PCI Video Board

SDStationOEM

Installation Guide

SDStationOEM Installation Guide

Installation Guide Version 2.0 for SDStationOEM Version 2.0

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Registration Form

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Dear customer,

this product was developed and tested thoroughly. Unfortunately, the possibility of problems and errors can never be ruled out. To support us in helping you as fast as possible if such a case occurs, please fill in this registration form and send or fax it to the address on the right.

You may also use our online registration form which can be accessed from the following internet page: http://www.dvs.de/english/support/support.html

Customer

Name: _____

Company: _____

Contact: _____

Address: _____

_____

_____

Phone: _____

Fax: _____

Vendor: _____

SDStationOEM

Serial No.: _____

Configuration: _____

Options: ❑ SSO-Audio4 ❑ SSO-Key ❑ SSO-GPI
❑ SSO-RGB ❑ SSO-256MB

Computer

Brand: _____ Type: _____

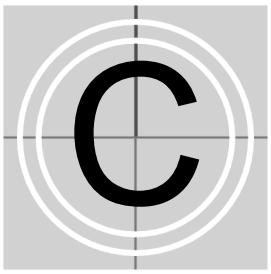
Operating System: _____ Version: _____

Connected devices

(Edit controller etc.) _____

_____

Contents



Introduction

This documentation describes the SDStationOEM which is DVS' OEM product of the SDStationPRO family. The SDStationOEM is centered around the SDStationBoard, a half-length PCI-bus single board for real-time input and output of uncompressed SDTV signals. With the SDStationBoard a computer can handle 8 and 10 bit digital serial SDTV streams. Using the software development kit (SDK) you can build powerful SDTV editing and storage solutions with the SDStationOEM.

1.1 Overview

This guide informs you about the installation of the SDStationOEM as well as all connection possibilities. Furthermore, it provides information about the installation of the delivered drivers and software.

The chapters contain the following information:

Chapter 1	Begins with a short introduction to the SDStationOEM, followed by a note regarding the audience this manual is written for and an explanation of the conventions used in this manual. Beside the system requirements necessary to run the SDStationOEM, it provides safety instructions that you must adhere to. Furthermore, some important notes that you should read and the scope of delivery detailing every option of the SDStationOEM are given here.
Chapter 2	Provides an overview of the SDStationOEM detailing all connectors and interfaces of the SDStationBoard and its additional panels. Furthermore, for the installation the panel drawings already show both the external connectors as well as the internal connections between panels and board.
Chapter 3	Describes the installation of the SDStationOEM. First the hardware installation is explained, followed by a description of the software installation.
Appendix	Provides technical details and general information about the SDStationOEM.
Index	This chapter facilitates the search for specific terms.

1.2 Target Group

To use this manual you should have experience in computer software handling and be familiar with the hardware structure and interior of a computer system.

1.3 Conventions Used in this User Guide

The following typographical conventions will be used in this documentation:

– Texts preceded by this symbol are parts of a list.
▫ Texts preceded by this symbol are also parts of a list, i.e. lists of a second level.
• Texts preceded by this symbol describe activities that you must perform in the order indicated.

Texts preceded by this symbol are general notes intended to facilitate work and help avoid errors.

You must pay particular attention to text that follows this symbol to avoid errors and possible resulting damages thereof.

Texts following this symbol you must pay particular attention to to avoid dangers and personal injuries.

“ ” Texts enclosed by quotation marks are references to other chapters or sections.

’Window’	Window name
Menu	Menu name and options in a menu list
BUTTON	Push buttons
File	Directory structure or file
Command	Command, for example, at a prompt; a bold typeface indicates that this has to be typed in exactly as written
Command	A regular typeface of a command indicates optional parameters, variables, etc.

1.4 Safety Instructions

To use the SDStationOEM correctly please heed the following:

Please read the following safety instructions very carefully before attempting any installation and/or performing any work on the SDStationOEM.

If the SDStationOEM is not used in compliance with the safety notes, the warranty and all resulting liability claims will be void.

General

The SDStationOEM has been built according to the applying safety regulations. To minimize the possibility of a faulty operation of the device all manuals and guides must be available at all times at the operation site. Before installing and/or using the SDStationOEM the manuals and guides delivered with the SDStationOEM must be read and observed.

- Use the SDStationOEM only in apparent good technical order.
- The system you are trying to connect the SDStationOEM to usually work with voltages that can be hazardous to your health. Never access its interior with the power cable(s) being plugged in. Make sure the power supply is disconnected from the components you are working on before opening its casing.
- Computer hardware contains components that are sensitive to electrostatic discharge. If you touch them without precautionary measures they can be destroyed. Use a wrist strap connected to ground when accessing electronic parts. Avoid touching the components of the computer and the SDStationOEM.
- Computer hardware contains components that are very sensitive to changing voltages. Connecting or disconnecting the SDStationOEM to or from peripheral hardware while any of them is switched on may damage the hardware. Switch off all peripheral hardware before connecting or disconnecting anything.
- Use the board only in compliance with the technical data laid out in section “Technical Data” on page A-1.
- The SDStationOEM may not be misused, abused, physically damaged, neglected, exposed to fire, water or excessive changes in the climate or temperature, or operated outside maximum rating.
- Do not perform any changes or extensions to the SDStationOEM whatsoever.

Environmental Conditions

For error-free working and an average service life, the SDStationOEM needs some basic environmental conditions:

– Do not expose the SDStationOEM to sources of heat, such as direct sunlight or a radiator.
– Avoid areas with high humidity or dust. Best operating conditions are given in an air-conditioned site.
– Do not expose the SDStationOEM to strong electric or magnetic fields.
– Avoid areas where the SDStationOEM will be subject to vibrations or shocks.

1.5 Important Notes

The following provides information about warranty, the conformity tests the SDStationBoard was submitted to, and an important note if you want to unplug cables.

Warranty Information

This product is warranted to be free of defects in materials and workmanship for a period of one year from the date of purchase. DVS extends this Limited Warranty to the original purchaser.

In the event of a defect or failure to confirm to this Limited Warranty, DVS will repair or replace the product without charge. In order to make a claim under this Limited Warranty, the purchaser must notify DVS or their representative in writing, of the product failure. In this Limited Warranty the customer must upon DVS request, return the product to the place of purchase or send the defective device to a given address for the necessary repairs to be performed. If the customer is not satisfied with the repair, DVS will have the option to either attempt a further repair, exchange the product, or refund the purchase price.

This warranty does not cover:

– Products not developed by DVS GmbH.
– Products which have been subject to misuse, abuse, accident, physical damage, neglect, exposure to fire, water or excessive changes in the climate or temperature, or operation outside maximum rating.
– Products on which warranty stickers or product serial numbers have been removed, altered or rendered illegible.
– The cost of installations, removal, transportation, or reinstallation.
– Damages caused to any other products.

Declarations of Conformity

This product was tested according to the applying directives and regulations of the EC and the FCC. Further information on this can be found in section “Conformity Declarations” on page A-4.

Unplugging Cables

If you want to unplug one of the flat cables after its installation on the board, please observe the following:

Flat cable connectors are equipped with a locking mechanism to prevent them from becoming disconnected after they were plugged in.

Don’t use any force to disconnect flat cable plugs, otherwise the socket on the board may be damaged or even break off.

To unplug the connector use your index finger and thumb to press the locking wings together.

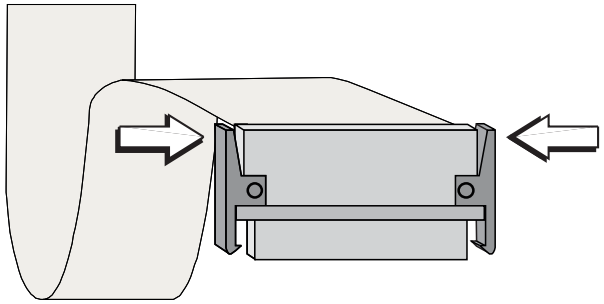


Figure 1-1: Unplugging flat cables

Then you can easily remove the connector.

1.6 Scope of Delivery

The following lists the items that come with the SDStationOEM. As well, it provides an overview of the optionally available features for the SDStationOEM and the items that are delivered with this feature:

SDStationOEM (SSO)

- 1 × SDStationBoard
- 1 × Slot panel ‘AnOut’
  - 1 × 16-pin twisted-pair cable (for internal connection)
  - 1 × 2-BNC-to-1-MiniDIN adapter (for external connection)
- 1 × Slot panel ‘RMT1’
  - 1 × MCX-to-BNC adapter (for internal connection, already mounted on slot panel)
  - 1 × 12-pin flat cable (for internal connection)
- 1 × SSO Installation Guide

Option: SSO-SDK

- 1 × CD-ROM containing the Software Development Kit (SDK) for SDStationOEM

Option: SSO-Manual

- 1 × SDK manual

Option: SSO-Audio4

- 1 × Slot panel ‘Audio’
  - 1 × 26-pin flat cable (for internal connection)
  - 1 × 15-pin-DSub-to-6-XLR adapter (for external connection)
  - 1 × 15-pin-DSub-to-2-XLR adapter (for external connection)

Option: SSO-Key

- 1 × Slot panel ‘SDI’ (not needed when upgrading from SSO-RGBA)
  - 4 × MCX-to-BNC cables (for internal connection, already mounted on slot panel)

Option: SSO-RGBA

- 1 × Slot panel ‘SDI’ (not needed when upgrading from SSO-Key)
  - 4 × MCX-to-BNC cables (for internal connection, already mounted on slot panel)

Option: SSO-GPI

- 1 × Slot panel ‘GPI/WCLK’
  - 2 × MCX-to-BNC cables (for internal connection, already mounted on slot panel)
  - 1 × 12-pin flat cable (for internal connection)

Option: SSO-256MB
– 256 Mbytes of on-board RAM instead of 32 Mbytes
License Key for Options
needed for SSO-Audio4, SSO-Key and/or SSO-RGBA; delivered on an extra sheet of paper together with the delivery note

If any of these items are missing or damaged, contact your vendor immediately.

1.7 System Requirements

Required Hardware

These are the minimum hardware requirements that the computer system has to meet if you want to use the SDStationOEM.

– Mainboard with 64-bit, 33- or 66-MHz PCI bus

The SDStationOEM operates with 33 MHz. It can be plugged in a 66 MHz PCI slot but will force the PCI bus frequency to operate overall with 33 MHz.

– 1 free slot in a bus-master capable PCI segment
– 64 MB RAM

Supported Operating Systems

The SDStationOEM can be used with the following operating systems:

– Windows NT, 2000, and XP
– Linux (Red Hat and SuSE)
– IRIX

Required Software

The SDStationOEM needs the DVS driver. Furthermore, to be programmed for applications the SDK by DVS is necessary. Both software should be included in your delivery.

Overview

This chapter shows an overview of the SDStationOEM. It details all connectors and interfaces of the SDStationBoard and its additional panels. Furthermore, for the installation (described in chapter “Installation” on page 3-1) the panel drawings already show both the external connectors as well as the internal connections between panels and board.

Please note that some of the panels may not be included in your SDStationOEM configuration. They belong to optional features of the SDStationOEM and are only necessary if you ordered the respective feature. A listing of the optional features as well as of the panels that are delivered with this feature can be found in section “Scope of Delivery” on page 1-7.

2.1 Overview of SDStationBoard

This section shows an overview of the SDStationBoard as well as all connection possibilities.

The panel of the SDStationBoard holds two status LEDs, the reference input, the composite video output, and the main (A) ports of the serial digital interface (SDI) input 1 and output 1. The secondary (B) ports of these SDI connectors can be found on the optionally available SDI panel.

Additionally, the SDStationBoard provides several interfaces to be used for the internal connections (inside the computer system) to additional slot panels.

Further details about the SDI connectors can be found in section “Digital Video I/O” on page 2-3 and a detailed explanation of the two status LEDs can be found in section “LEDs” on page 2-4.

2.1.1 SDStationBoard Layout

The following figure details the layout of the SDStationBoard:

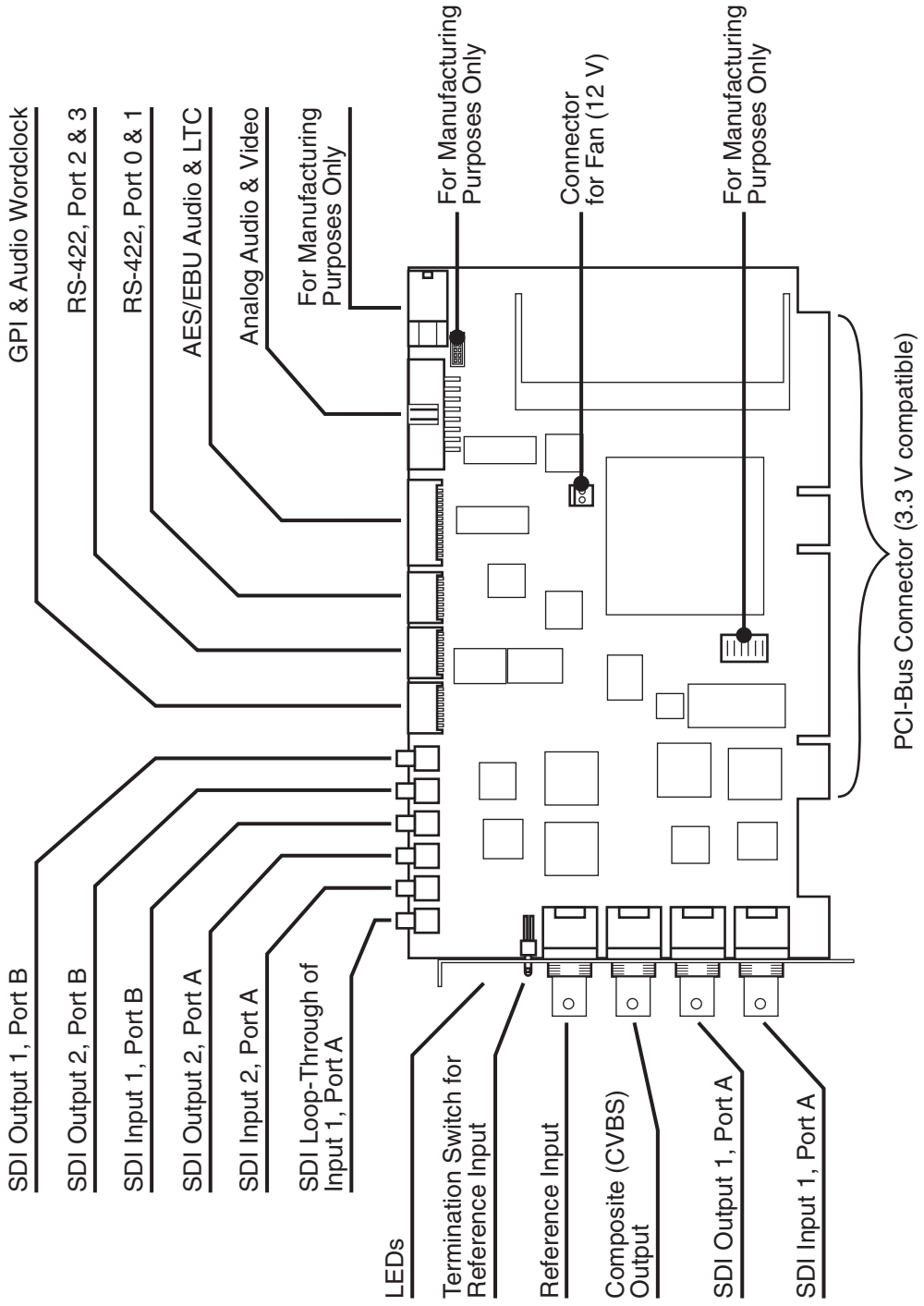


Figure 2-1: Overview of SDStationOEM

2.1.2 Digital Video I/O

The digital video I/Os have dual-link capabilities. Thus each I/O consists of two ports labelled 'A' and 'B'. In YC_bC_r/4:2:2 mode you only need one I/O port (single link), but whenever you want to work with key or in 4:4:4 modes, you have to use both I/O ports (dual link). The table below shows how the signals are distributed over the I/O ports in different color modes.

The SDStationBoard offers:

– Two inputs consisting of two switchable A ports and one permanent B port, i.e. with the SDK you can select one of the A ports as active video input. The B port is always active independent of the selected A port.
– Two concurrent outputs, each consisting of an A and a B port, i.e. both outputs give out the same signals at the respective ports. With the SDK you can swap the signal distribution over the ports.

On the outputs, the SDK allows to swap main and secondary port. The first row always shows the default behavior, the second row the swapped behavior.

Swapping the output ports is always possible, but the output signal of the secondary port depends on the licensed options. If a certain signal (e.g. key) is not available, because the corresponding feature is not licensed, a gray signal will be given out instead.

Video Mode	Input, Port A	Input, Port B	Output, Port A	Output, Port B
YC_bC_r/4:2:2	Y, C_b, C_r	–	Y, C_b, C_r	–
			–	Y, C_b, C_r
YC_bC_rA/4:2:2:4	Y, C_b, C_r	A	Y, C_b, C_r	A
			A	Y, C_b, C_r
YC_bC_r/4:4:4	Y, ½ C_b, ½ C_r	½ C_b, ½ C_r	Y, ½ C_b, ½ C_r	½ C_b, ½ C_r
			½ C_b, ½ C_r	Y, ½ C_b, ½ C_r
YC_bC_rA/4:4:4:4	Y, ½ C_b, ½ C_r	½ C_b, ½ C_r, A	Y, ½ C_b, ½ C_r	½ C_b, ½ C_r, A
			½ C_b, ½ C_r, A	Y, ½ C_b, ½ C_r
RGB/4:4:4	G, ½ R, ½ B	½ R, ½ B	G, ½ R, ½ B	½ R, ½ B
			½ R, ½ B	G, ½ R, ½ B
RGBA/4:4:4:4	G, ½ R, ½ B	½ R, ½ B, A	G, ½ R, ½ B	½ R, ½ B, A
			½ R, ½ B, A	G, ½ R, ½ B

2.1.3 LEDs

The SDStationBoard panel holds two status LEDs that signal whether correct video and sync signals are available at the respective digital inputs. In detail they provide the following signals:

LED	Function	Modus	Meaning
red	Signals the status of the video raster detection feature.	blinking slowly	No input signal is available.
		blinking fast	A wrong input signal is detected (e.g. the SDStationOEM is set to NTSC video mode, but a PAL signal is connected to the active input).
		off	A correct input signal is detected.
green	Signals the status of the sync input.	on	A correct sync signal is detected, i.e.: – Sync mode 'internal' is set – Sync mode 'external' is set and a correct signal is connected – sync mode 'analog' is set and an analog genlock signal is connected – Sync mode 'digital' is set and a correct signal is connected
		off	A wrong input signal is detected, i.e.: – Sync mode 'external' is set and no SDI input signal – Sync mode 'analog' is set and no genlock signal connected

2.2 Overview of Panels

To provide all the connection possibilities for the divers features of the SDStationOEM at a computer casing, several panels are delivered with the individual board.

This section should serve as an overview of the different panels as well as an installation instruction how to connect the SDStationOEM with the additional panels: the panel drawings already show both the external connectors as well as the internal connections between panels and board. The whole installation routine is described in chapter “Installation” on page 3-1.

Please note that some of the panels may not be included in your SDStationOEM configuration. They belong to optional features of the SDStationOEM and are only necessary if you ordered the respective feature. A listing of the optional features as well as of the panels that are delivered with this feature can be found in section “Scope of Delivery” on page 1-7.

2.2.1 Analog Audio & Video Panel

The following panel comes with the basic configuration of the SDStationOEM and shows the connectors needed for monitoring audio and video.

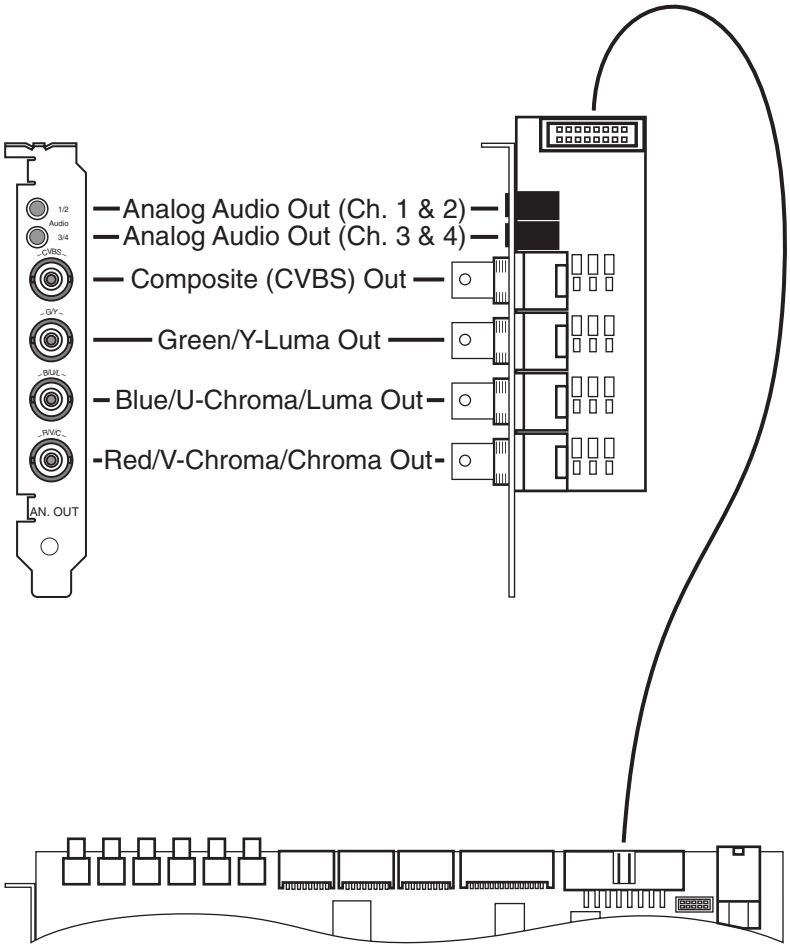


Figure 2-2: Analog audio & video panel

2.2.2 RS-422 Panels

The RMT1 panel is included in the basic configuration of the SDStationOEM. The RMT2 panel is currently in its development stage and will be available as an optional feature for the SDStationOEM.

The RS-422 panels hold the interfaces for master and slave control as well as the main (A) ports of SDI input 2 and SDI output 2. The secondary (B) parts of the SDI I/Os can be found on the SDI panel.

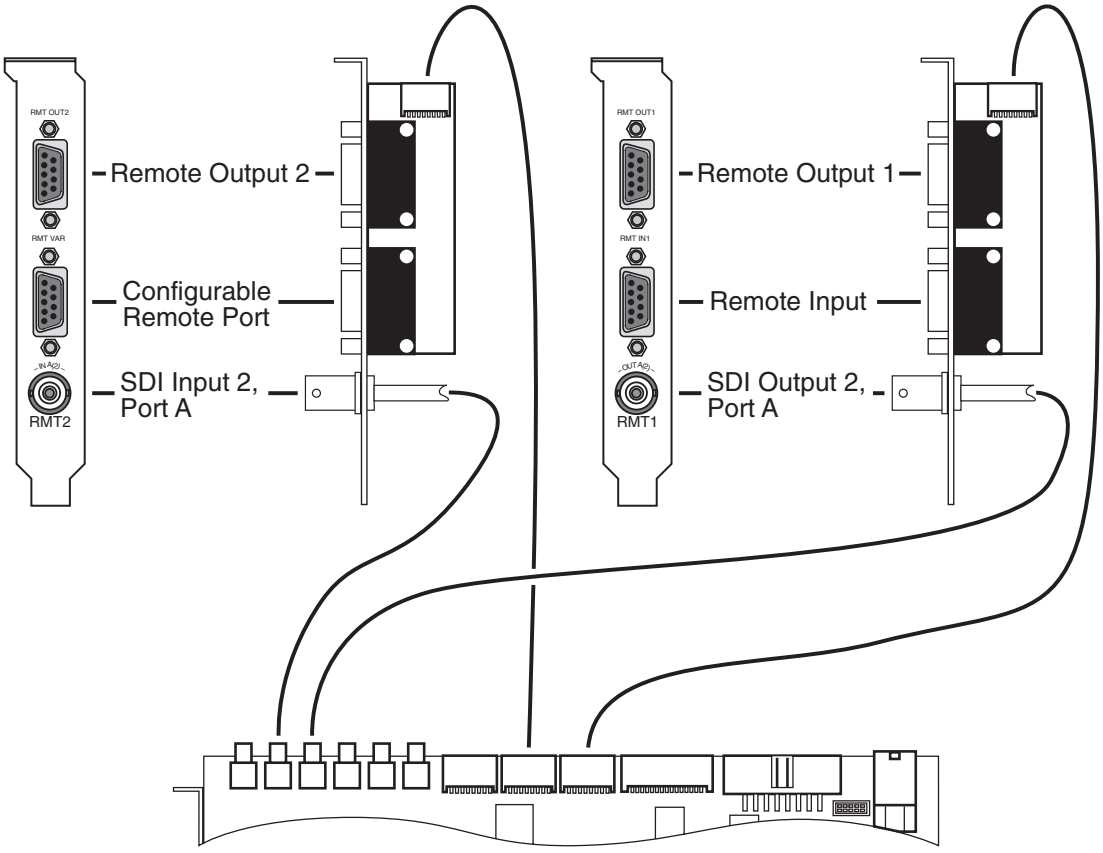


Figure 2-3: RS-422 panel

2.2.3 Serial Digital Interface (SDI) Panel

The SDI panel is optionally available and holds some of the SDI inputs and outputs, i.e. the digital video I/Os. The other SDI connectors can be found on the SDStationBoard panel and the RS-422 panels.

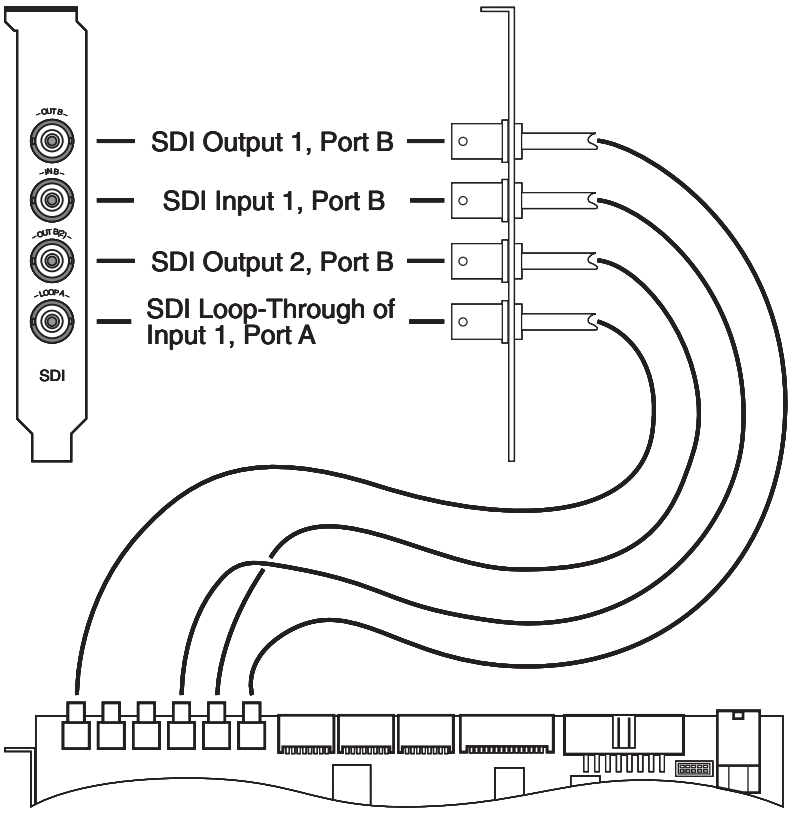


Figure 2-4: SDI panel

2.2.4 AES/EBU Audio Panel

The AES/EBU audio panel is optionally available and holds the inputs/outputs for digital audio and LTC.

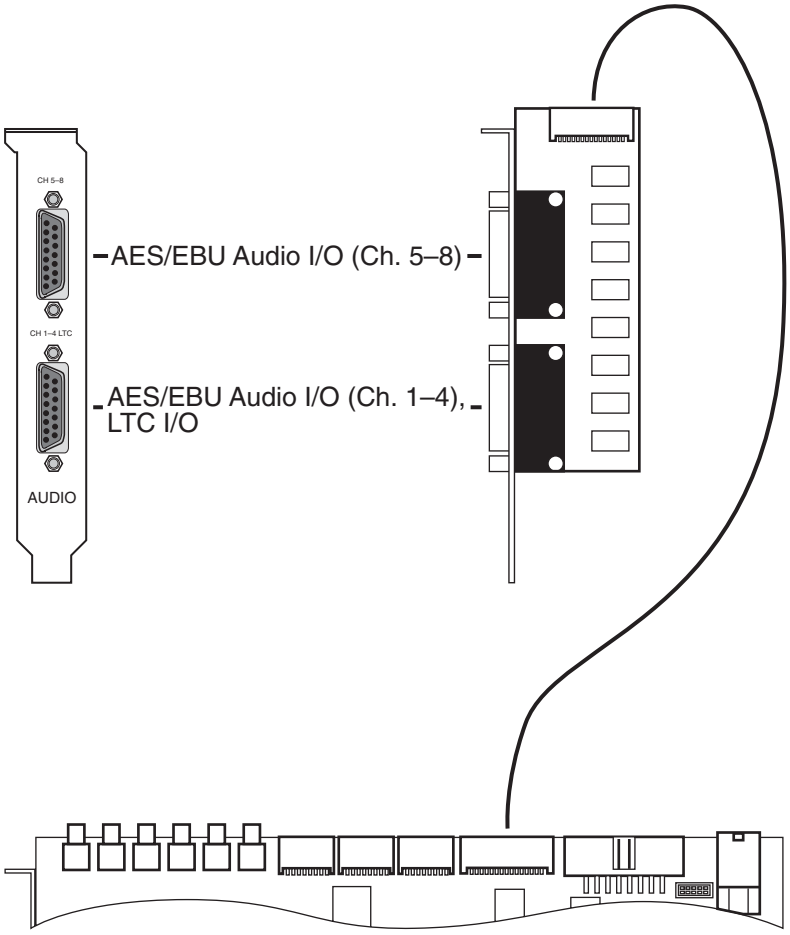


Figure 2-5: Audio panel

2.2.5 GPI & Audio Wordclock Panel

The GPI and audio wordclock panel is optionally available and is shown in the drawing below.

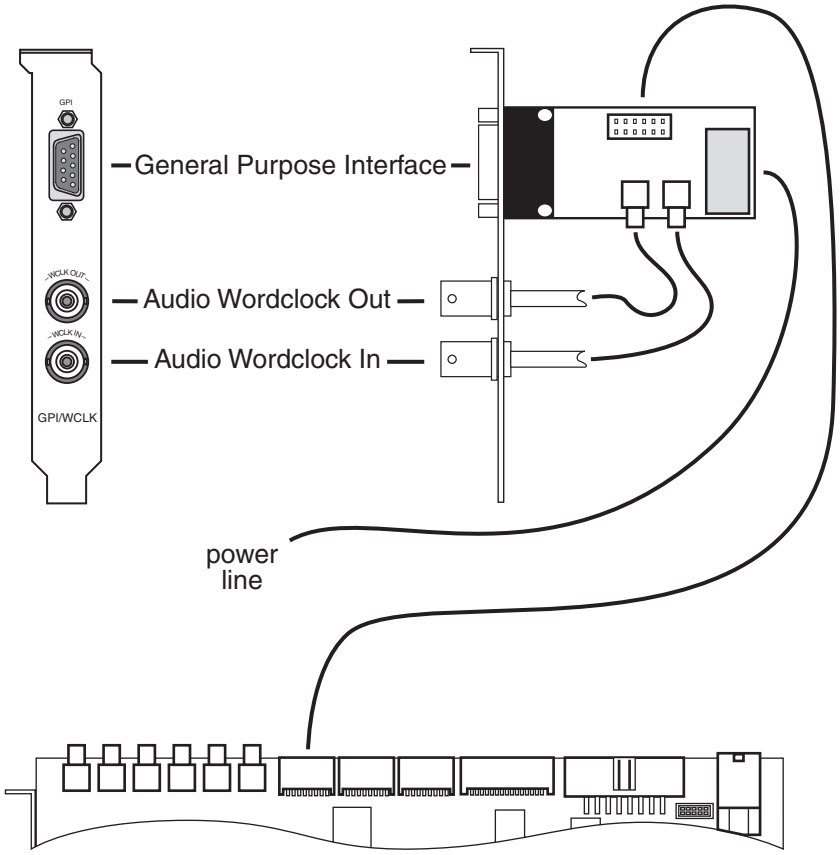


Figure 2-6: GPI/WCLK panel

Prior to the installation of the GPI and audio wordclock panel, please check the jumpers on the printed board of the GPI for their correct settings. If they are not set correctly, using this interface may result in an unexpected behaviour of the SDStationOEM. The jumpers should be set like shown in the figure below:

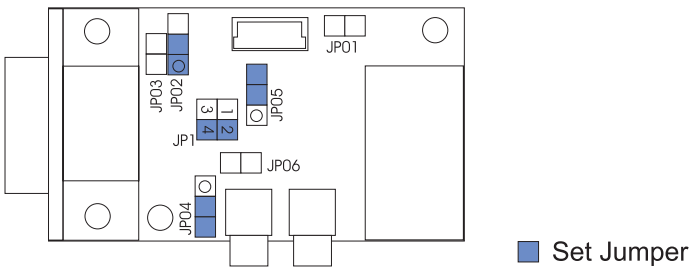


Figure 2-7: Jumper settings

The power line to be connected to the printed circuit board of the GPI has to be a standard power distribution line of your computer system. It should be of the same type as, for example, used to power your floppy, with the following specifications:

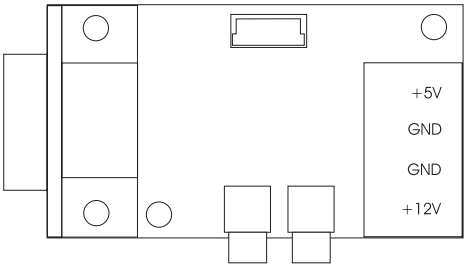


Figure 2-8: Power line specification

The connected extra power line of the GPI makes the GPI signal stronger and clearer. However, if you do not have a power line available, the GPI will be still fully functional.

Installation

This chapter details all the information you need to install the SDStationOEM into a computer system. First, the installation of the board itself is described. After that follows a description on how to activate the ordered features.

The SDStationOEM offers a lot of features to the user. Some of these features are included in the standard version of the SDStationOEM, some of these belong to optional packages and have to be ordered explicitly if you want to use them. Via a license key the whole feature set that you have ordered with your SDStationOEM can be activated.

For some installations it may be necessary to upgrade the PCI interface (firmware) of the SDStationOEM. This is described in this chapter as well.

Once everything is set, you may test your installation and system configuration if everything is working properly.

The DVS driver to control the board is part of the SDK software package. For information on how to install the DVS driver, please refer to the SDK manual.

3.1 Hardware Installation

How to install the SDStationOEM in a computer system is described in this section. The installation has to be performed in three steps: At first, you have to prepare the computer system where the SDStationBoard has to be installed. After that the board itself must be installed and in the last step the installation can be finished.

If you want to disconnect the flat cables from the board after their installation, please read section “Unplugging Cables” on page 1-6.

Preparations

The first step is to prepare the computer system for the installation of the SDStationOEM. To do this perform the following:

- Disconnect all cables (especially the power cords) from the computer system where the SDStationOEM is to be installed.

The computer system you are trying to connect the SDStationOEM to usually works with voltages that can be hazardous to your health.

Never access its interior with the power cable(s) being plugged in. Make sure the power supply is disconnected from the components you are working on before opening its casing.

- Open the computer casing.

For details on how to do this, please refer to the respective manufacturer’s manual.

Computer hardware contains components that are sensitive to electrostatic discharge. If you touch them without precautionary measures they can be destroyed.

Use a wrist strap connected to ground when accessing electronic parts. Avoid touching the components of the computer and the SDStationBoard.

The computer system is now ready for the installation of the SDStationBoard.

Installation of the Board

With the second step the SDStationOEM is installed in the prepared computer system. To do this perform the following:

- In the computer system find a free half-length PCI slot.

- Remove the slot bracket of this slot.
- Insert the SDStationBoard without bending it.
- Fasten the SDStationBoard with the screw from the slot bracket.
- Remove as many slot brackets as you need for the additional panels and install the panels: Insert the panels and fasten them with a screw.

The number of additional panels depends on the optional features ordered with your SDStationOEM.

- Connect the cables to the appropriate SDStationBoard interfaces as shown in the figures of section “Overview of Panels” on page 2-5. If available, please observe the additional information given in this section as well.

The SDStationOEM is now connected to your computer system properly. After this you have to finish the installation.

Finishing the Installation

This step is the last step of installing the SDStationBoard. To finish the installation perform the following:

- Close the computer casing.
- Connect all cables to the computer again.
- Connect your audio and video equipment to the SDStationOEM connectors.

The installation of the SDStationOEM as hardware is complete. To use the board and activate its features you must also install the software.

3.2 Software Installation

Beside the files for software development, the SDK software also contains the SDStationBoard driver and tools for basic hardware setup and diagnostic. Therefore, for descriptions of the software and driver installation, please refer to the separate SDK documentation.

Once the software installation is completed you have to activate the feature set available for your SDStationOEM with the delivered license key.

3.3 Setting the License Key

This section explains how to set the license key on the computer system equipped with the SDStationOEM. The license key activates the individual features that you have ordered for your SDStationOEM. After the SDK and the driver are installed, you have to set the license key for the SDStationOEM to be able to use the full feature set.

Because DVS supports several operating system platforms, this section is divided into the different setup procedures for the respective operating system (i.e. 'Windows' and 'All Operating Systems').

The SDStationOEM is capable of holding three license keys that can store one license key each. The first key (Key 1) is usually used for licensing the features you ordered with your SDStationOEM. Keys 2 and 3 are usually used for temporary licenses that you may have received for evaluation purposes. Each license key enables one or more (optional) features of the SDStationOEM until date of expiration (if applicable). Each time the SDStationOEM starts, all keys are checked and their features are combined.

3.3.1 Setting of License Key (Windows Only)

Once the SDK and the driver are properly installed, you have to set the license key for the SDStationOEM to be able to use all ordered features.

To set the license key Windows offers you with the DVSConf program the possibility to use a standard graphical user interface.

You may also use the procedure described in section “Setting of License Key (All Operating Systems)” on page 3-7.

The following assumes that the DVSConf program is already running and that the driver is correctly loaded.

In case the driver is not already loaded, load the driver with the 'Driver' tab of the DVSConf program.

Further information on how to operate the DVSConf program can be found in the SDK manual.

To set the license key with the help of the DVSConf program perform the following:

- Change to the 'Card0' tab.

For each installed SDStationBoard there is a 'Card' tab available. If you have more than one SDStationBoard installed on your computer system, you have to repeat the following steps with 'Card1', 'Card2', etc.

- Click the button **SETUP** and select from the opening list the option ***Set Licence***:

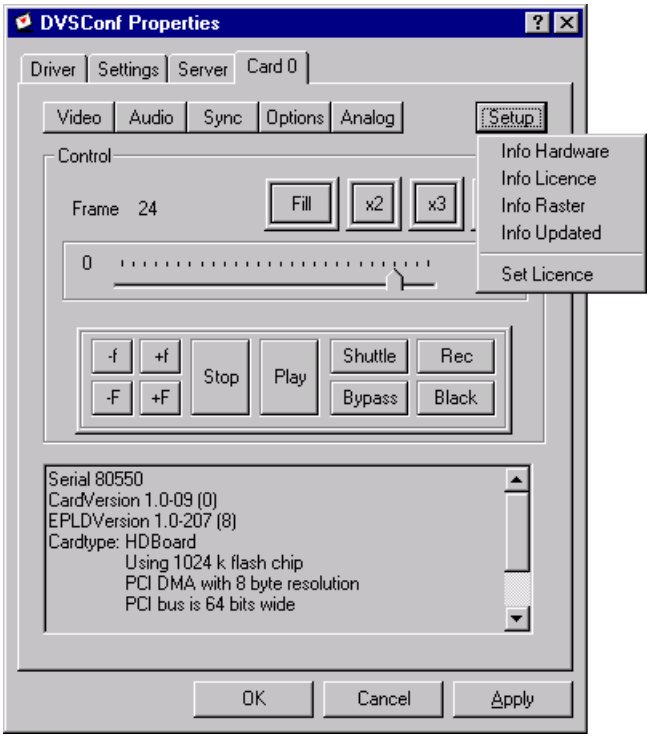


Figure 3-1: 'Card0' tab

The following dialog window opens:

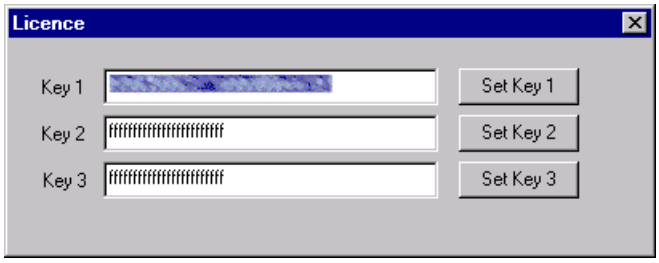


Figure 3-2: 'Licence' dialog window

- In the field 'Key 1' enter the license key that you received with your SDStationOEM and click the **SET KEY 1** button.

The **'Licence'** dialog window closes. The new license key is now set and will be stored unalterably in your SDStationOEM.

The features activated with this licence key can be displayed by clicking the button **SETUP** and selecting from the list the option ***Info Licence***.

- Repeat the described steps above to activate the features for the keys 2 and 3, if appropriate.
- If you have more than one SDStationBoard installed in your computer system, change to their respective card tabs and repeat the steps to activate their features.
- Reboot the computer system.

Once the system has started, all licensed features will be available to the SDStationOEM.

Depending on the SDK version, you may need to upgrade the PCI interface of the SDStationBoard. More information about this can be found in section "Upgrading the PCI Interface" on page 3-8.

To be sure your SDStationBoard works properly, you may also test your installation. Details on how to perform a testing of your installation can be found in section "Testing the Installation" on page 3-11.

3.3.2 Setting of License Key (All Operating Systems)

Once the SDK and the driver are properly installed, you have to set the license key for the SDStationOEM to be able to use all ordered features.

The following procedure uses the command line (shell, or in case of Windows MS DOS prompt). This is the common way for most operating systems to perform such a procedure.

To set the license key with the command line (shell), you have to open the shell first. After that perform the following:

In case the driver is not already loaded, load the driver. Further information about this can be found in the SDK manual.

In case you have several SDStationBoards installed, use the environment variable `SCSIVIDEO_CMD` and set it to `PCI,card:<x>` (with `<x>` as the number of the board) to access a particular board. Please refer to the SDK documentation for details about setting the variable `SCSIVIDEO_CMD`.

- Enter the command **`svram licence key1 <key value>`**. For `<key value>` insert the license key that you received with the SDStationOEM.

The new license key is set now and will be stored unalterably in the SDStationOEM.

The features activated with this licence key can be checked by entering the command **`svram licence show`**.

- Repeat the described steps to activate the features for the keys 2 and 3, if appropriate, by altering the command respectively.
- If you have more than one SDStationBoard installed in your computer system, use the environment variable `SCSIVIDEO_CMD` to access the respective board and repeat the steps to activate its features.
- Reboot the computer system.

Once the system has started, all licensed features will be available to the SDStationOEM.

Depending on the SDK version, you may need to upgrade the PCI interface of the SDStationBoard. More information about this can be found in section “Upgrading the PCI Interface” on page 3-8.

To be sure your SDStationBoard works properly, you may also test your installation. Details on how to perform a testing of your installation can be found in section “Testing the Installation” on page 3-11.

3.4 Upgrading the PCI Interface

Depending on the SDK version, you may need to upgrade the PCI interface of the SDStationBoard. This is done with a program named sdioup###. This section explains how to determine whether you need and how to perform a PCI interface upgrade.

Because DVS supports several operating system platforms, this section is divided into the different procedures for the respective operating system (i.e. 'Windows' and 'All Operating Systems').

3.4.1 PCI Interface Upgrade (Windows Only)

To upgrade the PCI interface Windows offers you with the DVSConf program the possibility to use a standard graphical user interface.

You may also use the procedure described in section "PCI Interface Upgrade (All Operating Systems)" on page 3-9.

Before upgrading the PCI interface you have to determine whether a PCI upgrade is necessary. Therefore, you need to know the PCI interface version, that you need at least, to work properly with the SDK installed. You can find this information in the *readme.txt* file in the SDK installation folder. Look for the line that says 'Use hardware 1.**61.0** or higher' or similar. The last two numbers (bold in our example), tell you the PCI interface version.

Now you have to check the PCI interface version of your SDStationBoard:

- Open the DVSConf program.

In case the driver is not already loaded, load the driver with the 'Driver' tab of the DVSConf program.

Further information on how to operate the DVSConf program can be found in the SDK manual.

- Change to the 'Card0' tab.

For each installed SDStationBoard there is a 'Card' tab available. If you have more than one SDStationBoard installed on your computer system, you have to repeat the following steps with 'Card1', 'Card2', etc.

- If the bottom of the 'Card' tab does not display information about the installed hardware, click the button **SETUP** and select from the opening list the option ***Info Hardware***.
- Look for the line that says 'EPLDVersion 1.**61.3**' or similar.
  The numbers of the PCI interface version (bold here) have to be as high as the numbers in the *readme.txt* at least. (In thought delete the dot between the two numbers and you get the number

showing the version (e.g. 610 compared to 613)). So 61.3 and higher would also be sufficient.

If the numbers of the PCI interface version do not match the version required for the SDK, you have to upgrade the PCI interface.

In our example chosen here, the SDStationBoard does not need a PCI interface upgrade.

If you determined that a PCI interface upgrade is necessary, perform the following:

- Exit the DVSConf program.
- Run the update program sdioup### from a command line (MS DOS prompt).

is the PCI interface version that sdioup### upgrades the SDStationBoard to (e.g., sdioup63d would upgrade the PCI interface to version 63.3 (with a = 0)). Make sure that a sdioup### of a high enough version is available. Otherwise contact your distributor to get an appropriate sdioup### version.

The program sdioup### upgrades all installed SDStationBoards.

- When sdioup### has finished the upgrade procedure, shut down the computer and wait at least one minute before rebooting it.

This will safely erase the old PCI interface from the SDStationBoard.

- Reboot the computer and check the PCI interface version as described above.

If the interface version is upgraded, the procedure is finished. If it is not upgraded, perform the procedure again and give the board more time to erase the old information.

3.4.2 PCI Interface Upgrade (All Operating Systems)

Before upgrading the PCI interface you have to determine whether a PCI upgrade is necessary. Therefore, you need to know the PCI interface version, that you need at least, to work properly with the SDK installed. You can find this information in the *readme.txt* file in the SDK installation folder. Look for the line that says 'Use hardware 1.**61.0** or higher' or similar. The last number (bold in our example), tells you the PCI interface version.

The following procedure uses the command line (shell, or in case of Windows MS DOS prompt). This is the common way for most operating systems to perform such a procedure.

Now you have to check the PCI interface version of your SDStationBoard:

- Open a command line (shell).

If the driver is not already loaded, load the driver. Further information about this can be found in the SDK manual.

In case you have several SDStationBoards installed, use the environment variable `SCSIVIDEO_CMD` and set it to `PCI,card:<x>` (with `<x>` as the number of the board) to access a particular board. Please refer to the SDK documentation for details about setting the variable `SCSIVIDEO_CMD`.

- Enter in the command line **`svram version`**.
- In the output look for the line that says 'epldversion 1.**61.3**' or similar.
  The numbers of the PCI interface version (bold here) have to be as high as the numbers in the *`readme.txt`* at least. (In thought delete the dot between the two numbers and you get the number showing the version (e.g. 610 compared to 613)). So 61.3 and higher would also be sufficient.
- If the numbers of the PCI interface version do not match the version required for the SDK, you have to upgrade the PCI interface.

In our example chosen here, the SDStationBoard does not need a PCI interface upgrade.

If you determined that a PCI interface upgrade is necessary, perform the following:

- Open a command line (shell).
- Run the update program sdioup###.

is the PCI interface version that sdioup### upgrades the SDStationBoard to (e.g., sdioup63d would upgrade the PCI interface to version 63.3 (with a = 0)). Make sure that a sdioup### of a high enough version is available. Otherwise contact your distributor to get an appropriate sdioup### version.

The program sdioup### upgrades all installed SDStationBoards.

- When sdioup### has finished the upgrade procedure, shut down the computer and wait at least one minute before rebooting it.

This will safely erase all the information of the old firmware from the SDStationBoard.

- Reboot the computer and check the PCI interface version as described above.

If the interface version is upgraded, the procedure is finished. If it is not upgraded, perform the procedure again and give the board more time to erase the old information.

3.5 Testing the Installation

After having installed and set-up everything, you should test if the SDStationOEM installation has been successful. The SDK tools offer the possibility to generate and display test pictures for checking the SDStationBoard hardware.

Because DVS supports several operating system platforms, this section is divided into the different procedures for the respective operating system (i.e. 'Windows only' and 'All Operating Systems').

3.5.1 Testing the Installation (Windows Only)

To test the installation Windows offers you with the DVSConf program the possibility to use a standard graphical user interface. Perform the following:

You may also use the procedure described in section "Testing the Installation (All Operating Systems)" on page 3-13.

- Connect a video monitor to the composite output of the SDStationBoard (see also section "SDStationBoard Layout" on page 2-2), or to the composite output or the analog video output connectors of the analog audio & video panel (see also section "Analog Audio & Video Panel" on page 2-6).
- Open the DVSConf program.

In case the driver is not already loaded, load the driver with the 'Driver' tab of the DVSConf program.

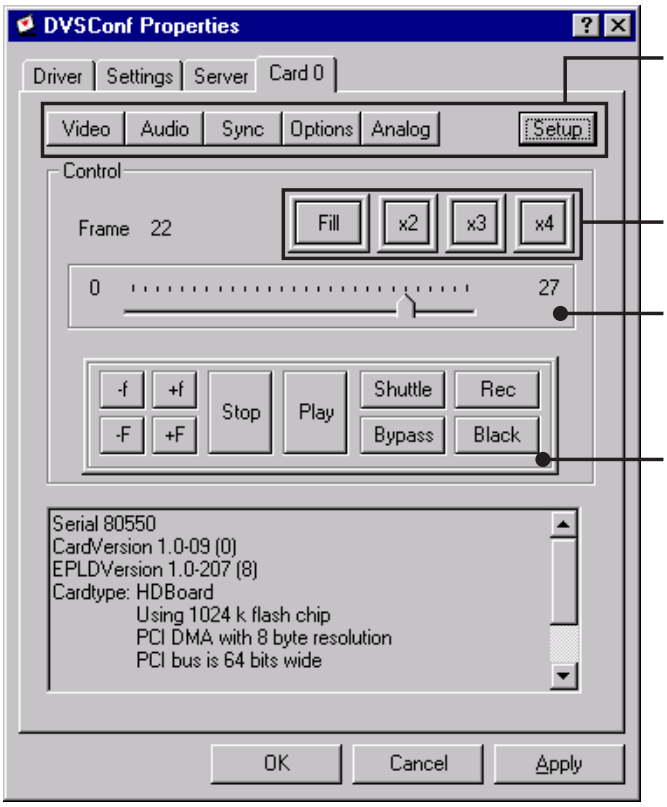
Further information on how to operate the DVSConf program can be found in the SDK manual.

- Optionally you may change the settings on the 'Settings' and 'Server' tabs as desired.

Now the computer system is ready to generate test frames:

- Change to the 'Card0' tab.

For each installed SDStationBoard there is a 'Card' tab available. If you have more than one SDStationBoard installed on your computer system, you have to repeat the following steps with 'Card1', 'Card2', etc.



These buttons influence the video and audio settings of the video board.

These control buttons fill the whole board buffer with a color bar including frame numbers. Each button generates a different number size.

This is the range of totally available frames (depends on board buffer size and current video raster).

These buttons perform basic display operations on the analog outputs.

-f/+f: Moves field backward/forward.

-F/+F: Moves frame backward/forward.

STOP: Stops playback.

START: Starts playback.

SHUTTLE: Shuttles playback.

BYPASS: Displays the digital video input.

REC: Captures the digital video input to buffer.

BLACK: Displays black frame.

Figure 3-3: Overview 'Card' tab of DVSConf

- Use the buttons at the top of the 'Card' tab to select the desired video and audio settings.
- Use the **FILL**, **x2**, **x3**, or **x4** buttons to fill the SDStationBoard buffer with a test pattern.
- Perform the display operations with the lower buttons.

If this works, you have successfully completed the SDStationOEM installation. In the SDK you find some sample programs that can also be used for testing.

The DVSConf program only affects the buffer and the I/O functions of the SDStationBoard. For testing optionally installed video disks, you will have to use your own test routines.

3.5.2 Testing the Installation (All Operating Systems)

To test the installation perform the following:

The following procedure uses the command line (shell, or in case of Windows MS DOS prompt). This is the common way for most operating systems to perform such a procedure.

- Connect a video monitor to the composite output of the SDStationBoard (see also section “SDStationBoard Layout” on page 2-2), or to the composite output or the analog video output connectors of the analog audio & video panel (see also section “Analog Audio & Video Panel” on page 2-6).
- Open a command line (shell).

If the driver is not already loaded, load the driver. Further information about this can be found in the SDK manual.

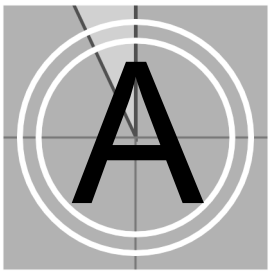
Now the computer system is ready to display test frames:

In case you have several SDStationBoards installed, use the environment variable `SCSIVIDEO_CMD` and set it to `PCI,card:<x>` (with `<x>` as the number of the board) to access a particular board. Please refer to the SDK documentation for details about setting the variable `SCSIVIDEO_CMD`.

- Use `svram videomode`, `svram sync`, `svram analog`, etc. to select the desired video and audio settings (further information about the commands can be found in the SDK manual).
- Enter `svram colorbar` to display a color bar on the output.

If this works, you have successfully completed the SDStationOEM installation. In the SDK you find some sample programs that can also be used for testing.

The svram program only affects the buffer and the I/O functions of the SDStationBoard. For testing optionally installed video disks, you will have to use your own test routines.



Appendix

This chapter provides technical data and general information about the SDStationOEM.

A.1 Technical Data

The following shows the technical data of the SDStationBoard.

PCI bus requirements	64 bit, 33 or 66 MHz / 32 bit, 33 or 66 MHz
Board size	Half-length, single-slot
Electrical types	3.3 volt or 5 volt (universal)
Conformity	PCI Specification 2.2
Operating environmental conditions	5°C (41°F) to 50°C (122°F) 20% to 80% relative humidity, non-condensing
Storage environmental conditions	-17°C (0°F) to 70°C (158°F) 10% to 80% relative humidity, non-condensing

The SDStationOEM operates with 33 MHz. It can be plugged in a 66 MHz PCI slot but will force the PCI bus frequency to operate overall with 33 MHz.

A.2 Hardware Specifications

The following table shows the hardware specifications of the SDStationBoard.

Table A-1: SDStationBoard specifications

Video	Input	Output
Serial Digital 4:2:2 8/10 bit	1 BNC (a_1) 1 BNC (a_2) switchable, plus loop through	1 BNC (c_1) 1 BNC (c_2) switchable
Serial Digital 4:4:4 8/10 bit	2 BNC (a+b), dual link	2 BNC (c+d), dual link
Analog Composite		1 BNC
Analog Component (RGB, YUV, Y/C (S-VHS))		3 BNC Y/C: adapter to 4-pin MiniDIN
Key	**Input**	**Output**
Serial Digital 4:0:0 8/10 bit for 4:2:2:4 and 4:4:4:4 Mode	1 BNC (b)	1 BNC (d_1) 1 BNC (d_2) simultaneous
Reference	**Input**	**Output**
Analog Genlock Input	1 BNC	
Audio	**Input**	**Output**
Embedded Audio	4 channels 1 BNC (via Video In (a))	8 channels 1 BNC (via Video Out (c))
AES/EBU	2 XLR female or 2 BNC	4 XLR male or 4 BNC
Wordclock	1 BNC	1 BNC
Timecode	**Input**	**Output**
Longitudinal (LTC)	1 XLR female	1 XLR male
Vertical (VITC)	BNC (via Video In)	BNC (via Video Out)
Data and Control Interfaces	**Input**	**Output**
Serial RS-422	1 DB-9 female	1 DB-9 female
	2 DB-9 female (configurable)	

Table A-1: SDStationBoard specifications (cont.)

Data Formats	
Video Standards	D1 and D5, 525/59.94 Hz and 625/50 Hz
Data Modes	YC_bC_r/4:2:2, RGB/4:4:4 optionally with key channel
Internal Processing	Color space conversion

A.3 Video Raster

The following table shows the supported video raster. All frequencies indicate the frame rate.

Table A-2: Supported video raster

Raster	Name in DVS software[1]	Total lines per frame	x size	y size	Aspect ratio
NTSC / 29.97 Hz	NTSC	525	720	486	4:3
PAL / 25 Hz	PAL	625	720	576	4:3
NTSC High Resolution / 29.97 Hz	NTSCHR	525	960	486	16:9
PAL High Resolution / 25 Hz	PALHR	625	960	576	16:9

1 This is the string for the sv program; when using the C library (SDK) you have to write e.g. `SV_MODE_NTSC`.

You can find information about the internal data representation of video, audio, and timecode in the SDK documentation.

A.4 Conformity Declarations

EC Declaration of Conformity
EG-Konformitätserklärung

We: / Wir:
DVS GmbH Digitale Videosysteme
Krepenstr. 8
30165 Hannover
Germany

declare herewith, that the following product:
Erklären hiermit, dass folgendes Produkt:

product designation: / Produktbezeichnung: **SDStationOEM**
type: / Typ: SDStationV2

according to the provisions of the following EC Directives – including their relevant revisions at the time of this declaration – is in conformity with the following standards or other normative documents.
gemäß den Bestimmungen der angegebenen EG-Richtlinien – einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen – entspricht.

EMC Directive 89/336/EWG and Low-Voltage Directive 73/23/EWG
EMV-Richtlinie 89/336/EWG und Niederspannungsrichtlinie 73/23/EWG

The following harmonized standards were applied: / Folgende harmonisierte Normen wurden angewandt: EN55022, EN61000-3-2, EN61000-3-3, EN55024

Certificate of the appropriate authority by the sci-worx GmbH, Garbsener Landstr. 10, 30419 Hanover, Germany, with the number 7033PB020805 issued on the 5th August 2002.
Bescheinigung der zuständigen Stelle der sci-worx GmbH, Garbsener Landstr. 10, 30419 Hannover, Germany, mit der Nummer 7033PB020805 vom 05.08.2002.

Hannover, 19.07.2002
(Ort, Datum) / (Place, date)

Siegfried Beyer, Geschäftsführer
Managing Director

FCC Compliance Statement
Information

We: **DVS GmbH Digitale Videosysteme**
Krepenstr. 8
30165 Hannover
Germany

declare herewith, that the following product:

product designation: **SDStationOEM**

type: SDStationV2

has been tested according to the applying valid FCC regulations.

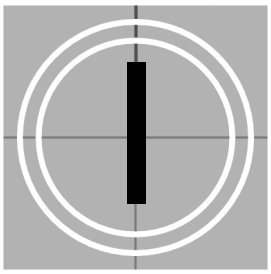
FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE: Connecting this device to peripheral devices that do not comply with Class A requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Hanover, 02.08.2002
(Place, date)

Siegfried Beyer, Managing Director



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