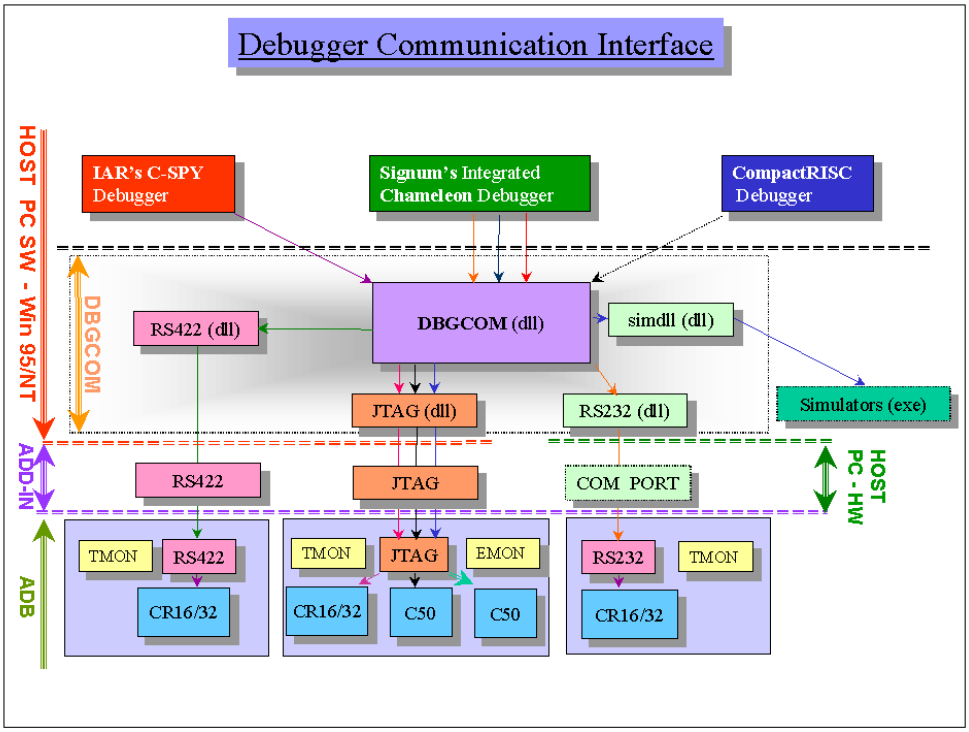

CompactRISC™ Debugger Communication Interface (DbgCom) Beta Release User Guide

CompactRISC™

Debugger Communication Interface (DbgCom) User Guide

Part Number: 424521771-001

August 1998

REVISION RECORD

VERSION	RELEASE DATE	SUMMARY OF CHANGES
0.5	September 1997	Beta - first release.
0.6x	January 1998	Minor modifications.
0.80	August 1998	Windows 95 Setup enhancement. Added RS-232 support. Added simulator support. Clarification of RS-422 issues. Added troubleshooting tips.

PREFACE

Thank you for your interest in National Semiconductor's CompactRISC development systems.

This installation guide provides you with the information needed to install and configure the Beta release of the DbgCom software.

We at National Semiconductor want you to make the fullest use of the DbgCom. If you have any questions, please contact your nearest Regional Marketing Office, as listed on the back cover.

The information contained in this guide is for reference only, and is subject to change without prior notice.

CONTENTS

Section 1
INTRODUCTION

The Debugger Communication Interface (DbgCom) is a communication layer, developed by National Semiconductor. It enables various cross debuggers to communicate with development boards, or other debugging targets, through different types of communication channels using a single, well-defined API.

Using DbgCom, you can connect a debugger from National Semiconductor, or a third party, to development boards or host-resident simulators through RS-232, JTAG and other channels.

DbgCom hides the physical communication layer from the host debugger. The debugger only sees logical channels whose physical implementations are transparent to it. The debugger uses the same interface to access any logical channel.

In addition, DbgCom enables debugging of more than one CPU core through a single communication channel. This feature allows multi-core debugging for systems that contain more than one core (for example a microcontroller and a DSP core).

The DbgCom software package is installed independently. It is implemented as a set of DLLs and device drivers that the debugger accesses through the standard DbgCom API. By default, it supports several types of communication channels. You can extend DbgCom by adding support for additional types of channel.

Figure 1-1 illustrates the DbgCom environment. This figure is intended as an example only; it does not cover all the available combinations.

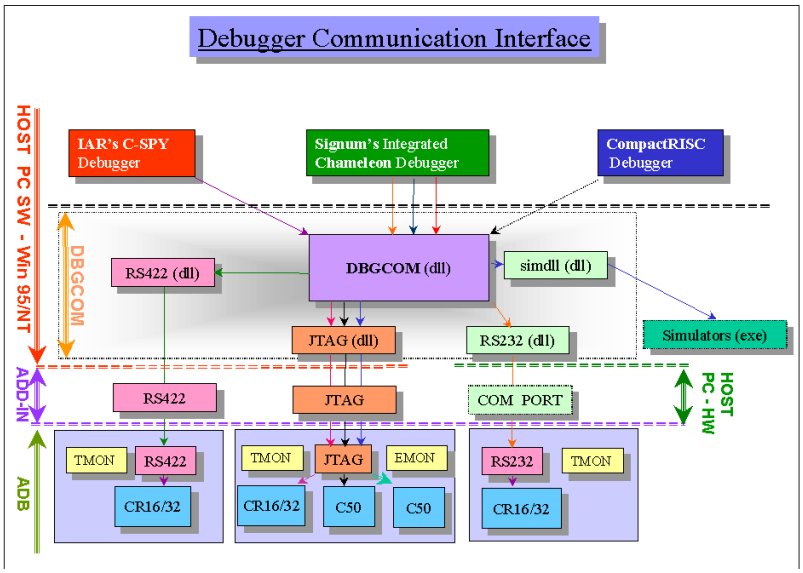

Figure 1-1. Debugging a Program Using the DbgCom

1.1 DbgCom FEATURES

- Available for PCs running Windows 95, or Windows NT 4.0.
- Supports JTAG, RS-422 and RS-232 communication channels.
- Supports communication with host-based simulators.
- Supports communication with multiple debuggers interfacing multiple target boards (Application Development Boards) using different communications channels (e.g., JTAG and RS-422 add-in boards).
- Supports communication with multiple debuggers interfacing multiple CPU cores on the same target board (Application Development Board) using a single add-in board (i.e., JTAG add-in board).

1.2 SYSTEM REQUIREMENTS

The DbgCom package is supported on any PC with Pentium processor running Windows 95 or Windows NT 4.0.

The installation requires 4 MB of disk space.

1.3 REFERENCE DOCUMENTS

The following National Semiconductor publications provide related study and reference material:

1. *CompactRISC Toolset - Introduction*
2. *CompactRISC Toolset - Debugger Reference Manual*
3. *NSV-CE260-JTAG JTAG Add-in Board Reference Manual*
4. *NSV-RS422-COM RS-422 Add-in Board Reference Manual*
5. The Application Development Board (ADB) User Guide.

Section 2
INSTALLING DbgCom - WINDOWS NT 4.0

If you have an earlier release of DbgCom, Uninstall it before installing the new release.

Important

You *must* log in to the PC with administrator permission to install, or to uninstall, DbgCom, or to define or change a communication JTAG or RS-422 channel.

You *must* reboot the PC after uninstalling DbgCom.

To install the DbgCom software:

1. Insert the DbgCom CD into your CD-ROM drive.
2. Run the following command:

   ```
   e:\setup.exe
   ```

   (where `e:` is your CD-ROM drive).
3. Follow the instructions on the screen.
4. **Restart** the computer to complete the installation process.

The DbgCom installation program adds a **DbgCom Setup** folder to the standard **Control Panel** (accessed from **Settings**, in the **Start** menu). You can define all channels from the **DbgCom Setup Folder**.

2.1 ADD-IN BOARDS

Certain types of communication channels require the installation of an add-in board on your PC:

- To use a JTAG communication channel, you need National Semiconductor's JTAG add-in board (part number DBG-HWA-JTG).
- To use a RS-422 communication channel, you need National Semiconductor's RS-422 add-in board (part number DBG-HWA-422).

2.2 DEFINING A DbgCom COMMUNICATION CHANNEL

DbgCom allows you to define different communication channels, each based on one of the communication drivers supported by DbgCom[1] (e.g., JTAG, RS-422).

Note: If you use National's CRDB debugger, you do not need to define a communication channel for the simulator. However, all third party debuggers must define a channel for the simulator, as for any other target.

Each user-defined communication channel is characterized by a unique name, and parameters that are relevant to the appropriate communication driver. For example, you can define an RS-422 communication channel with the following parameters:

Name:	RS-422-COM
IRQ:	3
I/O Address:	3E8-3EF

The following sections explain how to define, change test and delete a communication channel.

2.2.1 Defining an RS-232 Communication Channel

1. Check that your PC has an enabled Serial RS-232 COM port available.
2. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.
3. Select and open the **DbgCom Setup** folder.
4. Double-click the **Add New Channel** icon (Figure 2-3).
5. Select the **RS-232** driver, and click the **OK** button (Figure 2-4).
6. Enter the name of the new communication channel, and click the **OK** button (default is **RS-232**) to open the RS-232 Port Setup dialog box (Figure 2-7).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

7. Select the COM Port you want to use on your PC, and the communication speed (according to your ADB settings).

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1. Currently DbgCom allows you to define only one communication channel of type JTAG and only one communication channel of type RS-422.

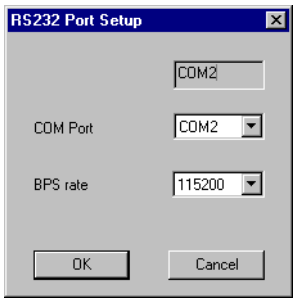

Figure 2-1. RS-232 Port Setup Dialog Box

Note: The DbgCom installation process does *not* check that the resources you have selected are available. During test or normal use, DbgCom attempts to use the selected resources and only then notifies success or failure.

2.2.2 Defining a Simulator Communication Channel

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

2. Select and open the **DbgCom Setup** folder.

3. Double-click the **Add New Channel** icon (Figure 2-3).

4. Select the **Simulator** driver, and click the **OK** button (Figure 2-4).

5. Enter the name of the new communication simulator, and click the **OK** button (default is **DBGSIM**) to open the Simulator Setup dialog box (Figure 2-2).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

6. Use the Simulator Setup dialog box to define the core, performance options, configuration file, and the log file with its associated options.

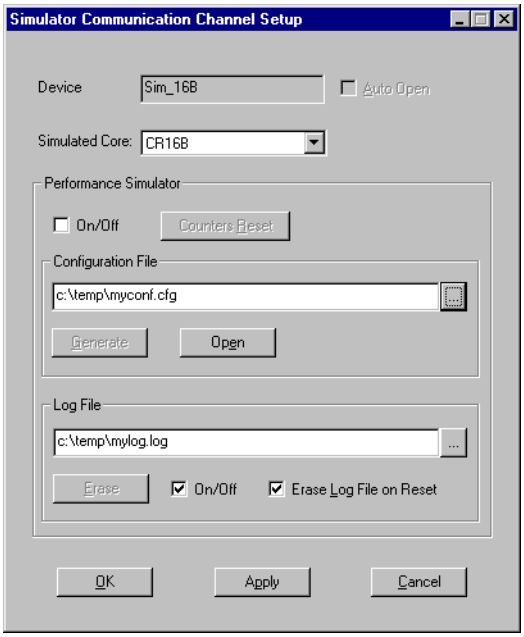

Figure 2-2. Simulator Communication Channel Setup Dialog Box

Notes: The simulator reads the settings defined in the above dialog box on startup. Thus if you modify these settings while the simulator is running they will only take effect the next time you launch the program.

Some features of the above dialog box are not yet functional. The functional features are:

- Simulated Core Selection
- Performance Simulator On/Off
- Configuration File Name
- Log File Name
- Log File On/Off

Caution We strongly advise against running two (or more) instances of a debugger that runs in simulated mode, even though they may sometimes behave correctly.

2.2.3 Defining a JTAG Communication Channel

1. Turn off the PC.

2. Configure the JTAG add-in board, according to the *NSV-CE260-JTAG Reference Manual*. Do *not* use Plug and Play (PnP) mode, i.e., select an Interrupt Request Line (IRQ) and a Base I/O Port Address which are not already in use on your PC.

3. Plug the JTAG add-in board into an ISA slot on the PC motherboard. Turn on the PC, and wait for Windows to finish loading.

4. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

5. Select and open the **DbgCom Setup** folder (Figure 2-3).

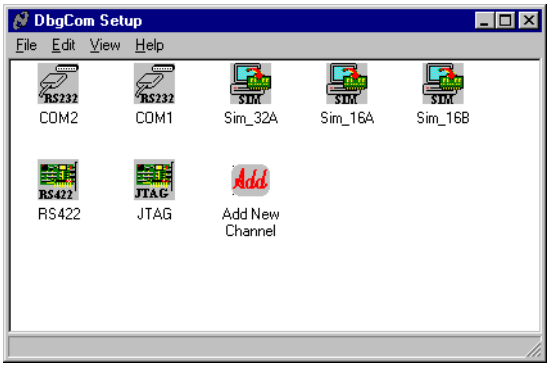

Figure 2-3. DbgCom Setup Folder

6. Double-click the **Add New Channel** icon.

7. Select the **JTAG** driver and click the **OK** button (Figure 2-4).

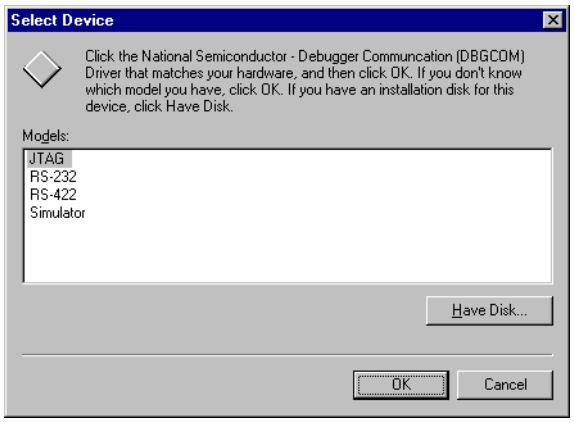

Figure 2-4. Select Device Dialog Box

8. Enter the name of the new communication channel, and click the **OK** button (default is **JTAG**) to open the JTAG Communication Channel Setup dialog box (Figure 2-5).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

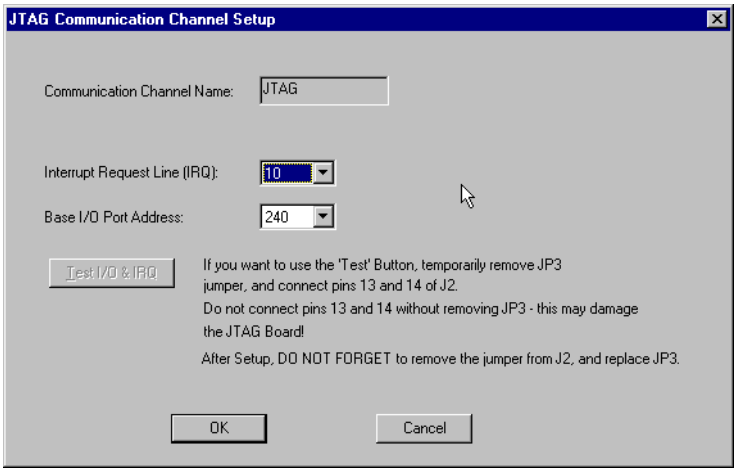

Figure 2-5. JTAG Communication Channel Setup Dialog Box

9. Enter the Interrupt Request Line (IRQ) and Base I/O Port Address which were configured on the JTAG add-in board.

Note: Do not use the **TEST I/O & IRQ** button unless the JTAG add-in board is configured for test mode (see Section 5.3.2.)

10. Click the **OK** button. A new icon is added to your **DbgCom Setup** folder. The Setup program then asks you to reboot your PC to implement any changes. You *must* reboot the PC to complete the installation of the new channel.

11. Connect the JTAG add-in board to a target board using an appropriate cable (see the *NSV-CE260-JTAG Reference Manual*).

12. Switch on the ADB, after preparing it to communicate with host (see the corresponding ADB reference manual).

13. Test the new communication channel using the **ADB Communication Test** program described in Section 2.4.

Note: The DbgCom installation process does *not* check that the resources you have selected are available. During test or normal use, DbgCom attempts to use the selected resources and only then notifies success or failure.

2.2.4 Defining an RS-422 Communication Channel

Most RS-422 add-in cards use the same resources as legacy COM ports: IRQ3 or IRQ4, and I/O base addresses 3F8, 2F8, 3E8 or 2E8 (enhanced RS-422 cards support IRQ5 or IRQ7, instead of IRQ3 or IRQ4). This may create a contention with existing COM ports in the system, unless they are disabled.

The I/O ports used by an RS-422 card are printed on the card itself, in terms of COM1 - COM4. The following table translates COM ports to I/O addresses

COM Port	I/O Addresses
COM1	3F8H - 3FFH
COM2	2F8H - 2FFH
COM3	3E8H - 3EFH
COM4	2E8H - 2EFH

To define a new RS-422 communication channel:

1. If the RS-422 communication channel is to use either IRQ3 or IRQ4, first disable the relevant COM ports (i.e., COM2 and COM4 for IRQ3, or COM1 and COM3 for IRQ4) using the BIOS setup on the PC. This allows the RS-422 device driver to use these resources. Otherwise, by default, the standard Windows serial driver uses the COM port.

2. For example, to disable COM1 using **ROM PCI/ISA BIOS (PI55T2P4)**:
   - Turn on the PC, and press the **Delete** button immediately. A BIOS menu pops up.
   - Choose **CHIPSET FEATURES SETUP**.
   - Change the **On-board Serial Port 1** to Disabled.
   - Quit the BIOS setup, while saving the new configuration.
3. Turn off the PC power-supply.
4. Configure the RS-422 add-in board, as described in the *NSV-RS422-COM Reference Manual*, (i.e., select an Interrupt Request Line (IRQ) and a COM Port Number which are not already in use).
5. Plug the RS-422 add-in board into an ISA slot on the PC mother-board.
6. Turn on the PC.
7. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.
8. Select and open the **DbgCom Setup** folder.
9. Double-click the **Add New Channel** icon (Figure 2-3).
10. Select the **RS-422** driver and click the **OK** button (Figure 2-4).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

11. Enter the name of the new communication channel, and click the **OK** button (default is **RS-422**) to open the RS-422 Device Type dialog box (Figure 2-6).
12. Enter the Interrupt Request Line (IRQ) and COM Port Number that were configured on the RS-422 add-in board.

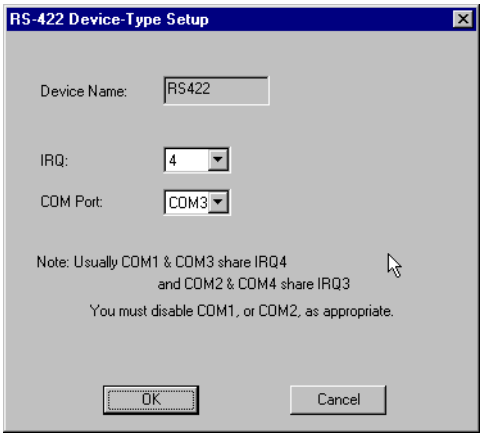

Figure 2-6. RS-422 Device Type Setup Dialog Box

13. Click the **OK** button. A new icon is added to your **DbgCom Setup** folder. The Setup program then asks you to reboot your PC to implement any changes.

14. Connect the RS-422 add-in board to a target board, using an appropriate cable (see the *NSV-RS422-COM Reference Manual*).

15. Switch on the ADB, after preparing it to communicate with the host (see the corresponding ADB reference manual).

16. Test the new communication channel using the **ADB Communication Test** program described in Section 2.4.

Note: The DbgCom installation process does not check that the resources you selected are available. During test or normal use, DbgCom attempts to use the selected resources and only then notifies success or failure.

2.3 CHANGING PARAMETERS OF A COMMUNICATION CHANNEL

To change any parameter of any type of user-defined communication channel:

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

2. Select and open the **DbgCom Setup** folder.

3. Select (single-click only) the icon of the communication channel to be changed.

4. Click the right mouse button, and Select **Properties** to change the communication channel parameters (e.g., COM port). If you change the Communication properties of RS-422 or JTAG interfaces, reboot your PC to implement the changes.

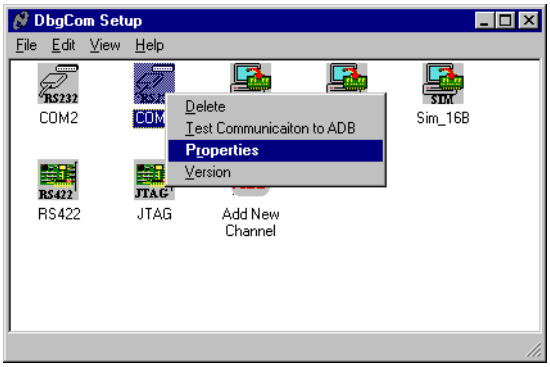

Figure 2-7. DbgCom Setup Folder

2.4 TESTING DbgCom COMMUNICATION WITH TARGET BOARD

Before you use the DbgCom communication layer via the debugger, we strongly recommend that you test each of the user-defined communication channels. To test a communication channel:

1. Click the Windows **Start** button, select **Settings** and open the **Control Panel**.

2. Select and open the **DbgCom Setup** folder.

3. Select (single-click only) the icon of the communication channel to be tested.

4. Click the right mouse button, and select **Test** to test the selected communication channel.

The Test program tests the following:

- Communication with the appropriate add-in board (e.g., RS-422 add-in board).
- Communication with the ADB.

2.5 DELETING A COMMUNICATION CHANNEL

To delete any type of user-defined communication channel:

1. Click the Windows **Start** button, select **Settings** and open the **Control Panel**.

2. Select and open the **DbgCom Setup** folder.

3. Select (single-click only) the icon of the communication channel to be deleted.

4. Click the right mouse button, and Select **Delete**.

2.6 ADDING A NEW COMMUNICATION DRIVER TYPE

You can add a new version of an existing communication driver, or, for future developments, you can add a new driver. Use **Have Disk** to define a new communication channel. Note that each new driver must have a unique name (i.e., you can not add a new communication driver using an existing DbgCom driver name).

Section 3
INSTALLING DbgCom - WINDOWS 95

If you have an earlier release of DbgCom, you should Uninstall it before installing the new release.

Important You *must* reboot the PC after uninstalling DbgCom.

To install the DbgCom software:

1. Insert the DbgCom CD into your CD-ROM drive.
2. Run the following command:

   `e:\setup.exe`

   (where `e:` is your CD-ROM drive).
3. Follow the instructions on the screen.
4. **Restart** the computer to complete the installation process.

The DbgCom installation program adds a **DbgCom Setup** folder to the standard **Control Panel** (accessed from **Settings**, in the **Start** menu).

Notes You can define only RS-232 and Simulator channels from within the control panel. You must define RS-422 and JTAG channels from the **Add New Hardware** program of the Control Panel.

DbgCom provides names for the RS-422 and JTAG channels, even if they are not defined. When you use a high-level debugger, DbgCom exports these names. However, to make these channels functional, you must carry out the channel definition instructions below.

3.1 ADD-IN BOARDS

Certain types of communication channels require the installation of an add-in board on your PC:

- To use a JTAG communication channel, you need National Semiconductor's JTAG add-in board (part number DBG-HWA-JTG).
- To use a RS-422 communication channel, you need National Semiconductor's RS-422 add-in board (part number DBG-HWA-422).

3.2 DEFINING A DbgCom COMMUNICATION CHANNEL

DbgCom allows you to define different communication channels, each based on one of the communication drivers supported by DbgCom[1] (e.g., JTAG, RS-422).

Note: If you use National's CRDB debugger, you do not need to define a communication channel for the simulator. However, all third party debuggers must define a channel for the simulator, as for any other target.

Each user-defined communication channel is characterized by a unique name, and parameters that are relevant to the appropriate communication driver. For example, you can define an RS-232 communication channel with the following parameters:

Name:	RS-232-COM
COM Port:	COM2
BPS:	115200

The following sections explain how to define, change test and delete a communication channel.

3.2.1 Defining an RS-232 Communication Channel

1. Check that your PC has an enabled Serial RS-232 COM port available.
2. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.
3. Select and open the **DbgCom Setup** folder.
4. Double-click the **Add New Channel** icon (Figure 2-3).
5. Select the **RS-232** driver, and click the **OK** button (Figure 2-4).
6. Enter the name of the new communication channel, and click the **OK** button (default is **RS-232**) to open the RS-232 Port Setup dialog box (Figure 2-7).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

7. Select the COM Port you want to use on your PC, and the communication speed (according to your ADB settings).

---

1. Currently DbgCom allows you to define only one communication channel per communication driver of type JTAG or RS-422.

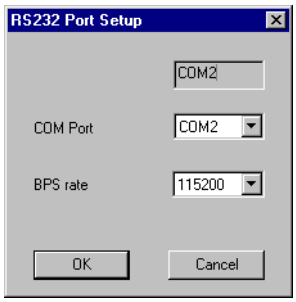

Figure 3-1. RS-232 Port Setup Dialog Box

Note: The DbgCom installation process does *not* check that the resources you have selected are available. During test or normal use, DbgCom attempts to use the selected resources and only then notifies success or failure.

3.2.2 Defining a Simulator Communication Channel

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.
2. Select and open the **DbgCom Setup** folder.
3. Double-click the **Add New Channel** icon (Figure 2-3).
4. Select the **Simulator** driver, and click the **OK** button (Figure 2-4).
5. Enter the name of the new communication simulator, and click the **OK** button (default is **Simulator**) to open the Simulator Setup dialog box (Figure 2-2).

Note: At this stage, after you click OK, the channel is created, even if you do not assign resources for the channel.

6. Use the Simulator Setup dialog box to define the core, performance options, configuration file, and the log file with its associated options.

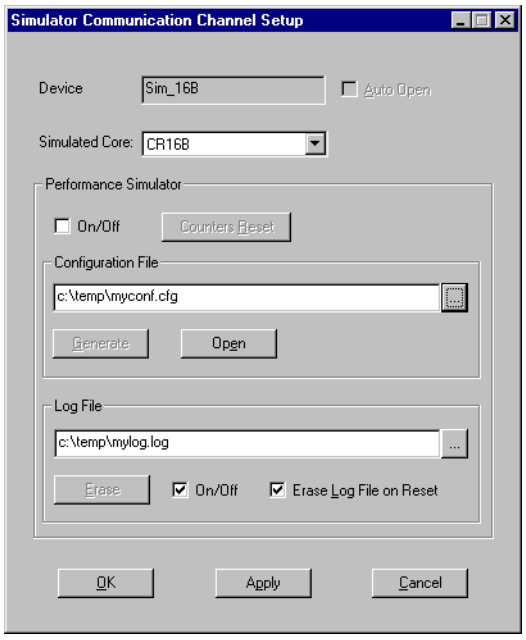

Figure 3-2. Simulator Communication Channel Setup Dialog Box

Notes: The simulator reads the settings defined in the above dialog box on startup. Thus if you modify these settings while the simulator is running they will only take effect the next time you launch the program.

Some features of the above dialog box are not yet functional. The functional features are:

- Simulated Core Selection
- Performance Simulator On/Off
- Configuration File Name
- Log File Name
- Log File On/Off

3.2.3 Defining a JTAG Communication Channel

1. The JTAG communication channel cannot, as yet, take advantage of Plug and Play features. For this reason, you should select the IRQ to be used by the JTAG driver on both the ADB and the system. To avoid the BIOS assigning the desired IRQ to another device (because the BIOS is not aware of the requirements of the ADB), try to define this IRQ as used by ISA device.

Note: This BIOS feature is not supported by all systems.

2. Turn off the PC power supply.

3. Configure the JTAG add-in board, as described in the *NSV-CE260-JTAG Reference Manual* i.e., select an Interrupt Request Line (IRQ) and I/O base Addresses which are not already in use.

4. Plug the JTAG add-in board into an ISA slot on the PC motherboard. Turn on the PC.

5. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

6. Double-click **Add New Hardware** and click the **Next** button.

7. Select **No** and click the **Next** button.

8. Select **DbgCom** as Hardware type, and click the **Next** button (Figure 3-3).

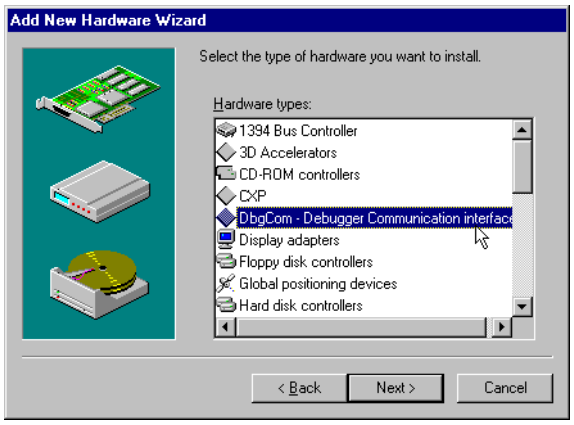

Figure 3-3. Add New Hardware Wizard

9. Select the **JTAG** driver and click the **Next** button.

10. The Windows Device Manager selects an available IRQ and I/O addresses for the JTAG device driver.

    (You can change these parameters later on using the Windows Device Manager, as described in Section 3.3.2)

    Click the Next button (Figure 3-3).

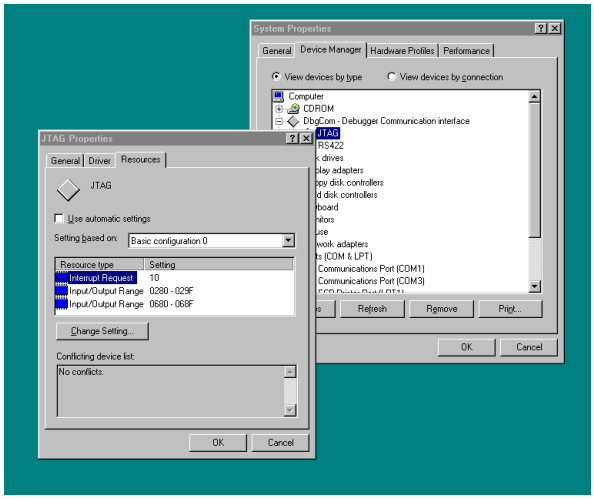

Figure 3-4. Add New Hardware Wizard

11. Click the **Finish** button to complete the JTAG driver installation.

3.2.4 Defining an RS-422 Communication Channel

Most RS-422 add-in cards use the same resources as legacy COM ports: IRQ3 or IRQ4, and I/O base addresses 3F8, 2F8, 3E8 or 2E8 (enhanced RS-422 cards support IRQ5 or IRQ7, instead of IRQ3 or IRQ4). This may create a contention with existing COM ports in the system, unless they are disabled.

The I/O ports used by an RS-422 card are printed on the card itself, in terms of COM1 - COM4. The following table translates COM ports to I/O addresses

COM Port	I/O Addresses
COM1	3F8H - 3FFH
COM2	2F8H - 2FFH
COM3	3E8H - 3EFH
COM4	2E8H - 2EFH

To define a new RS-422 communication channel:

1. If the RS-422 communication channel is to use either IRQ3 or IRQ4, first disable the relevant COM ports (i.e., COM2 and COM4 for IRQ3, or COM1 and COM3 for IRQ4) using the BIOS setup on the PC. This allows the RS-422 device driver to use these resources. Otherwise, by default, the standard Windows serial driver uses the COM port.

2. For example, to disable COM1 using **ROM PCI/ISA BIOS (PI55T2P4)**:

   – Switch on the PC, and press the **Delete** button immediately. A BIOS menu pops up.

   – Choose **CHIPSET FEATURES SETUP**.

   – Change the **On-board Serial Port 1** to Disabled.

   – Quit the BIOS setup, while saving the new configuration.

   In addition, use the Device Manager to check that the relevant COM ports are disabled:

   – Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

   – Double-click the **System** program and select the **Device Manager**.

   – Double-click **Ports (COM & LPT)**, open and disable the relevant driver.

3. Turn off the PC power supply.

4. Configure the RS-422 add-in board, as described in the *NSV-RS422-COM Reference Manual* i.e., select an Interrupt Request Line (IRQ) and COM Port Number which are not already in use.

5. Plug the RS-422 add-in board into an ISA slot on the PC motherboard. Turn on the PC.

6. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

7. Double-click **Add New Hardware** and click the **Next** button.

8. Select **No** and click the **Next** button.

9. Select **DbgCom** as Hardware type and click the **Next** button (Figure 3-5.

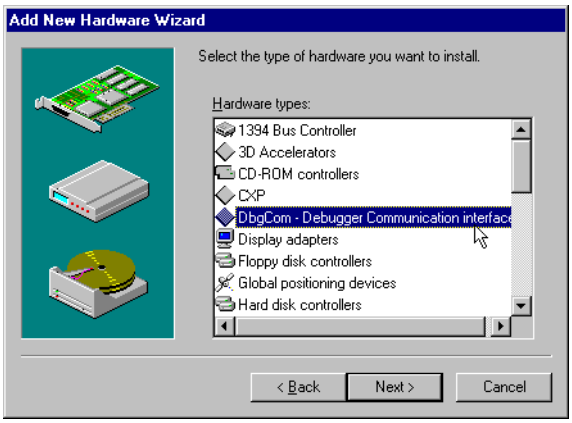

Figure 3-5. Add New Hardware Wizard

10. Select the **RS-422** driver and click the **Next** button.

11. The Windows Device Manager selects an available IRQ and COM port for the RS-422 device driver.

    (You can change these parameters later on using the Windows Device Manager, as described in Section 3.3.2.)

    Click the **Next** button (Figure 3-6).

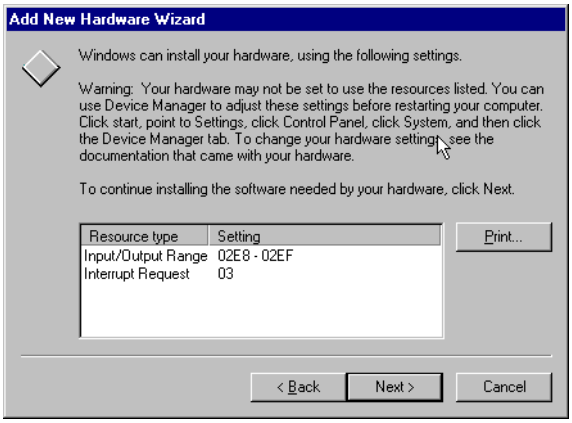

Figure 3-6. Add New Hardware Wizard

12. Click the **Finish** button to Finish the RS-422 driver installation.

3.3 CHANGING PARAMETERS OF A COMMUNICATION CHANNEL

3.3.1 Changing Parameters for RS-232 or Simulator Channels

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

2. Select and open the **DbgCom Setup** folder.

3. Select (single-click only) the icon of the communication channel to be changed.

4. Click the right mouse button, and Select **Properties** to change the communication channel parameters (e.g., COM port).

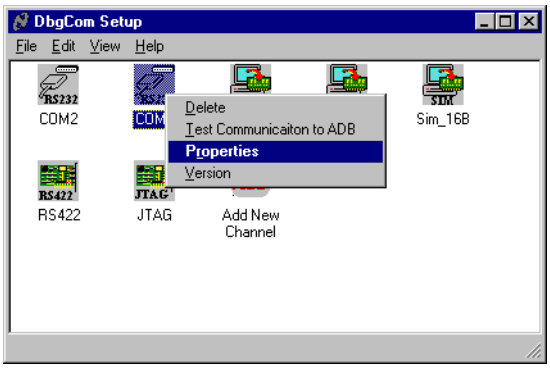

Figure 3-7. DbgCom Setup Folder

3.3.2 Changing Parameters of an RS-422 or JTAG Channel

To change any parameter of an RS-422 or JTAG communication channel (i.e., IRQ or COM port):

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

2. Double-click the **System** program and select the **Device Manager**.

3. Double-click **DbgCom**, and open **RS-422/Jtag** properties (Figure 3-8).

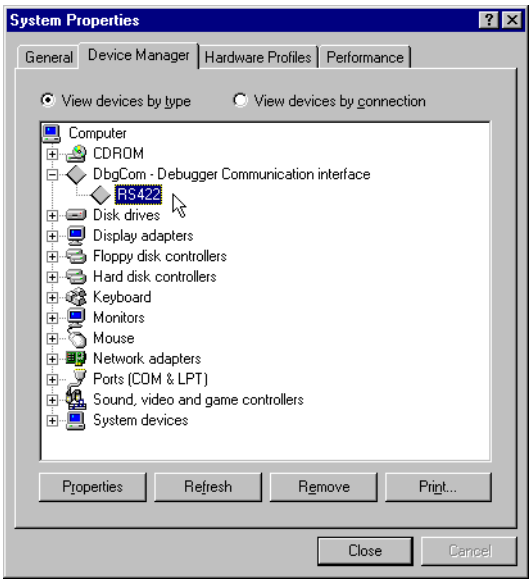

Figure 3-8. System Properties

4. Select **Resources** and change the required parameter using the **Change Setting** button (Figure 3-9).

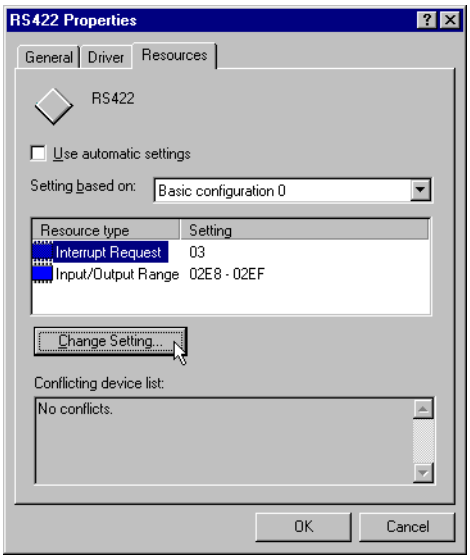

Figure 3-9. RS-422 Properties

3.4 TESTING DbgCom COMMUNICATION WITH TARGET BOARD

Before you use the DbgCom communication layer via the debugger, we strongly recommend that you test each of the user-defined communication channels.

3.4.1 Testing an RS-232 or Simulator Channel

1. Click the Windows **Start** button, select **Settings** and open the **Control Panel**.
2. Select and open the **DbgCom Setup** folder.
3. Select (single-click only) the icon of the communication channel to be tested.
4. Click the right mouse button, and select **Test** to test the selected communication channel.

The Test program tests the following:

- Communication with the appropriate COM port.
- Communication with the ADB.

3.4.2 Testing an RS-422 or JTAG Channel

Not supported in the current release.

3.5 DELETING A COMMUNICATION CHANNEL

3.5.1 Deleting an RS-232 or Simulator Channel

1. Click the Windows **Start** button, select **Settings** and open the **Control Panel**.
2. Select and open the **DbgCom Setup** folder.
3. Select (single-click only) the icon of the communication channel to be deleted.
4. Click the right mouse button, and Select **Delete**.

3.5.2 Deleting an RS-422 or JTAG Channel

1. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.

2. Double-click the **System** program and select the **Device Manager**.

3. Double-click **DbgCom**, and select the **RS-422** or **JTAG** driver (Figure 2-3).

4. Press the **Delete** button on your keyboard.

Section 4
UNINSTALLING DbgCom

Windows 95 only

Before uninstalling DbgCom on Windows 95, remove the RS-422 and JTAG communication channels from the Windows 95 device driver (see Section 3.5). Ignore this step if no RS-422 or JTAG communication channels are defined on your PC.

Windows 95
Windows NT

To uninstall the DbgCom software, carry out the following steps:

1. Click the Windows **Start** button, select **Settings** and open the **Control Panel**.
2. Open the **Add/Remove Programs**.
3. Select **DbgCom** and click the **Add/Remove** button.
4. Follow the instructions on the screen.
5. Restart the computer to complete the uninstall process.

Note: This program removes all DbgCom-related software from your PC. Use the **Delete** option (described in Section 3.5) to delete only a user-defined communication channel.

Section 5
TROUBLESHOOTING TIPS

The following tips may help if you have any problems.

5.1 HARDWARE ISSUES

- If you use an add-in board (e.g., NSC-CE260-JTAG board), make sure the board is seated properly in its ISA slot on the motherboard of the PC.
- Before communicating with an ADB, make sure you are using an appropriate communication channel, supported by that ADB, and an appropriate cable is properly connected.

5.2 CMOS SETUP

- In some systems, the CMOS Setup program allows you to reserve an IRQ for use of a non Plug and Play ISA card, or to leave it for use of the BIOS or the operating system. If this option is available, select the “Reserve for ISA card use”.
- If CMOS Setup program allows you to enable/disable power management capabilities for the desired IRQ, select DISABLE (no Power management).

5.3 WINDOWS NT 4.0 ONLY

5.3.1 JTAG/RS-422

- Select **Start** -> **Programs** -> **Administrative Tools** (common) -> **Windows NT Diagnostics**.
- In the opened dialog box, select **Resources**. Select **IRQ**, and check:
  - JTAG/RS-422 IRQ appears in the list
  - the assigned IRQ matches that selected by the jumpers on the ADB
  - the assigned IRQ matches the configuration of JTAG/RS-422 device in **Control Panel** -> **DbgCom** -> **JTAG** -> **Properties**.

- In Resources, select **I/O Port**
  - JTAG/RS-422 I/O ports appears in the list
  - the assigned I/O port matches that selected by the jumpers on the ADB
  - the assigned I/O port matches the configuration of JTAG/RS-422 device in **Control Panel** -> **DbgCom** -> **Jtag** -> **Properties**.
- In some extreme cases, un-install may be required to re-install DbgCom. When the un-install process is complete, check that all the following files have been successfully removed:
  - `<windows dir>\systems32` directory:
    `jtag*.*`
    `rs422*.*`
    `dbgcom.*`
  - `<windows dir>\systems32\drivers` directory
    `jtag*.*`
    `rs422*.*`

  Re-install DbgCom.

5.3.2 JTAG Test Mode

The JTAG add-in board has a hardware test mode, if you use a JTAG communication driver. (See the *NSV-CE260-JTAG Reference Manual*.)

The following steps enable you to use this hardware **Test** option, while configuring the JTAG communication channel.

Note: After testing communication with the JTAG add-in board, disable this option.

1. Switch off the PC, and remove the JTAG add-in board.
2. If the JTAG add-in board is currently configured for Differential Path mode (JP3 - IN), configure it for Direct Path mode (JP - OUT).
3. Connect pins 13 and 14 of the Direct Signal Connector (J2). You can use the jumper from JP3.
4. Plug the JTAG add-in board into an ISA slot on the PC motherboard, and switch on the PC.
5. Click the Windows **Start** button, select **Settings**, and open the **Control Panel**.
6. Select and open the **DbgCom Setup** folder.
7. Select (single-click only) the icon of the (JTAG) communication channel to be tested.

8. Click the right mouse button, and Select **Properties**.

9. Click the **Test** button to test communication with the JTAG add-in board (Figure 2-5).

10. Switch off the PC, and remove the JTAG add-in board.

11. Disable the hardware Test option:
    Reconfigure the JTAG add-in board for Differential path mode (JP3 - IN), if required.
    Disconnect pins 13 and 14 of the Direct Signal Connector (J2).

12. Plug in the JTAG add-in board into an ISA slot on the PC mother-board, and switch on the PC.

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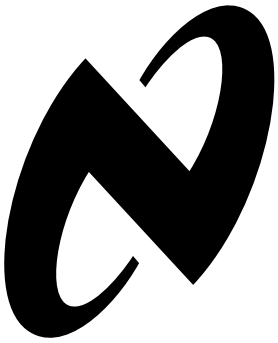
To receive sales literature and technical assistance, contact the National support center in your area.



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