

# **DTL-H2500/H2700 Installation and Operation**

© 1998 Sony Computer Entertainment Inc.

Publication date: August 1998

Sony Computer Entertainment America  
919 E. Hillsdale Blvd., 2nd floor  
Foster City, CA 94404

Sony Computer Entertainment Europe  
Waverley House  
7-12 Noel Street  
London W1V 4HH, England

The *DTL-H2500/H2700 Installation and Operation* manual is supplied pursuant to and subject to the terms of the Sony Computer Entertainment PlayStation® License and Development Tools Agreements, the Licensed Publisher Agreement and/or the Licensed Developer Agreement.

The *DTL-H2500/H2700 Installation and Operation* manual is intended for distribution to and use by only Sony Computer Entertainment licensed Developers and Publishers in accordance with the PlayStation® License and Development Tools Agreements, the Licensed Publisher Agreement and/or the Licensed Developer Agreement.

Unauthorized reproduction, distribution, lending, rental or disclosure to any third party, in whole or in part, of this book is expressly prohibited by law and by the terms of the Sony Computer Entertainment PlayStation® License and Development Tools Agreements, the Licensed Publisher Agreement and/or the Licensed Developer Agreement.

Ownership of the physical property of the book is retained by and reserved by Sony Computer Entertainment. Alteration to or deletion, in whole or in part, of the book, its presentation, or its contents is prohibited.

The information in the *DTL-H2500/H2700 Installation and Operation* manual is subject to change without notice. The content of this book is Confidential Information of Sony Computer Entertainment.

PlayStation and PlayStation logos are registered trademarks of Sony Computer Entertainment Inc. All other trademarks are property of their respective owners and/or their licensors.

# Table of Contents

<b>About This Manual</b>	v
Changes Since Last Release	v
Related Documentation	v
Developer Reference Series	v
Typographic Conventions	vi
Developer Support	vii
<b>Chapter 1: Preliminary Points</b>	
Before Beginning Setup	1-3
<b>Chapter 2: Setting Up the Hardware</b>	
Notes Regarding Board Settings	2-3
Connecting and Setting Up the DTL-H2500	2-4
Connecting and Setting Up the DTL-H2700	2-9
<b>Chapter 3: Installing the Software</b>	
Prior to Installation	3-3
Installation	3-4
Environment Settings for SDevTC	3-7
Rebooting the System	3-9
<b>Chapter 4: Checking the Setup</b>	
Checking the DTL-H2500	4-3
Checking the DTL-H2700	4-3
Compiling and Executing Sample Programs	4-3
Checking the CD-ROM Drive	4-4
Checking the CD-ROM Emulator	4-5
<b>Appendix A: Troubleshooting the Installation</b>	
Preliminaries	A-3
Problem: PC fails to recognize board	A-3
Known Problems with BIOS of PC	A-3
Diagnostic Checks	A-3
Problem: Board Will Not Reset/Can't Run Programs	A-5
General Known Compatibility Issues With PC Brands and Models	A-6
<b>Appendix B: Installing to an AMI BIOS Machine</b>	
<b>Appendix C: Commands for the Flash-ROM</b>	
<b>Appendix D: DTL-H2500 Questionnaire</b>	



---

## About This Manual

Developers should use this manual in conjunction with the *Run-Time Library*, release 4.3.

**Please read this document before installing the DTL-H2500 or the H2700.** The purpose of this manual is to help users set up Sony PlayStation® developer tools DTL-H2500 and DTL-H2700 and their associated peripherals. Use this manual in conjunction with the instruction sheets included in the DTL-H2500 or DTL-H2700 programmer toolkit package.

Discard the black diskette which came with your development system since it is now out of date. More up-to-date versions are on the CD-ROM that came with your system. The latest software and patches can be obtained from our websites. Read the section "Developer Support" below for more details.

**Note:** This manual was written with the assumption that you are using the Windows 95 operating system.

## Changes Since Last Release

The copyright and "About This Manual" sections have been updated.

## Related Documentation

The installation sheets that were provided with your hardware contain helpful information.

The Technical Reference CD contains documentation in PDF format, and can be read using the Adobe Acrobat readers supplied on the CD ROM. Insert the Technical Reference CD into your PC and run the setup programs to install the Adobe Acrobat reader.

## Developer Reference Series

This manual is part of the *Developer Reference Series*, a series of technical reference volumes covering all aspects of the PlayStation® development environment. The complete series is listed below:

Manual	Description
<a href="#">PlayStation Hardware</a>	Gives an overview of PlayStation hardware structure and all elements of the PlayStation system.
<a href="#">PlayStation Operating System</a>	Explains the mechanics of the target box operating system and the concepts that these mechanics implement.
<a href="#">DTL-H2000 Installation and Operation</a>	Provides instructions on the installation and operation of the DTL-H2000 Development System.
<a href="#">DTL-H2500 Installation and Operation</a>	Provides instructions on the installation and operation of the DTL-H2500 Development System.
<a href="#">SDevTC Development Environment</a>	Describes the SDevTC Development Environment.
<a href="#">Run-Time Library Overview</a>	Describes the structure and purpose of C library components for the PlayStation.
<a href="#">Run-Time Library Reference</a>	Defines all available C library functions and structures.
<a href="#">Inline Programming Reference</a>	Describes DMPSX, GTE inline macro and GTE register information.
<a href="#">File Formats</a>	Provides a detailed reference to PlayStation file formats.
<a href="#">Data Conversion Utilities</a>	Provides a single authoritative reference to PlayStation Data Conversion Utilities.

<a href="#">CD Emulator</a>	Mimics the functions of a real CD-ROM drive (for use with the Sony PlayStation Development tools DTL-H2000/H2500).
<a href="#">CD-ROM Generator</a>	Explains how to set up the DTL-S2030 CD-ROM Generator system, and how to write source files on CD-R discs ("writeable" compact discs) loaded in the CD recording unit.
<a href="#">3D Graphics Tool</a>	Describes the functions and operating procedure of 3D Graphics Tool (DTL-S220A).
<a href="#">Sprite Editor</a>	Provides the capability to interactively create data as sprite and BG picture components on Windows.
<a href="#">Sound Artist Tool</a>	Explains set-up procedures for the DTL-H800 Sound Artist Board and methods for using the DTL-S810 Sound Artist Tool to create sound data for the PlayStation.
<a href="#">Performance Analyzer User Guide</a>	Describes the operation of the Performance Analyzer, which monitors the PlayStation buses (main RAM bus, sub bus and video RAM bus) and analyzes programs that run on the PlayStation.
<a href="#">Performance Analyzer Technical Reference</a>	Builds proficiency in the Performance Analyzer, which enables the user to obtain information processed by the CPU and GPU. Developers should first examine the <i>Performance Analyzer User Guide</i> .

---

## Typographic Conventions

Certain Typographic Conventions are used through out this manual to clarify the meaning of the text. The following conventions apply to all narrative text except for structure and function descriptions:

<i>Convention</i>	<i>Meaning</i>
<code>courier</code>	Indicates literal program code.
<b>Bold</b>	Indicates a document, chapter or section title.

The following conventions apply within structure and function descriptions only:

<i>Convention</i>	<i>Meaning</i>
<b>Medium Bold</b>	Denotes structure or function types and names.
<i>Italic</i>	Denotes function arguments and structure members.

## Developer Support

### Sony Computer Entertainment America (SCEA)

SCEA developer support is available to licensees in North America only. You may obtain developer support or additional copies of this documentation by contacting the following addresses:

Order Information	Developer Support
<p><b><i>In North America</i></b>            Attn: Developer Tools Coordinator            Sony Computer Entertainment America            919 East Hillsdale Blvd., 2nd floor            Foster City, CA 94404            Tel: (650) 655-8000</p>	<p><b><i>In North America</i></b>            E-mail: DevTech_Support@playstation.sony.com            Web: <a href="http://www.scea.sony.com/dev">http://www.scea.sony.com/dev</a>            Developer Support Hotline: (650) 655-8181            (Call Monday through Friday, 8 a.m. to 5 p.m.,            PST/PDT)</p>

### Sony Computer Entertainment Europe (SCEE)

SCEE developer support is available to licensees in Europe only. You may obtain developer support or additional copies of this documentation by contacting the following addresses:

Order Information	Developer Support
<p><b><i>In Europe</i></b>            Attn: Production Coordinator            Sony Computer Entertainment Europe            Waverly House            7-12 Noel Street            London W1V 4HH            Tel: +44 (0) 171 447 1600</p>	<p><b><i>In Europe</i></b>            E-mail: dev_support@playstation.co.uk            Web: <a href="https://www-s.scee.sony.co.uk">https://www-s.scee.sony.co.uk</a>            Developer Support Hotline:            +44 (0) 171 390 1680            (Call Monday through Friday, 9 a.m. to 6 p.m.,            GMT or BST/BDT)</p>



---

# **Chapter 1:**

## **Preliminary Points**

---



---

## Before Beginning Setup

This section describes a few points to be aware of before installing the board.

In some cases, the software included with the DTL-S2100A or DTL-S2200 may not be the most recent version. Be sure to update your software first so that the development environment can be set up smoothly.

Please review the following information before beginning hardware setup.

### **DTL-H2500**

The DTL-H2500 is a PCI-bus slot PlayStation® board. The board is Plug&Play compatible, allowing it to be installed without setting up interrupt requests (IRQs) or I/O addresses.

To use the DTL-H2500, you must have a PC-AT compatible computer with at least one free PCI slot.

### **DTL-H2700**

The DTL-H2700 is an ISA-bus slot PlayStation® board. In addition to the normal PlayStation® board features, the DTL-H2700 also includes a performance analyzer.

The DTL-H2700 requires a single ISA slot, however, it comes with 2 daughterboards so it occupies the equivalent of three slots. When choosing a PC-AT compatible, please keep this requirement in mind.

### **DTL-H2510 CD-ROM Drive (sold separately)**

The DTL-H2510 CD-ROM Drive is a CD-ROM drive that connects to the PlayStation® board. A special cable connects the drive to the DTL-H2500 or the H2700. This allows games to be debugged during development using a CD-R.

A 5-inch drive bay is required.

### **DTL-S2020 CD-ROM Emulator (sold separately)**

The CD-ROM Emulator board is used together with the PlayStation® board to emulate a CD-ROM drive using a hard disk. The CD-ROM Emulator is an ISA-bus board and requires another free ISA slot in addition to the slots taken up by the PlayStation® boards. The hard disk connected to the Emulator board is a SCSI hard disk but is independent from any other SCSI devices installed on the PC. Please use hard disks that have been recommended by Sony. Compatible hard disks are listed on the Web site for your region.



---

# **Chapter 2:**

# **Setting Up the Hardware**

---



## Notes Regarding Board Settings

### Assigning Resources in Windows 95

When using ISA boards such as the DTL-H2700 and the DTL-S2020 under Windows 95, it is first necessary to assign interrupt requests (IRQs) and DMA resources. Resources can be assigned by opening up the Windows 95 Control Panel and accessing Device Manager/Computer Properties/Resource settings. If no resources are available, remove unnecessary devices and reassign those resources. Once proper assignments have been made, the corresponding IRQ and DMA settings should be indicated as "Reserved by the system". These settings must be made before setting up the boards in the PC. The DTL-H2700 requires IRQ assignments and the DTL-S2020 requires IRQ and DMA assignments.

The DTL-H2500 is a Plug&Play compatible PCI board and does not require the system resource settings to be made as described above. However, at least one IRQ must be free under the Device Manager/Computer Properties/Resource window. If no IRQs are available, an unused device must be removed to free up an IRQ.

If the desired IRQ setting is already assigned to another device, open up the Device Manager Properties window for the corresponding device and check the "Disable for this hardware environment" checkbox. Or, if the device is an ISA or PCI expansion board, remove the board. In some cases, freeing up PC resources requires changing BIOS settings in addition to Windows settings. For details, please refer to the instruction manual that comes with your PC.

Make sure the power to the PC is turned off when setting up boards and peripherals.

### On-Board Settings for the DTL-H2500

The DTL-H2500 is a Plug&Play compatible PCI board and does not require special on-board settings.

### On-Board Settings for the DTL-H2700

When setting up the DTL-H2700, the on-board I/O address DIP switches and IRQ jumpers must first be set as described below (no DMA settings are required). The settings below are example settings, and other I/O addresses and IRQ settings can be used.

When the component side of the board is up and the back panel (where the video output and combat cable jacks are located) is to the right, the I/O address DIP switches are located near the top center of the board.

The I/O addresses are set up in the following manner.

Factory default (0x1340)



The DIP switches represent the upper 12 bits of 0x1340 (0x134X). In the example below, the setting has been changed to 0x1840.

Example setting (0x1840)

The IRQ jumper pin is located in the lower left section of the board and should be set to 11 (there is no factory default setting). Refer to the silkscreened diagram on the board.

Example settings

Device type	I/O address	IRQ	DMA
DTL-H2700 PlayStation® board	0x1840	11	----- (not required)

## Setting Up the CD-ROM Emulator Board

When setting up the CD-ROM Emulator board, the on-board jumpers should first be set as shown below. These settings are example settings, and other I/O address, IRQ, and DMA settings can be used. Jumpers for setting up the I/O address are located toward the bottom center of the board. The jumpers should be set to an address that does not conflict with other boards (the factory default is 0x308). Next, set up the DMA channel, located to the left of the jumpers. Please note that on some boards the numbers 5 and 7 printed on the board are reversed (the leftmost jumper is 7). Finally, set up the interrupt (IRQ) jumper, located below the DMA jumpers (the factory default is 15). All other jumpers should be left untouched.

**Some CD-ROM Emulator boards may use DIP switches instead of jumpers. Follow the diagrams silkscreened onto the board.**

In this example, IRQ 5 is used. In some PCs, IRQ 5 is assigned to a sound device. If this is the case, free up the resource by removing the sound card. If the sound card is an on-board device, disable the card through the Sound Properties Device setting. Next, reserve (assign) the IRQ5 resource as a system resource by following the steps described above.

Example settings

Device type	I/O address	IRQ	DMA
DTL-S2020 CD-ROM Emulator board	0x398	5	7

## Connecting and Setting Up the DTL-H2500

This section describes how to set up the following boards and peripherals.

### Boards and peripherals

DTL-H2500	PlayStation® board
DTL-S2020	CD-ROM Emulator board
DTL-H2510	CD-ROM drive for the H2500/H2700

### Board and peripheral settings

Example settings

Device type	I/O address	IRQ	DMA
DTL-H2500 PlayStation® board		automatic	automatic ----- (not required)
DTL-S2020 CD-ROM Emulator board	0x398	5	7

In the following sections, the four possible configurations of these devices are described. Please select the one that matches your environment.

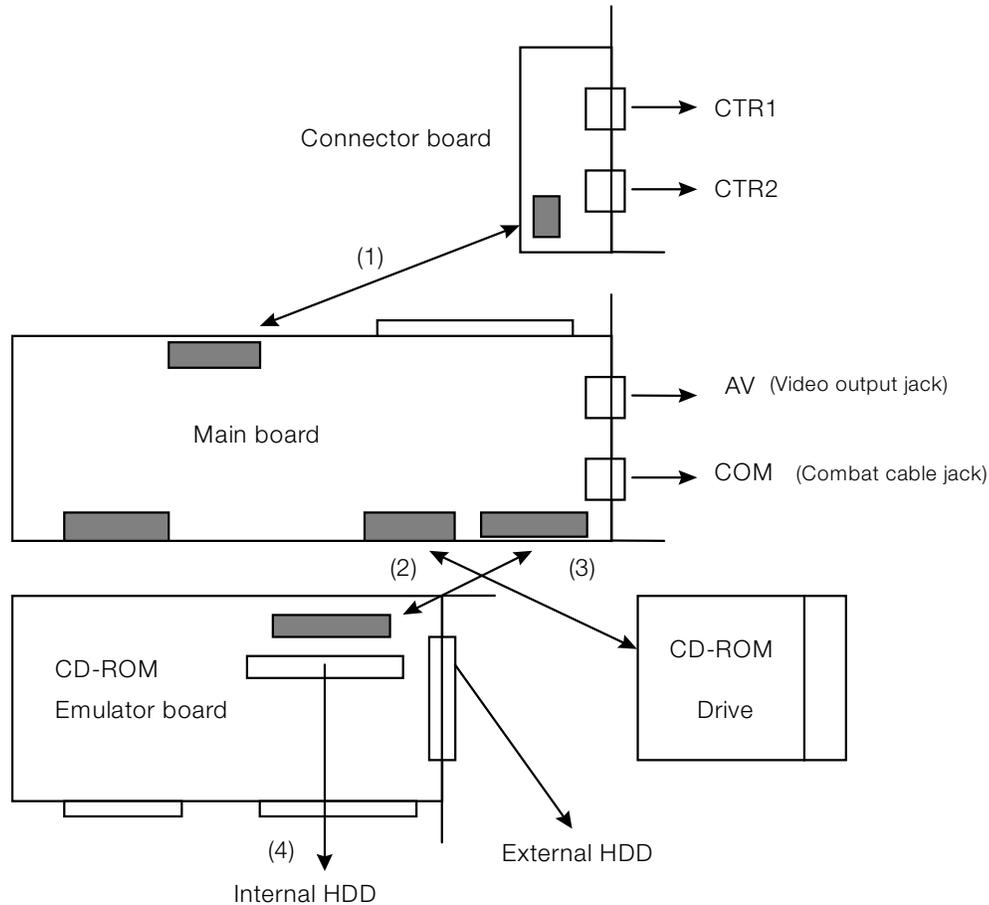
## Example 1: Set Up All Devices

Devices to be set up:

- DTL-H2500 PlayStation® board (PCI)
- DTL-H2510 CD-ROM drive
- DTL-S2020 CD-ROM Emulator board (ISA)

Slots used:

- PCI bus: 1 slot
- ISA bus: 1 slot



Make sure the board is oriented properly.

### A.1.1.1. Description

1. Use the 10-pin flat cable that comes with the H2500 to connect the Main board to the Connector board.
2. Use the 34-pin flat cable that comes with the S2020 to connect the Main board to the Emulator board.
3. Use the 50-pin flat cable that comes with the CD-ROM drive to connect the Main board to the CD-ROM drive.
4. Use the SCSI cable that comes with the S2020 to connect the Emulator board to the Emulator HDD (connect internally or externally depending on the HDD type). The HDD is set to SCSI ID 0 (an ID other than 0 can be used, but if only one HDD is connected the ID should be set to 0).

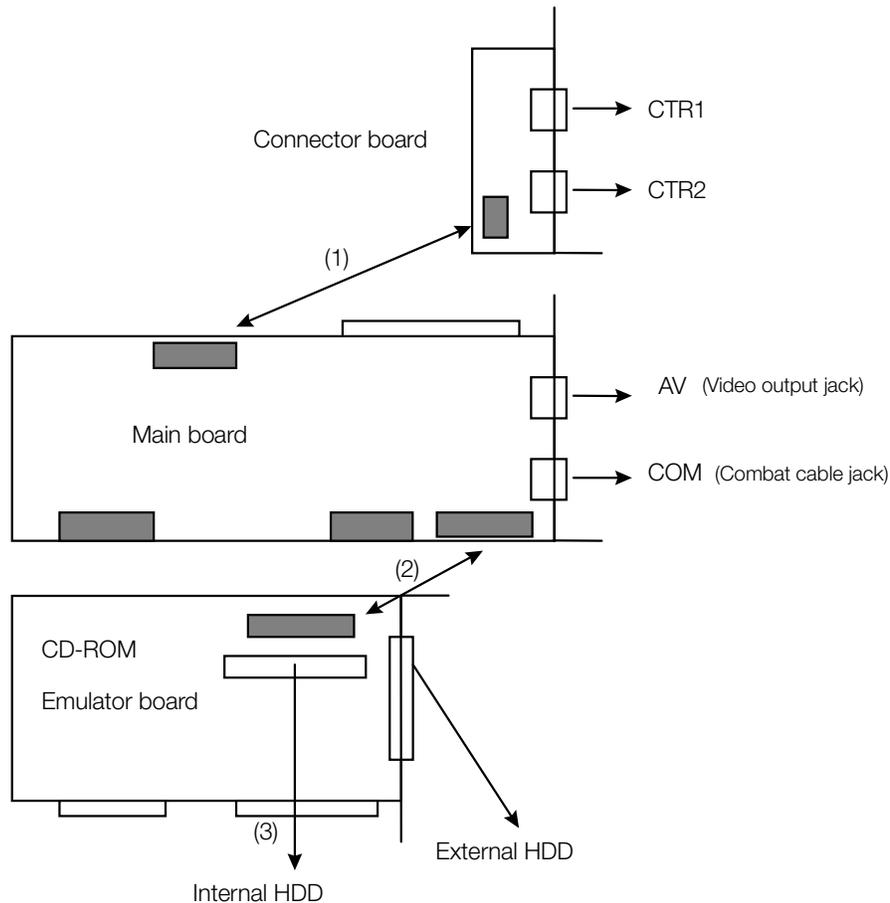
## Example 2: Set Up the PlayStation® and CD-ROM Emulator Boards

Devices to be set up:

- DTL-H2500 PlayStation® board (CD-ROM drive not connected, PCI)
- DTL-S2020 CD-ROM Emulator board (ISA)

Slots used:

- PCI bus: 1 slot
- ISA bus: 1 slot



Make sure the board is oriented properly.

### Description

1. Use the 10-pin flat cable that comes with the H2500 to connect the Main board to the Connector board.
2. Use the 34-pin flat cable that comes with the S2020 to connect the Main board to the Emulator board.
3. Use the SCSI cable that comes with the S2020 to connect the Emulator board to the Emulator HDD (connect internally or externally depending on the HDD type). The HDD is set to SCSI ID 0 (an ID other than 0 can be used, but if only one HDD is connected, the ID should be set to 0).

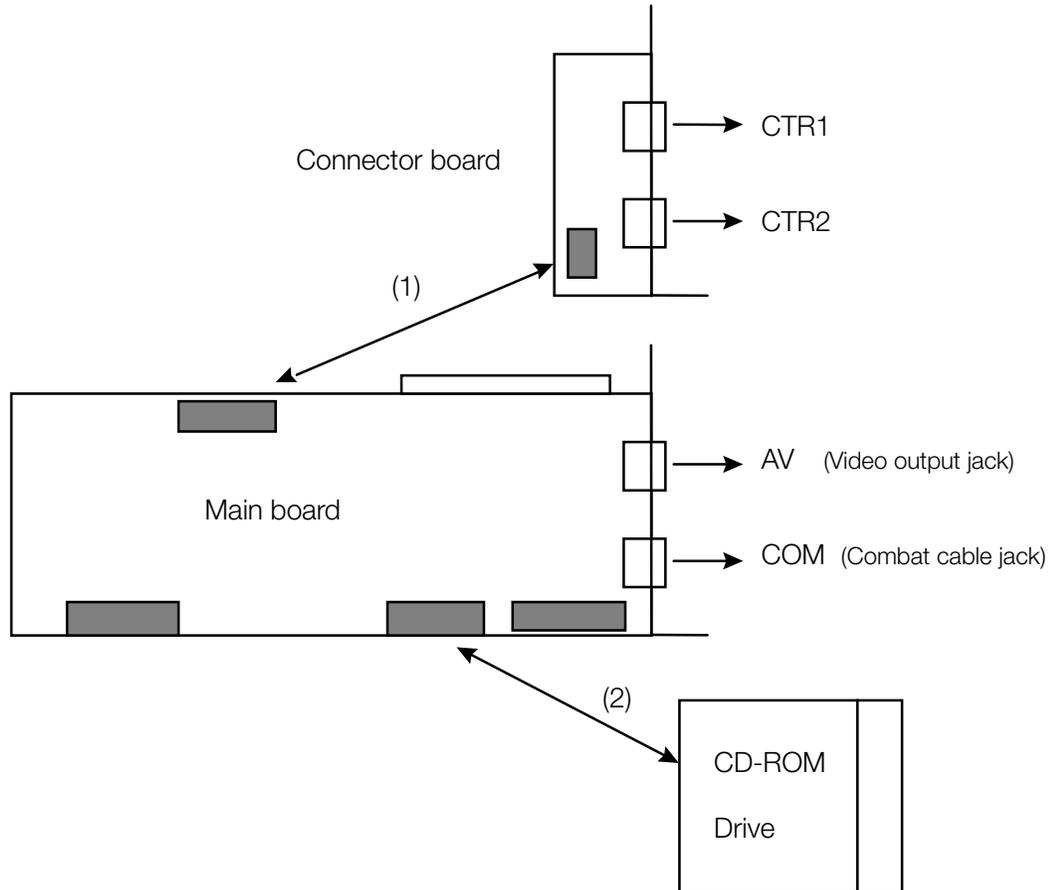
### Example 3: Set up the PlayStation® Board and CD\_Rom Drive

Devices to be set up:

- DTL-H2500 PlayStation® board (PCI)
- DTL-H2510 CD-ROM drive

Slots used:

- PCI bus: 1 slot



Make sure the board is oriented properly.

#### Description

1. Use the 10-pin flat cable that comes with the H2500 to connect the Main board to the Connector board.
2. Use the 50-pin flat cable that comes with the CD-ROM drive to connect the Main board to the CD-ROM drive.

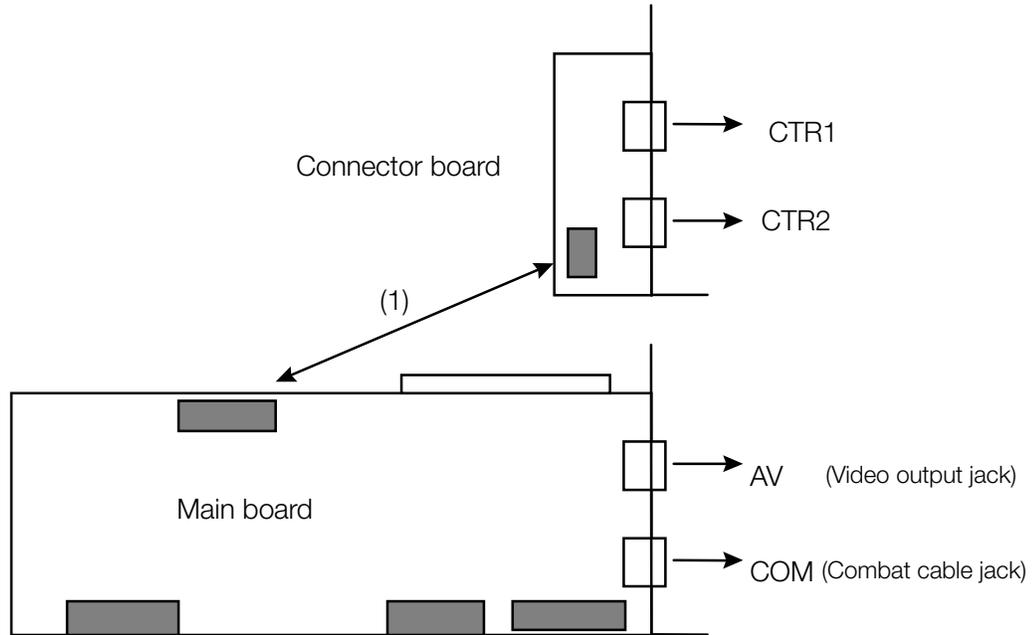
### Example 4: Set Up the PlayStation® Board Alone

Device to be set up:

- DTL-H2500 PlayStation® board (CD-ROM drive not connected, PCI)

Slots used:

- PCI bus: 1 slot



Make sure the board is oriented properly.

#### Description

1. Use the 10-pin flat cable that comes with the H2500 to connect the Main board to the Connector board.

---

## Connecting and Setting Up the DTL-H2700

This section describes how to set up the following boards and peripherals.

### Boards and peripherals

DTL-H2700	PlayStation® board
DTL-S2020	CD-ROM Emulator board
DTL-H2510	CD-ROM drive for the H2500/H2700

### Board and peripheral settings

Example settings

Device type	I/O address	IRQ	DMA	
DTL-H2700 PlayStation® board		0x1840	11	----- (not required)
DTL-S2020 CD-ROM Emulator board		0x398	5 7	

In the following sections, the four possible configurations of these devices are described. Please select the one that matches your environment.

## Example 1: Set Up All Devices

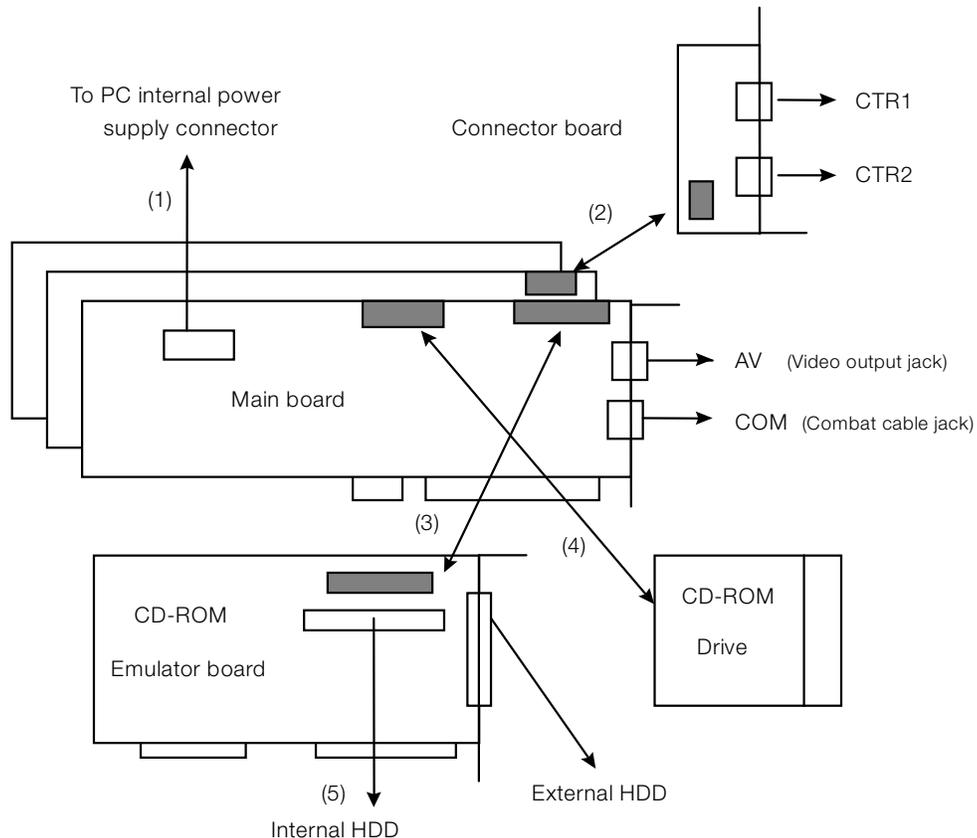
Devices to be set up:

- DTL-H2700 PlayStation® board (ISA)
- DTL-H2510 CD-ROM drive
- DTL-S2020 CD-ROM Emulator board (ISA)

Slots used:

- ISA bus: 2 slots

Note that the DTL-H2700 takes up the equivalent of three slots.



Make sure the board is oriented properly.

### Description

1. Use the power-supply extension cable that comes with the H2700 to connect the Main board to the internal power supply connector on the motherboard.
2. Use the 10-pin flat cable that comes with the H2700 to connect the Main board to the Connector board.
3. Use the 34-pin flat cable that comes with the S2020 to connect the Main board to the Emulator board.
4. Use the 50-pin flat cable that comes with the CD-ROM drive to connect the Main board to the CD-ROM drive.
5. Use the SCSI cable that comes with the S2020 to connect the Emulator board to the Emulator HDD (connect internally or externally depending on the HDD type). The HDD is set to SCSI ID 0 (an ID other than 0 can be used, but if only one HDD is connected the ID should be set to 0).

## Example 2: Set Up the PlayStation® and CD-ROM Emulator Boards

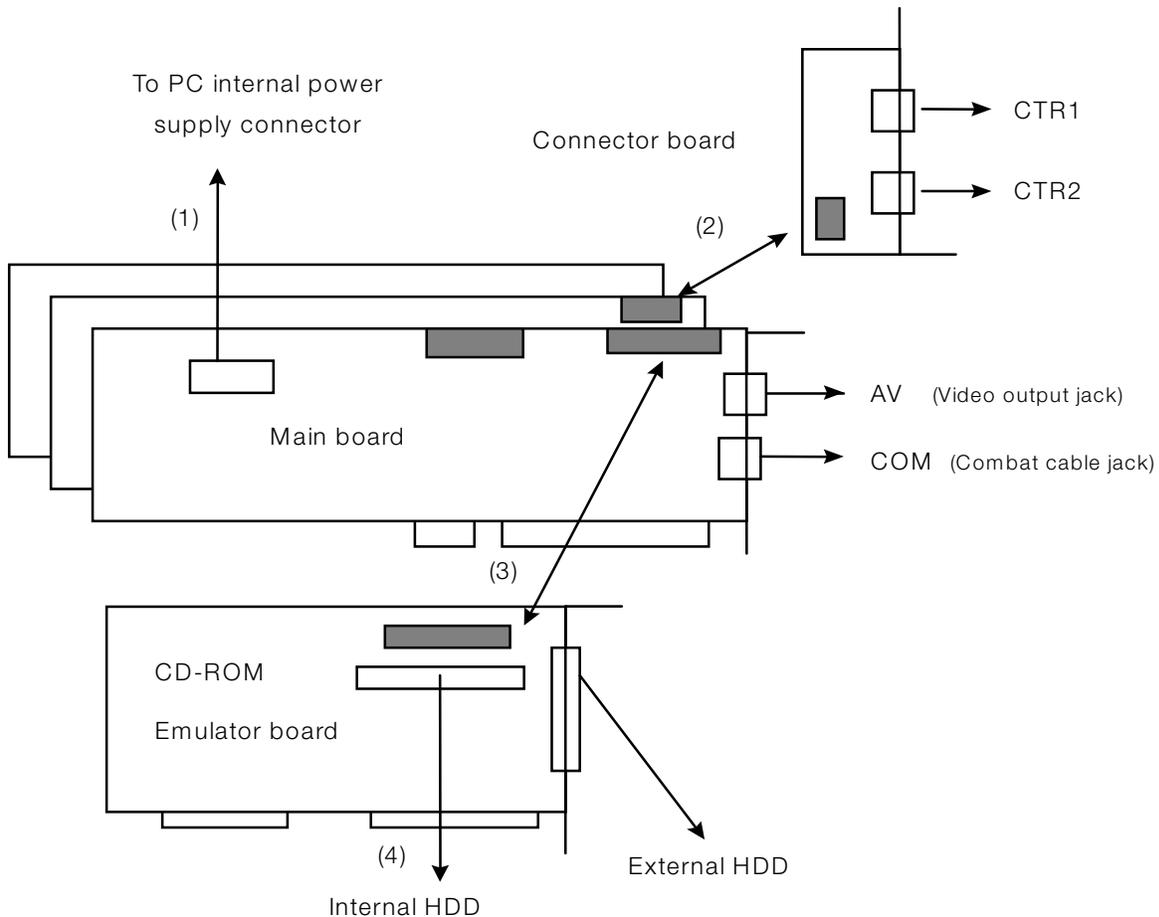
Devices to be set up:

- DTL-H2700 PlayStation® board (CD-ROM drive not connected, ISA)
- DTL-S2020 CD-ROM Emulator board (ISA)

Slots used:

- ISA bus: 2 slots

Note that the DTL-H2700 takes up the equivalent of three slots.



Make sure the board is oriented properly.

### Description

1. Use the power-supply extension cable that comes with the H2700 to connect the Main board to the internal power supply connector on the motherboard.
2. Use the 10-pin flat cable that comes with the H2700 to connect the Main board to the Connector board
3. Use the 34-pin flat cable that comes with the S2020 to connect the Main board to the Emulator board.
4. Use the SCSI cable that comes with the S2020 to connect the Emulator board to the Emulator HDD (connect internally or externally depending on the HDD type). The HDD is set to SCSI ID 0 (an ID other than 0 can be used, but if only one HDD is connected the ID must be set to 0).

### Example 3: Set up the PlayStation® Board and CD\_Rom Drive

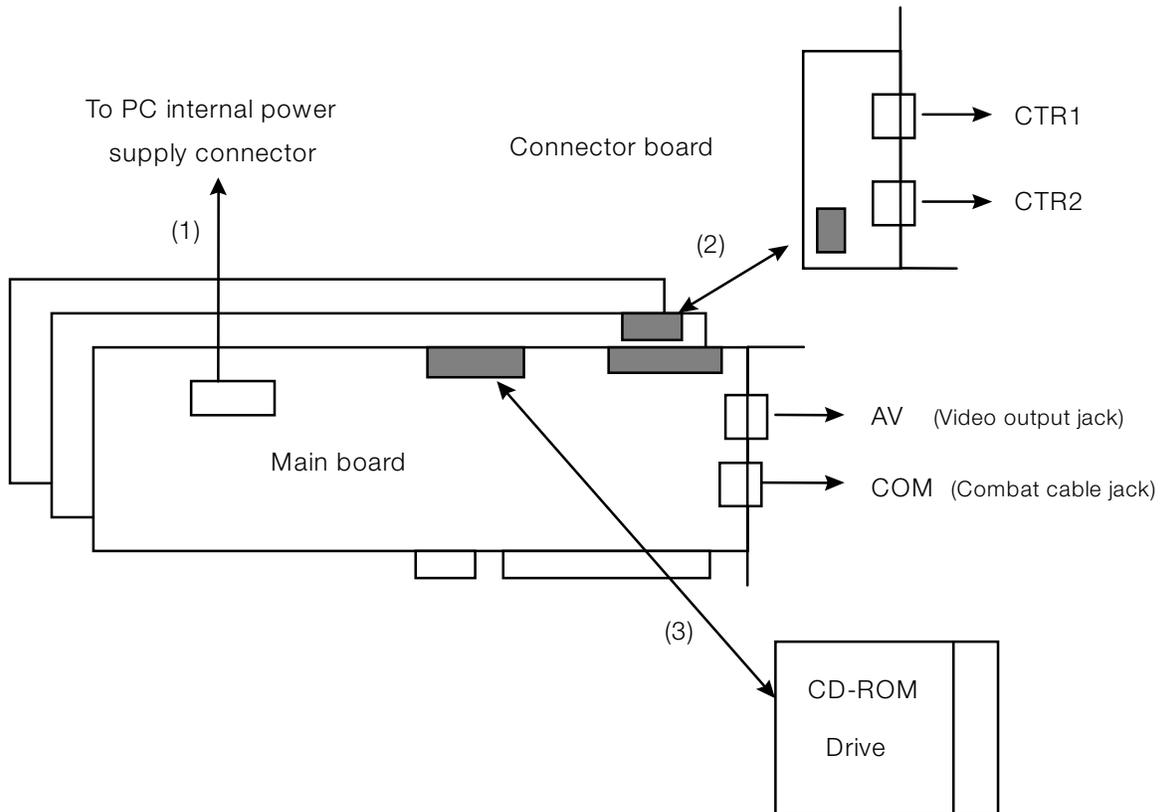
Devices to be set up:

- DTL-H2700 PlayStation® board (ISA)
- DTL-H2510 CD-ROM drive

Slots used:

- ISA bus: 1 slot

Note that the DTL-H2700 takes up the equivalent of three slots.



Make sure the board is oriented properly.

#### Description

1. Use the power-supply extension cable that comes with the H2700 to connect the Main board to the internal power supply connector on the motherboard.
2. Use the 10-pin flat cable that comes with the H2700 to connect the Main board to the Connector board.
3. Use the 50-pin flat cable that comes with the CD-ROM drive to connect the Main board to the CD-ROM drive.

### Example 4: Set Up the PlayStation® Board Alone

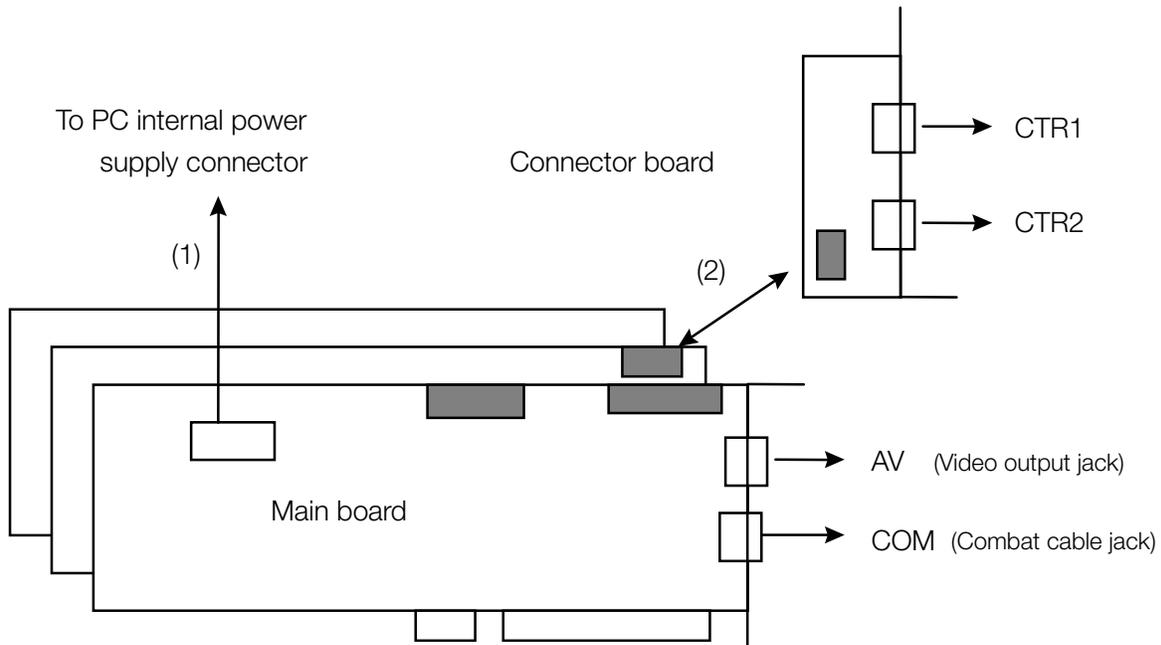
Device to be set up:

- DTL-H2700 PlayStation® board (CD-ROM drive not connected, ISA)

Slots used:

- ISA bus: 1 slot

Note that the DTL-H2700 takes up the equivalent of three slots.



Make sure the board is oriented properly.

#### Description

1. Use the power-supply extension cable that comes with the H2700 to connect the Main board to the internal power supply connector on the motherboard.
2. Use the 10-pin flat cable that comes with the H2700 to connect the Main board to the Connector board.



---

# **Chapter 3:**

## **Installing the Software**

---

## 3-2 Installing the Software

## Prior to Installation

### Checking System Startup

Before setting up the software, check to see if the system starts up properly. If the system does not start up properly, check the following items.

- Is the board firmly inserted into its slot?
- Are the various cables firmly attached?
- Are the DIP switches on the board set properly? (DTL-H 2700 only)

If a Plug&Play error comes up during system start-up, try temporarily removing boards that are not needed for development work and restarting the system. Also, in Windows 95, check Control Panel/System/System Properties/Device Manager to see if there are any resource conflicts with other devices. If the system still does not start up properly, please refer to Appendix A – Troubleshooting the Installation..

### Recognizing the DTL-H2500 Under Windows 95

The DTL-H2500 driver is an MS-DOS program. Therefore, the device cannot be installed using the Windows 95 hardware wizard.

When using Windows 95, Plug&Play will indicate that the hardware wizard has detected the DTL-H2500 and will ask whether or not to install a driver. Please select "Do not install driver."

If Windows 95 has detected the DTL-H2500 properly, it will be displayed as "PCI Card" under Device Manager/Other Devices. Also, under the computer's Properties/Resource window, check to see that the interrupt setting (IRQ) is not in conflict with other devices. The card should be displayed as "PCI Card" here as well.

### Recognizing the DTL-H2700 Under Windows 95

As with the DTL-H2500, the driver for the DTL-H2700 is an MS-DOS program. Likewise, since the DTL-H2700 is a standard ISA board, it is not Plug&Play compatible. Therefore, the DTL-H2700 will not be recognized by the Windows 95 hardware wizard. There should be no problems as long as the on-board DIP switches for the DTL-H2700 and the corresponding Windows 95 system resource settings are set properly.

### Recognizing the CD-ROM Emulator under Windows 95

The driver for the CD-ROM Emulator is also an MS-DOS program. As with the DTL-H2700, the CD-ROM Emulator board is a standard ISA board and is not Plug&Play compatible. Thus, the Windows 95 hardware wizard will not detect the CD-ROM Emulator board. There should be no problems as long as the on-board DIP switches and the corresponding Windows 95 system resource settings are set properly.

### Installation Requirements

The following items are required to install the software:

Item name	Description	Media
DTL-S2340 Runtime Library Version 4.3	Library	CD-ROM (1 disc)
DTL-D2340 Technical Reference Version 4.3	Document	CD-ROM (1 disc)

**Note:** The programmer toolkit comes with a number of setup floppies. However, all of the files needed to install the software are contained on the run-time library CD-ROM. When performing an operation check, first use the tools on the CD-ROM.

Note, however, that the software for the DTL-S2020 CD-ROM Emulator is not on this CD-ROM. Use the files on the floppy disks that come with the toolkit or, better yet, download the current versions from the Web site for your region. Please refer to your Web site for installation instructions.

Software is being continuously updated on your Web site, so please be sure to download the most recent version.

---

## Installation

In the following steps, it is assumed that your local hard drive is the "c:\\" drive, and that your PC CD-ROM drive is "d:\".

### Installation for Windows 95

- Insert the Programmer's Tools CD (DTL-S2002) into the CD-ROM drive (not the DTL-H2510) of your system. If auto-run is enabled the setup will begin automatically.
- Run the Setup program, `setup.exe`, that is in the root directory of the CD. Follow all of the instructions.

#### Win95 (32 Bit) SDevTC users -- Please Note:

Due to the way the new SDevTC environment is laid out it may be necessary to manually make changes to your SN.INI file. SN.INI has been configured to work with the default directory structure. If you have deviated from the default path, you will need to modify the following lines within the file `\ps\PSSN\bin\sn.ini` to reflect your directory structure:

```
[ccpsxd]
library_path=c:\ps\psx\lib
c_include_path=c:\ps\psx\include
compiler_path=c:\ps\pssn\bin
assembler_path=c:\ps\pssn\bin
linker_path=c:\ps\pssn\bin
```

Additional Note: Define the environment variable PSYQ\_PATH (Bug fix). In ccpsxd ver.3.05.0009, an error will be returned if PSYQ\_PATH is not defined. However, it is the directory specified in SN\_PATH which will actually be referred to.

Example:

```
> set PSYQ_PATH=C:\TEMP
```

For more information please refer to the following documents:

`\PSSN\BIN\Readme,1st & \PSSN\BIN\readme.txt`

## Notes

**Note (1):** Previous development hardware and software included the "Psy-Q" tools. However, these tools are now known as the "SDevTC"(Software Development Tool Chain). The PsyQ tools have been inherited by the SDevTC, so the contents should be the same, but some directories and environment variables were renamed starting with run-time library CD-ROM ver.4.1. Please be aware of this if you are still using the older version. For more information, please refer to the documents in `\PSSN`.

**Note (2):** The \PSSN directory corresponds to the \PSYQ directory in older versions of the CD-ROM (ver.4.0 and earlier).

**Note (3):** The \PSXGRAPH directory formerly contained the PSX sound tools. These tools have been relocated to the \PSXSOUND directory.

## Installation for Windows 3.1 or Windows NT

In Windows 3.1 or NT, installation is performed from the MS-DOS prompt.

To be consistent with the automatic installation of the software under Windows 95, a parent directory `PS` will be created, under which all PlayStation® software will be installed.

### Insert the Programmer's Tools CD-ROM

- Insert the Programmer's Tools CD (DTL-S2002) into your CD-ROM drive (not the DTL-H2510) of your system.

### Install the "psx" Tool

The directory `[cdrom] \psx` contains the PlayStation® Development directory, which includes over 100 sample programs with full source code, the includes, and the linking libraries.

- If applicable, back up or delete your previous `c:\psx` directory.
- Copy the "psx" directory, `d:\psx`, from the CD to your local hard drive `c:\ps\psx`:  

```
xcopy /s d:\psx c:\ps\psx
```

 (or just drag and drop the folder).
- Add the following line to the end of your `c:\autoexec.bat` file.  

```
set path=%path%;c:\ps\psx\bin;
```

### Install the "pssn" Tools

The directory `[cdrom] \pssn` contains the standard PlayStation® development system, which includes an interactive debugger and the C compiler.

- If applicable, back up or delete your previous `c:\pssn` directory.
- Copy the "pssn" directory, `d:\pssn`, from the CD to your local hard drive `c:\ps\pssn`.
- Copy the contents of the "gnu" directory, `d:\gnu`, from the CD to your local hard drive `c:\ps\pssn\bin`:  

```
xcopy /s d:\gnu\* c:\ps\pssn\bin
```
- Add the following line to the end of your `c:\autoexec.bat` file.  

```
set path=%path%;c:\ps\pssn\bin;
```

### Add Environment Variables

Edit your `autoexec.bat` file to contain the lines listed below.

Note: This example depends on where you have set up your root `psx` and `pssn` directories. The file paths contain forward slashes, unlike the normal DOS convention which uses backward slashes.

```
REM ===== PSX Development Environment Variables =====
set SN_PATH=c:/ps/pssn/bin
set COMPILER_PATH=c:/ps/pssn/bin
set PSX_PATH=c:/ps/psx/bin
set C_INCLUDE_PATH=c:/ps/psx/include
set C_PLUS_INCLUDE_PATH=c:/ps/psx/include
set LIBRARY_PATH=c:/ps/psx/lib

set GO32=DMPSTACK 1000000
```

```

REM ===== GNU C/C++ =====
set GO32TMP=c:/tmp
set TMPDIR=c:/TMP

REM If your computer does not have a floating point
REM co-processor then uncomment the following line:
REM set GO32=emu c:\ps\pssn\bin\emu387
REM =====

```

## Install the "psxgraph"Tools (Optional)

The directory [cdrom] : \psxgraph contains the tools for converting between standard graphics file formats and the PlayStation® formats. Although we are setting up the "Graphic Artist Tools program" area, this CD does not contain the entire tool set for the Graphic Artist Tools. Only the conversion tools are included. Please contact your regional tools coordinator for information on how to obtain the Graphic Artist Tools CD (DTL-S220).

- If applicable, back up or delete your previous c : \psxgraph directory.
- Copy the "psxgraph" directory, d : \psxgraph, from the CD to your local hard drive c : \ps\psxgraph.
- Add the following line to the end of your c : \autoexec.bat file.

```
set path=%path%;c:\ps\psxgraph\bin;
```

- Copy all the files located in the "system" directory, d : \psxgraph\system, to the window's system directory, c : \windows\system. These files are used by the Movie Converter.
- If you have Windows 95, this completes the installation. Otherwise, you will have to create the groups and match the icons yourself, by performing the following steps in Windows 3.1:

### Graphic Artist Tools Program Group

Create a Graphic Artist Tools program group in the Windows 3.1 environment.

1. Under the Program manager "File" pulldown click on the "File>New" button.
2. Select Program Group; click OK.
3. Fill in the Description "Graphic Artist Tools". You may leave the "Group File" field blank. A new group will be displayed.
4. You are now ready to add the individual tool icons. Please follow the individual program installation instructions listed below if you are using Windows 3.1.

**Note:** For additional details on setting up program icons, please refer to your Windows 3.1 manual.

### Movie Converter

With the "Graphic Artist Tools" program group selected, create a program icon for the Movie Converter tool:

1. Under the Program manager "File" pulldown, click on "File->New" button.
2. Select Program Item and click OK.
3. A Program Item Properties dialog will pop up. Type "Movie Converter" in the Description field.
4. Use Browse to identify the name of the executable to be placed in the "Command Line" field (i.e., c : \ps\psxgraph\bin\mc32.exe).
5. Click OK.

### Movie Pack

With the "Graphic Artist Tools" program group selected, create a program icon for the Movie Pack tool:

1. Under the Program manager "File" pulldown, click on "File>New" button.
2. Select Program Item and click OK.
3. A Program Item Properties dialog will pop up. Type "Movie Pack" in the Description field.
4. Use Browse to identify the name of the executable to be placed in the "Command Line" field (i.e., `c:\ps\psxgraph\bin\movpack.exe`).
5. Click OK.

### 3DStudio Plug-In

This release is for 3DStudio plug-in utilities. We highly recommend attaching the 3DStudio dongle before progressing with a modeling session utilizing the 3DStudio plug-in.

**Warning:** Do not remove or add dongles while the PC is powered on. Do not start a 3DStudio plug-in session before performing the following:

1. Remove dexbios (if installed)
2. Remove mess1.com (if installed)
3. Remove cdbios (if installed)

Please read the files \*.doc and \*.txt in the `c:\ps\3rdParty\3ds` directory. Specific installation instructions are included in the `3dstod_e.txt` file.

---

## Environment Settings for SDevTC

Once the files have been copied, various environment settings must be made to ensure proper operation of the software.

**The DTL-H2500 and the DTL-H2700 use different drivers.** Please choose environment settings according to the PlayStation® board you are using.

### Driver Settings for the DTL-H2500

First, initialize the flash memory on the DTL-H2500 board.

Execute the following commands from the MS-DOS prompt (DOS window)

```
DOS> cd \ps\pssn\bin\dtlh2500\h25bios
DOS> flash.bat
```

This completes initialization of the flash memory. This operation need only be performed once when the board is first used. However, the Web site for your region may release new versions of the flash image. In this case, perform this operation again to update the flash image.

If an error occurs during initialization, please check the board and PC settings.

Next, install the H25BIOS.COM driver for the DTL-H2500. In a similar manner as described above, enter the following commands:

```
DOS> cd \ps\pssn\bin
DOS> h25bios
```

Use the /p option for PAL video format (in Europe, for example). The /p option is not needed for NTSC (Japan, US, etc.). If installation is successful, the following messages should be displayed.

```
SN-BIOS for Sony DTL-H2500. Version 1.44
```

Installed OK - card address: E7000 Interrupt: 9 Video: NTSC

The card address and Interrupt display will depend on the PC environment.

Tools for executing and debugging programs, such as resets, run, pqpload, and dbugpsx can now be used.

If a "Cannot locate DTL-H2500 PCI card" message is output during execution of H25BIOS, the DTL-H2500 has not been properly recognized. Please check the board and PC settings.

**Note:** The DTL-H2500 driver is an MS-DOS program, and therefore cannot be installed via the Windows 95 hardware wizard. If you are using Windows 95, the Plug&Play feature will cause the hardware wizard to indicate that the H2500 has been detected. You will then be asked to install a driver. Select "Do not install driver."

When using a DOS window within Windows 95, it is necessary to run H25BIOS each time a DOS window is opened. H25BIOS cannot be installed in multiple DOS windows simultaneously.

Since H25BIOS is a 16-bit driver, it should not be entered into the Windows 95 c:\autoexec.bat file, as this may create a conflict with the operating system.

## Driver Settings for the DTL-H2700

First, initialize the flash memory on the DTL-H2700. To initialize the flash memory, execute the command:

```
FLASH <I/O address>
```

For <I/O address>, specify the I/O address used in the H2700 on-board settings. For example, if the I/O address=0x1840, enter the following from the MS-DOS prompt (DOS window):

```
DOS> cd \ps\pa\dtlh2700
DOS> flash 1840
```

This completes initialization of the flash memory. This operation need only be performed once when the board is first used. However, the Web site for your region may release new versions of the flash image. In this case, perform this operation again to update the flash image.

If an error occurs during initialization, please check the board and PC settings.

Next, install the DEXBIOS.COM driver for the DTL-H2700. If the on-board DIP switch is set to I/O address=0x1840 and IRQ=11, enter the following commands:

```
DOS> cd \ps\pssn\bin
DOS> dexbios /a1840 /i11
```

If installation is successful, the following messages will be displayed.

```
DEXBIOS version 1.27
Installed OK - card address 1840, Interrupt 11
```

Tools for executing and debugging programs, such as resets, run, pqpload, and dbugpsx can now be used.

If DEXBIOS is executed and an I/O address and an IRQ are displayed that differ from the board settings, the DTL-H2700 has not been properly recognized. Please check the board and PC settings.

**Note:** The driver for the DTL-H2700 is an MS-DOS program. The DTL-H2700 is not Plug&Play compliant and therefore the Windows 95 hardware wizard cannot be used to detect the board or install drivers.

When using a DOS window within Windows 95, it is necessary to run DEXBIOS each time a DOS window is opened. DEXBIOS cannot be installed in multiple DOS windows simultaneously. Since DEXBIOS is a 16-bit driver, it should not be entered into the Windows 95/3.1 c:\autoexec.bat file as this may cause a conflict with the operating system.

## Installing DTL-H2700 Performance Analyzer Software

The DTL-H2700 comes with performance analysis software (the DTL-S2710 performance analyzer). To install this software, please refer to the documentation contained on the floppy disk or in the \PA directory on the run-time library CD-ROM.

---

## Rebooting the System

Reboot the system after the operations described above have been performed.



---

# **Chapter 4:**

## **Checking the Setup**

---



---

## Checking the DTL-H2500

First, load the DTL-H2500 driver. Then enter the following commands from the MS-DOS prompt (DOS window).

```
DOS> cd \ps\pssn\bin
DOS> h25bios
```

If the driver fails to load, check the following items:

- Is `\ps\pssn\bin\h25bios.com` in the specified drive?
- Has the flash memory been initialized?

---

## Checking the DTL-H2700

First, load the DTL-H2700 driver. Then, enter the following commands from the MS-DOS prompt (DOS window).

```
DOS> cd \ps\pssn\bin
DOS> dexbios /a1840 /i11 (example: I/O address = 0x1840, IRQ=11)
```

If the driver fails to load, check the following items:

- Is `\ps\pssn\bin\dexbios.com` in the specified drive?
- Has the flash memory been initialized?

---

## Compiling and Executing Sample Programs

### Compiling and Executing the Sample Graphics Code

Test the environment by compiling and executing sample programs. Perform the following operations from the MS-DOS prompt (DOS window).

```
C:\> cd \ps\psx\sample\graphics\tmdview\shuttle
C:\PS\PSX\SAMPLE\GRAPHICS\TMDVIEW\SHUTTLE> psymake all
```

The operation is successful if the command exits normally with no error messages and control returns to the MS-DOS prompt. Check to see that a file named `tuto0.cpe` has been created within the same directory. The CPE extension is used for a file format that can be executed on the development board.

Perform the following steps to execute the compiled program:

```
C:\PS\PSX\SAMPLE\GRAPHICS\TMDVIEW\SHUTTLE> resetps 1
C:\PS\PSX\SAMPLE\GRAPHICS\TMDVIEW\SHUTTLE> psymake load
C:\PS\PSX\SAMPLE\GRAPHICS\TMDVIEW\SHUTTLE> run tuto0.cpe
```

If these operations complete normally, a shuttle will appear on the video monitor connected to the PlayStation® board. This sample program is described in

```
\PS\PSX\SAMPLE\GRAPHICS\TMDVIEW\SHUTTLE\README.TXT
```

If compilation does not complete normally, check the following item:

- Are the environment variables and the PATH set properly?

If nothing is displayed on the monitor, check the following items:

- Is the video cable connected to the monitor?

#### 4-4 Checking the Setup

- Is PATCH.CPE being run (See "Note" below)?

If the sample code still does not execute properly, please contact Sony.

The basic steps involved in running a program are as follows:

DOS> resetps 1	Reset the PlayStation® board
DOS> pqbload <filename> <load address>	Download data as necessary
DOS> run <executable file (*.CPE)>	Run program

Repeat these steps to confirm proper operation of the program.

**Note:** In older PlayStation® boards (DTL-H2000: discontinued), it was necessary to perform this step:

```
DOS> run patch.cpe
```

right after the RESETPS command. However, this patch has been incorporated into the flash memory for the DTL-H2500 and H2700, so this step should not be performed.

### Compiling and Executing the Sound Sample

Test the environment by compiling and executing sample programs. Perform the following operations from the MS-DOS prompt (DOS window).

```
C:\> cd \ps\psx\sample\sound\simple
C:\PS\PSX\SAMPLE\SOUND\SIMPLE> psymake all
```

The operation is successful if the command exits normally with no error messages and control returns to the MS-DOS prompt.

Next, run the compiled program.

```
C:\PS\PSX\SAMPLE\SOUND\SIMPLE> resetps 1
C:\PS\PSX\SAMPLE\SOUND\SIMPLE> psymake load
C:\PS\PSX\SAMPLE\SOUND\SIMPLE> run main.cpe
```

If these operations complete properly, a sound will be output from the video monitor connected to the PlayStation® board. This sample program is described in

```
\PS\PSX\SAMPLE\SOUND\SIMPLE\README.TXT.
```

If compilation does not complete normally, check the following item:

- Are the environment variable and PATH settings correct?

If nothing is displayed on the monitor, check the following items:

- Is the video cable connected to the monitor?
- Is PATCH.CPE being run (See "Note" above)?

If the program runs but there is no sound, check the following item:

- Is the audio cable connected to the monitor?

If you cannot get the sample code to work, please contact Sony.

---

### Checking the CD-ROM Drive

If you have the DTL-H2510 CD-ROM drive, perform the following operations.

Insert a commercial PlayStation® title into the CD-ROM drive and enter the following command.

```
DOS> resetps 0
```

This will run the program from the CD-ROM drive.

If the program does not boot properly, check the following item:

- Is the DTL-H2510 CD-ROM drive connected correctly?

---

## Checking the CD-ROM Emulator

If you have the DTL-S2020 CD-ROM Emulator, download the latest tools from the Web site for your region. Refer to the documentation included in the download package.



---

# **Appendix A:**

# **Troubleshooting the Installation**

---



## Preliminaries

**Check your board.** It should have at least a PD2 chip on it.

**Check your interrupts.** Your PCI card should be assigned to one interrupt, and **no** other peripherals can be assigned to that interrupt. You can use the "MSD" program included in most versions of DOS. Alternatively, in Windows 95, you can see what interrupts are assigned by performing the following:

1. Go the "My Computer" icon. Yours may be named differently, but it looks like a computer:



2. Right click on the icon and select "Properties".
3. Select the "Device Manager" tab.
4. Select the "Print..." button.
5. Choose the "All devices and system summary".
6. Print out the document. For available IRQs, read the "IRQ SUMMARY" section.

Alternatively, some IBM PC-Compatibles are equipped with a "Setup" routine hidden in the boot sector of the boot-up hard drive which can be accessed during a cold-boot (turning off the computer's power supply, then turning it back on). After the computer runs its memory check and the cursor moves to the top-right corner of the screen, you can hit a function key (F1 through F10) to get into the "setup" mode. Since computers vary, you may have to try them one at a time. If you have a manual for your computer, read it for more information.

We are working on improving the PCI card so that it will not have this problem in the future.

## Problem: PC fails to recognize board

The DTL-H2500 main board is the board for the PCI slot. When a PC is started up with the main board mounted into the slot, the PC usually recognizes the main board automatically. However, some models of PCs may fail to recognize it. The problem with the PCI BUS interface can be caused by BIOS bugs or hardware bugs. Currently, there are no general purpose solutions for either bug. PC models which may cause problems should not be used. Please check the table at the end of this chapter.

## Known Problems with BIOS of PC

Problem	Workaround
AMIBIOS Intel Endeavour version 1005C B0	Use AMIBIOS Version 1002CB0

## Diagnostic Checks

If your board is not in the tables below, in the section "**General known compatibility ...**", then the board's addresses could be incorrect, or the PCI bus is malfunctioning. Before you can proceed with the diagnosis, the H25DRV.EXE must be installed, and the BIOS settings may need to be changed. These are explained in Step 1 and Step 2 below.

**1: Install the H25DRV.EXE driver.**

H25DRV.exe is an older driver formerly used by the DTL-H2500. It has been retained on the Programmer Tools CD for diagnostic purposes.

Follow the instructions in “\psx\bin\dtlh2500\h25drv\h25drv.doc” for installing H25DRV.EXE. Be sure that h25bios is no longer loaded before loading H25DRV.EXE. By following the steps outlined in h25drv.doc you should be able to tell if your board is functioning properly.

**2: Change the BIOS settings.**

The BIOS settings may need to be changed for some models of PCs. A setup utility is usually accessible on PCs by hitting the F10 key:

- Turn off your computer.
- Turn on your computer. A memory check will be run.
- When the memory check finishes, the cursor will appear on the right of the screen. Hit the F10 key to invoke the CMOS setup program.

The main changes to be made to the settings are as follows:

- Enable the PCI BUS
- Disable the Shadow area in RAM
- Disable the 4 KB Shadow area to be allocated to the DTL-H2500.

**3: Check for failure in address mapping.**

Executing FRESET.EXE informs you which addresses the PC allocates for the PCI card. Generally, the PC allocates an area with one of addresses 0x000C8000 to 0x000EFFFF.

```
C:\ps\psx\bin\FRESET.EXE
```

The following message should appear:

```
PCI version 2.10 Special Cycle 1, Config Mechanism 1 1 bus
bus 0: dev=13 func=0 irq=11, io=000C8000
UNIT 0: I/O addr=0x000C8000, IRQ=11(vect=0x0073, 8259=a0)
```

If “addr” is set to any of the addresses outside of the range from 0x00000001 to 0x000FFFFFF (1 M or less), the address mapping by the PCI will fail.

The solution is to modify the mapping with a special utility for modifying the address mapping called REALLOC.EXE. Typing the following will allocate some PCI memory at 0x000c8000

```
realloc 0x000c8000
```

When the address has been modified, warm-boot the PC (with Alt+Ctrl+Del). The address should be mapped to 0x000c8000, and the main board should begin to work properly. This method has been shown to work for DEC PCs (DECpc XL 466d2 and DECpc LPx 560).

**4: If the previous step did not work, check for problems with the PCI bus interface.**

If the address mapping succeeds, check the PCI interface operation with the DOS debug command by doing the following:

- Type “debug”. You are now in the debugging mode of DOS.
- At the “-” prompt, type “d c800:0000”. This number is the lead address of the area allocated to the PCI board.

You should see something similar to the following:

```
C800:0000 01 01 00 09 01 01 00 09-01 01 00 09 01 01 00 09 .....
C800:0010 01 01 00 09 01 01 00 09-01 01 00 09 01 01 00 09 .....
```

If the PCI works properly, a large quantity of numeric characters are displayed with regular patterns by 4 bytes. If numeric characters are displayed with an irregular pattern, there is a problem with the PCI BUS interface.

---

## Problem: Board Will Not Reset/Can't Run Programs

**Step 1:** If you are using **decicons**, and the boards do not reset correctly (F9, F10) or download programs (F4): Try reinstalling the PlayStation® OS ROM image on the board, using **Flashb8.bat**. (Remember not to use PFLASH.BAT if you wish to use DECICONS).

**Step 2:** If you are using **decicons**, try running **decicons** on your Win95 PC in "DOS" mode, rather than in a DOS shell. If this works, it would imply that you have a Win95-related clash.

**Step 3:** If step (2) did not help (or you are not using **decicons**), use the standard DOS **debug** option to examine the memory used by the driver. That is, if 0xE7000 is the start of the address space allocated for the driver, run debug, and type "-d e800:0". A hex dump will be displayed. If the sequence is not of the form "01 00 09 00 01 00 09 00-01 00 09 00 01 00 09 00", then review the "shadow" setting of BIOS. The "shadow" at E7000h (in this case) must be disabled.

**Step 4:** If this does not cure the problem, check the version of BIOS that you are using. SCEE found problems with some H2500s in PCs with AMI BIOS and Intel mother boards. In particular, BIOS version 1.00.02.CB0 works, but later versions do not. Their solution was to downgrade the PC's BIOS to 1.00.02.CB0 and reinstall Win95. (Win95's installer appears to make some choices about the hardware and these cannot be changed once the program is installed.) This file can be downloaded from:

```
ftp://ftp.funet.fi/pub/hw/vendors/intel/bios
```

There is a known problem with this version of the BIOS in that sometimes it does not recognize the PC hard-disk. Rebooting with CTRL+ALT+Delete seems to cure the problem. We will let you know when we find the latest version of the BIOS which works correctly.

## General Known Compatibility Issues With PC Brands and Models

The following table lists known computer compatibility issues with the DTL-H2500 board. It consists of lists compiled from SCEI, SCEE, SCEA, and licensees. Note that, although the boards may have worked for the computers here, you may have differing levels of success. This list is *not a guarantee* that the boards will work for *all* instances of these computers. Contact Technical Support if you have further difficulties. We use Compaq computers, and do not recommend Dell or Gateway because they tend to use a custom BIOS that makes installation very painful.

### Known Compatibility Issues

Brand	Assus	Archipelego	AST	Compaq	Compaq	Compaq
<b>Model</b>	Tech P/I - P55TP4N / 100	P133	Manhattan V Series 5090	Deskpro 575	Deskpro 5100	Deskpro 5166
<b>Cpu</b>	-	-	Pentium 90 MHz	Pentium 75 MHz	Pentium 100 MHz	Pentium 166 MHz
<b>BIOS</b>	Award Modula Bios V.4.51 PG from Award Software	-	AST Manhattan BIOS Rel 1.12	-	-	-
<b>Motherboard</b>	P166	-	-	-	-	-
<b>Slot</b>	-	-	-	-	-	-
<b>HDD</b>	-	-	-	-	-	-
<b>Video</b>	-	-	-	-	-	-
<b>Memory</b>	-	-	-	-	-	-
<b>PCI Chipset</b>	-	Intel Endeavour	-	Compaq	Compaq	Compaq
<b>OS</b>	-	-	Windows 95	Windows 95	Windows 95	Windows 95
<b>Problem</b>	OK	OK	OK, but see warnings below	OK, but see solution below	OK, but see solution below	OK, but see solution below
<b>Solution</b>	-	-	You will need to try the PCI board in different PCI slots. If your machine does not finish booting properly, try the next slot. If H25DRV.EXE does not work, skip to the section "Installing the H25Bios.com Driver"	You can assign the PCI interrupts by invoking the Compaq setup utility at boot up time. Cold boot the machine, then hit F10 after the memory test finishes. Navigate to the main screen and select the "Add-In Devices" screen. You can thereby change PCI interrupts.		

<b>Brand</b>	Compaq	Compaq
<b>Model</b>	Deskpro 6000	Compaq Deskpro 6200
<b>Cpu</b>	Pentium 200 MHz	Pentium Pro 200MHz
<b>BIOS</b>	-	Unidentified (specifically designed by Compaq)
<b>Motherboard</b>	-	PCI 1-Slot + ISA 1-Slot + PCI/ISA 1-Slot
<b>Slot</b>	-	-
<b>HDD</b>	-	-
<b>Video</b>	-	Matrox MGA Millennium 4MB
<b>Memory</b>	-	16MB x 2 (SIMM Socket x 8)
<b>PCI Chipset</b>		
<b>OS</b>	Windows 95	"Windows NT 3.51 Workstation" and "Windows 95" coexisted. Both OSs were set bootable.
<b>Problem</b>	OK, but see Solution below.	The unit operated correctly with factory setting, after following the steps presented in "Solution" below.
<b>Solution</b>	You can assign the PCI interrupts by invoking the Compaq setup utility at boot up time. Cold boot the machine, then hit F10 after the memory test finishes. Navigate to the main screen, and select the "Add-In Devices" screen. You can thereby change PCI interrupts.	<p><b>Step 1.</b> Prior to connecting H2500, start BIOS SETUP(DIAG) once. Check that no message from SETUP, such as "The boards have been detected/deleted" is displayed at this point.</p> <p><b>Step 2.</b> Check that the boards are recognized by SETUP. If they are, select "Save and Exit".</p> <p><b>Step 3.</b> Power off the unit and connect H2500. Start BIOS SETUP once again. Check that the message, "The new board has been detected", is displayed. H2500 must have been recognized as "Other Device". You can find it from the description, "SONY", at the Inquiry indicator. Check that IRQ and Memory are allocated. If they are, select "Save and Exit". (The actual figures were 4 for IRQ and C8000-C8FFF for Memory.)</p> <p><b>Step 4.</b> Start Windows 95. (It may be better to power off once before starting Windows 95.) Check that the new board has been detected. Then at driver installation select "Without Driver". After executing H25BIOS from DOS Prompt, if Color-Bar gets displayed there is no problem. You may make sure of it with "System Property" just in case.</p> <p><b>Step 5 (Optional)</b> If Color-Bar is not displayed at this point, you need to do the set-up again from the first after following the steps below:</p> <ul style="list-style-type: none"> <li>A. Delete H2500 at "System Property" and power off.</li> <li>B. Remove H2500 and restart Windows 95. Check that H2500 has been deleted with "System Property" (The message from BIOS SETUP, "The board has been deleted", must be displayed.)</li> </ul>

A-8 Troubleshooting the Installation

<b>Brand</b>	<b>DEC</b>	<b>DEC</b>	<b>DEC</b>	<b>DEC</b>	<b>DEC</b>	<b>DEC</b>	<b>DELL</b>
<b>Model</b>	DEC Personal Workstation 200i	Celebris FP590	Celebris GL5133ST	Celebris GL6200ST	Celebris XL5100	Venturis FP5100	MT XPS
<b>Cpu</b>	Pentium Pro 200MHz	-	-	Pentium Pro 200 MHz	-	-	Pentium Pro 200N
<b>BIOS</b>	Phoenix ROM BIOS 4.05	-	-	-	-	-	-
<b>Motherboard</b>	(specifically designed by DEC)	-	-	-	-	-	-
<b>Slot</b>	PCI 2-Slot + PCI/ISA 3-Slot	-	-	-	-	-	-
<b>HDD</b>	2.1GB(SCSI)	-	-	-	-	-	-
<b>Video</b>	AccelGraphics AccelR8	-	-	-	-	-	-
<b>Memory</b>	96MB [32x2 + 16x2] (SIMM Socket x 8)	-	-	-	-	-	-
<b>PCI Chipset</b>	-	-	Triton	-	Neptune	-	-
<b>OS</b>	"Windows 95 " only	-	-	-	-	-	-
<b>Problem</b>	The unit operated correctly with the factory setting. However, for the set-up you need to follow the steps below in "Solution".	OK	OK	OK	OK	OK	OK
<b>Solution</b>	Connect H2500 to the second connector from the uppermost. (Usually, Video Card is connected here.) If you connect H2500 to a connector other than that above, you will see a message informing you that it has caused a conflict with the Motherboard Resource, and the unit does not operate correctly	-	-	-	-	-	-

Brand	DELL	DELL	DELL	DELL	DELL	DELL	DELL	DELL
<b>Model</b>	OptiPlex GXPro 200	OptiPlex GXi 5200M	Optiplex GXM 5200	P120T Pentium	XM5100	XMT5100	XMT5120	XPS P120C
<b>Cpu</b>	Pentium Pro 200MHz	Pentium 200MHz	200 MHz	-	-	-	-	-
<b>BIOS</b>	Phoenix ROM BIOS PLUS 1.10.A02	Phoenix ROM BIOS PLUS 1.10.A00	-	-	-	-	-	-
<b>Motherboard</b>	(specifically designed by DELL)	(specifically designed by DELL)	-	-	-	-	-	Specifically designed by Dell
<b>Slot</b>	PCI 3-Slot + PCI/ISA 2-Slot	PCI 2-Slot + ISA 2-Slot + PCI/ISA 1-Slot	-	-	-	-	-	-
<b>HDD</b>	2 + 2GB(IDE)	3.0GB(IDE)	-	-	-	-	-	-
<b>Video</b>	#9 Imagine128	S3 Trio64V+	-	-	-	-	-	-
<b>Memory</b>	64MB EDO x 1 (DIMM Socket x 4)	96MB SDRAM [64x1 + 32x1] (DIMM Socket x 4)	-	-	-	-	-	-
<b>PCI Chipset</b>	-	-	-	-	Neptune	Neptune	Neptune	-
<b>OS</b>	"Windows NT 4.0 Workstation" (pre-installed) overwritten by "Windows 95" (Only "Windows 95" was set bootable.)	"Windows 95 (OSR2)" only (pre-installed)	-	-	-	-	-	Windows 95
<b>Problem</b>	The unit operated correctly with the factory setting. However, for the set-up you need to follow the steps below. (There may be difficulties in modifying the interrupts.)	The unit operated correctly with factory setting. (There may difficulties in modifying the interrupts.)	Incompatible. (There are unsolvable difficulties in modifying the interrupts.)	Incompatible?	OK	OK	OK	Incompatible
<b>Solution</b>	Connect H2500 to one of the two PCI Connectors in the lowest part (either PCI1 or PCI2). If you connect H2500 to connector other than those above you will see the error messages "Plug & Play Configuration Error" and "Strike the F1 key to continue, F2 to run the setup utility", and the unit will not operate correctly.	Not applicable.	-	-	-	-	-	Do not use!

Brand	FMV	Fujitsu	Gateway	Gateway	GoodTech	HotChips	HP	IBM	IBM
<b>Model</b>	-	FMV 590DE	Gateway2000 GP6-400	Gateway 2000 P5-200	P200	Pentium Pro 200	Vectra XM	PC 750	PS/V Master 100
<b>Cpu</b>	Pentium Pro 200 MHz	-	P6 400	Pentium 200 MHz	-	-	-	-	-
<b>BIOS</b>	-	-	Phoenix	AMI 1.00.06.CY1T	-	-	-	-	-
<b>Motherboard</b>	-	-		Intel ATX Motherboard	-	-	-	-	-
<b>Slot</b>	-	-		PCI 3-Slot + ISA 2-Slot + PCI/ISA 1-Slot	-	-	-	-	-
<b>HDD</b>	-	-		-	-	-	-	-	-
<b>Video</b>	-	-	STB NVIDIA RIVA 128 4MB AGP	-	-	-	-	-	-
<b>Memory</b>	-	-		-	-	-	-	-	-
<b>PCI Chipset</b>	-	-			-	-	VLSI	-	-
<b>OS</b>	-	-	Win 95	"Windows 95" only (pre-installed)	-	-		-	
<b>Problem</b>	OK	OK	Because of the BIOS setting a conflict occurs with the DTL-H2500 on the video card installed in the GP6-400	The unit operated correctly with the factory setting when used as stand alone. However, with Network Card or SCSI Card installed in the unit, it hung up after executing H25bios.	OK	OK	OK	OK	OK
<b>Solution</b>	-	-	At BIOS Setup, change: Advanced -> Video Config -> AGP Aperature Size-> from 64MB (default) to 256MB.	Set either "Standard" or "OFF" at Power Management setting in Windows 95 Control Panel. ("Details" is set as default setting.)	-	-	-	-	-

<b>Brand</b>	<b>IBM</b>	<b>Mesh</b>	<b>Micron</b>	<b>Micron</b>	<b>Micron</b>
<b>Model</b>	PS/V Master P120	Elite 120R Pentium	Client D (MARL-P200-MT)	Millennia D (M55HIPLUS-P200-MT)	Millennia Plus
<b>Cpu</b>	-	-	Pentium 200MHz	Pentium 200MHz	Pentium 200 MHz
<b>BIOS</b>	-	-	AMI 1.00.07.DB05	Phoenix 4.05	-
<b>Motherboard</b>	-	-	(Intel ATX Motherboard)	(MICRONICS Motherboard)	-
<b>Slot</b>	-	-	PCI 3-Slot + ISA 2-Slot + PCI/ISA 1-Slot	PCI 3-Slot + ISA 3-Slot + PCI/ISA 1-Slot	-
<b>HDD</b>	-	-	2.1GB(IDE)	3.1GB(IDE)	-
<b>Video</b>	-	-	#9 9FX Motion 2MB EDO DRAM	#9 Imagine128 4MB VRAM	-
<b>Memory</b>	-	-	8MB EDO x 2 (SIMM Socket x 4)	16MB EDO x 2 (SIMM Socket x 4)	-
<b>PCI Chipset</b>	Triton	-	-	-	-
<b>OS</b>	-	-	"Windows 95" only (pre-installed)	"Windows 95" only (pre-installed)	-
<b>Status</b>	Incompatible	Incompatible	The unit did not operate correctly with the default setting. Plug & Play failed and Color-Bar was displayed.	The unit did not operate with factory setting.	Incompatible
<b>Solution</b>	-	-	Clear the check of auto setting and manually reset "Memory Range" at System Device Manager in Windows 95 Control Panel. (e.g., Memory Range is D0000-D0FFF)	Set "OFF" at Plug & Play OS setting in BIOS setting.	-

<b>Brand</b>	<b>Micron</b>	<b>Olivetti</b>	<b>Oki</b>
<b>Model</b>	Millenia Pro A (LIGHT-PP200-MT)	M4 82	IF Station 590/DG
<b>Cpu</b>	Pentium Pro 200MHz	-	-
<b>BIOS</b>	Phoenix 4.05	-	-
<b>Motherboard</b>	(MICRONICS Motherboard)	-	-
<b>Slot</b>	PCI 3-Slot + ISA 1-Slot + PCI/ISA 1-Slot	-	--
<b>HDD</b>	3.1GB(IDE)	-	-
<b>Video</b>	#9 Imagine128	-	-
<b>Memory</b>	32MB EDO x 1 (DIMM Socket x 4)	-	-
<b>PCI Chipset</b>	-	-	-
<b>OS</b>	"Windows NT 3.51 Workstation" and "Windows 95" coexisted (Both OSs were set bootable.).	-	-
<b>Problem</b>	The unit operated correctly with the factory setting for the reason described below.	Incompatible	OK
<b>Solution</b>	The unit operated correctly with the factory setting, because the factory setting of the Plug & Play OS setting in the BIOS was set "OFF".	-	-

---

# **Appendix B:**

## **Installing to an AMI BIOS Machine**

---

## **B-2** Installing to an AMI BIOS Machine

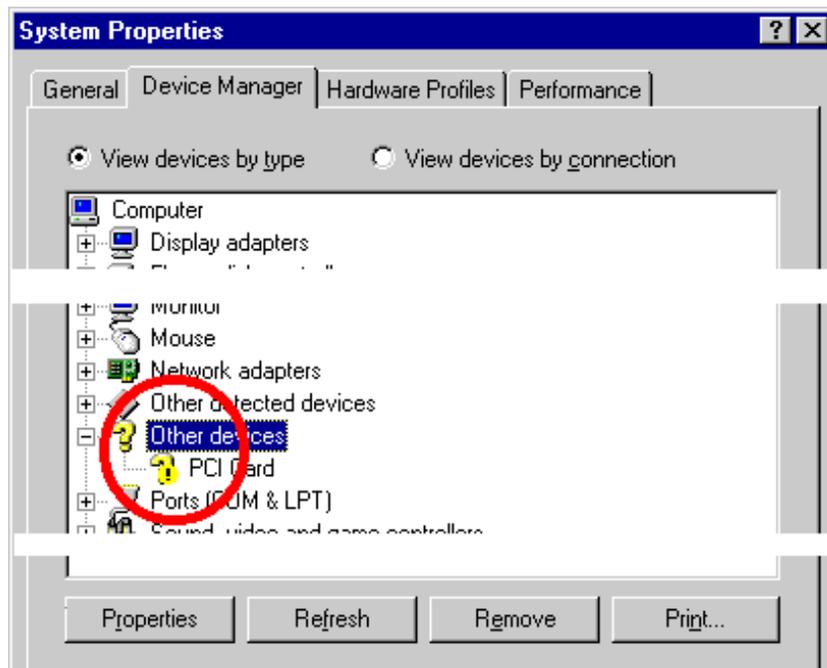
Machines using AMI BIOS may cause problems when you are installing the DTL-H2500. Follow these steps:

**Step 1: "Uninstall" the PCI card.**

- Go the "My Computer" icon. Yours may be named differently, but it looks like a computer:



- Right click on it; select "Properties".
- Select the "Device Manager" tab (see figure below).
- Double-click on "Other Devices", then select "PCI card" (circled in the figure below).



- Select "Remove".

**Step 2: Shutdown Windows 95.**

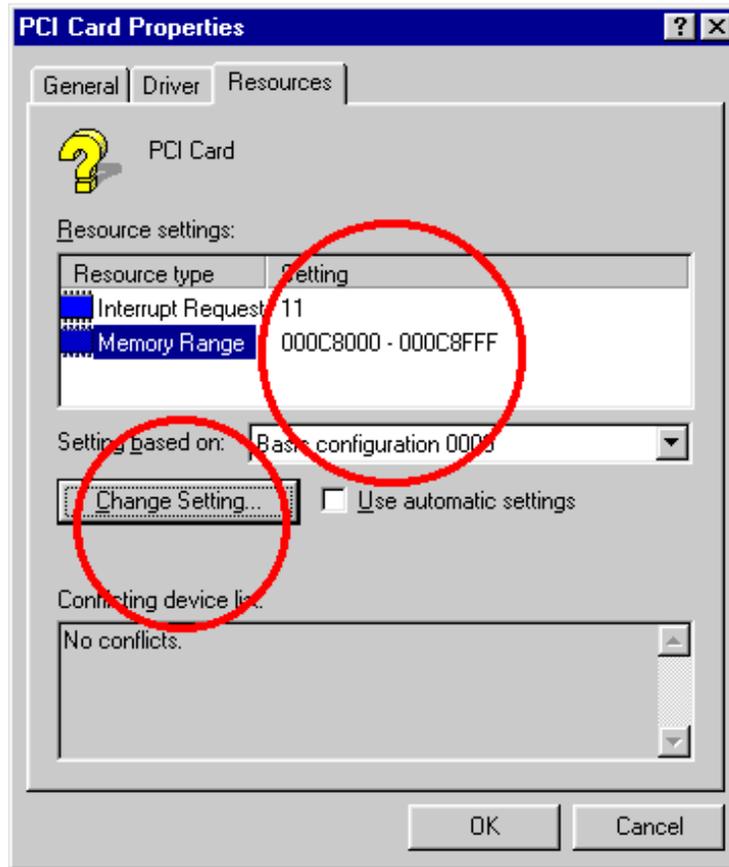
**Step 3: Reboot the machine.**

When Win95 displays the message "New Hardware Found", select "Do not install a driver".

**Step 4: Change the memory location of the PCI Card Resource.**

The operating system, under the AMI BIOS, may allocate the PCI card to an unsuitable memory space. This needs to be changed by performing the following:

- Open the "Device manager" as in Step 1.
- Double-click on the PCI card icon (ignore the warning icon). If the icon does not appear, reboot the machine, so that the Windows 95 operating system can install the icon. Again, if you are asked to install a device driver, choose NOT to install one.
- Select the resources tab, which will show the memory range.
- Clear the "Automatic settings" check box.
- Change the memory to a non-conflicting memory address, such as D4000-D4FFF:



- After modification, Win95 asks you "Do you want to restart now?". Select "Yes".

**Step 6: Verify that the PCI card uses the addresses you specified.**

After Win95 is restarted, open the "PCI Card Resources" as before, and check to see that the Memory Range has been changed to the address you specified. Again ignore the warning icon.

At this stage, issuing the "freset" from the DOS prompt will show that the H2500 is allocated to C8000 and at the same time, it is reset. When the PCI Card is once allocated correctly as above, it will be kept allocated to the same Memory Range (C8000-C8FFF for this example), even after rebooting with the PCI card resources being set to "automatic settings".

These steps may also be used to alter the memory address automatically assigned to the DTL-H2500 if it is conflicting with another device (ie. a SCSI card).

---

# **Appendix C:**

## **Commands for the Flash-ROM**

---



“flash.bat”, “flashb8.bat”, and the “pflash.bat” are simple batch files which call more primitive commands to the DTL-H2500; therefore, it is necessary to run the batch files in the same directory which contains “freset”, “fload”, and “fquit”. You will almost never need to know what the parameters do; but if you are curious, here is the information.

### flash.bat

A batch file to write the OS binary image into the flash ROM. It uses the file 'h2500.img' and is equivalent to typing the commands shown below in an MS-DOS prompt:

```
freset -r 1
fload h2500.img
fquit
freset 1
```

### freset

Resets the boot mode and the DTL-H2500 video mode.

Syntax

```
freset [-r] [-pl-n] [switch(hex)]
```

where

- r The main board is booted by EPROM.  
(Default booted by flash ROM.)
- n video mode is set to NTSC mode
- p video mode is set to PAL mode  
if both are not specified, the previous mode is kept.

The *switch* option can have the following values:

- 0 boot PlayStation® CD-ROM
  - 1 wait to load files
- If no switch is specified, the previous mode continues.

### fload

Load a file to the main board and run that program. This should be done after the main board has been set to wait for loading.

Syntax

```
fload [-ll-rl-b<address>] file_name
```

where

- file\_name* loaded file name
- l only loads a file
- r only runs without loading a file  
if both are not specified, load a file and run.
- b<address> loads a binary file to the specified address

### fquit

Causes the main board to quit waiting mode.

Syntax

```
fquit
```



---

# **Appendix D:**

# **DTL-H2500 Questionnaire**

---



We would greatly value your help with the attached questionnaire so that we can let other developers know about other problematic PCs.

<b>DTL-H2500 QUESTIONNAIRE</b>		
Please FAX back to:		
Attention: Developer Support 44 (0) 171 390 4324 (Europe) 1-650-655-5511 (United States)		
<b>General Information</b>		
<b>Your Company Name</b>	<b>Contact Name</b>	<b>Telephone Number</b>
<b>System Information</b>		
<b>DTL-H2500 Serial No.</b>		
<b>Is your system in use?</b> If yes, for how long ?		
<b>Make of PC and OS</b> (e.g., Archipelego, Win95)		
<b>PC Speed and RAM</b> (e.g., 120MHz, 16Mb)		
<b>PC Chipset</b> (e.g., Triton)		
<b>PC BIOS Manufacturer/Version</b> (e.g., AMIBIOS 1.00.02.CB0)		