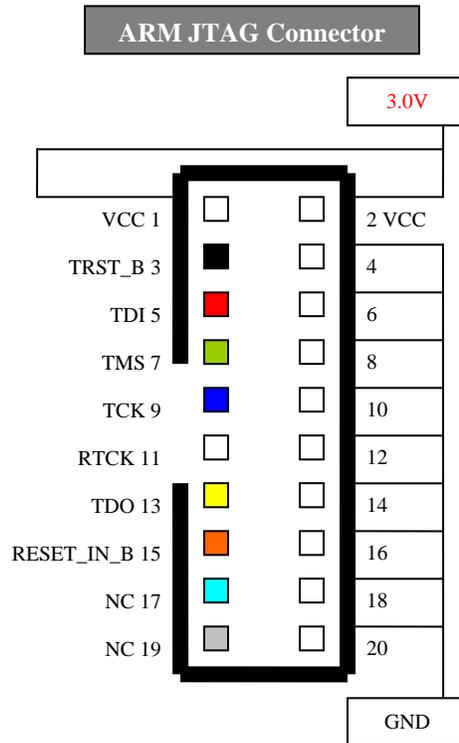


Figure 2-14. ARM9 TAP connector (top view)

Below is the connector and cable information for the 20-pin ARM JTAG connector.

Pin	Signal	Direction	Termination
1	VCC		
2	VCC		
3	TRST*	Input to the UUT	2.2K pull-down
4	GND		
5	TDI	Input to the UUT	1K pull-up
6	GND		
7	TMS	Input to the UUT	1K pull-up
8	GND		
9	TCK	Input to the UUT	1K pull-up
10	GND		
11		No connect	
12	GND		
13	TDO	Output of the UUT	33 ohm series
14	GND		
15	RESET*	Input to the UUT	1K pull-up
16	GND		
17		No connect	
18	GND		
19		No connect	
20	GND		

Table 2-5. ARM9 20-Pin Connector Assignments

Notes

7. The 2.2K pull-down resistor on the TRST* signal is required to make sure that the JTAG interface remains in reset state while the CPU is running in normal mode.
8. The 1K pull-up resistors on the TAP signals are required to minimize cross talk in the JTAG cable. The combination of 9 GND signals and relatively low impedance (1K) assures adequate signal quality at the other end of the cable.
9. The RESET* signal can either be connected directly to the CPU reset input pin or alternatively can be connected to the target board reset circuitry and get logically-OR'ed with power-on reset, manual switch reset, etc.