USER MANUAL

LAB - DVD Decoder Board

December 1997

Reference
Version 2.0

The information in this document is subject
to change without notice

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**

Warning:

Use only shielded cables to connect I/O devices to this equipment.
You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Note:

The user may find the following booklet prepared by the Federal Communications Commission helpful:

" How to Identify and Resolve Radio-TV Interference Problems. "

This booklet is available from the U.S. Government Printing Office,
Washington, DC 20402
Stock No. 004-000-00345-4.

Printed in Taiwan

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1. DESCRIPTION

This is a new LAB MPEG-2/DOLBY AC-3 DECODER BOARD that provides at low cost, high integration system for playback of MPEG-2, Dolby AC-3.51 audio and video bitstreams in Windows-based personal computers.

Our LAB-DVD Board not only meets the new demands of advanced PC audio and video applications but also enables the integration of a complete multimedia subsystem. It has software support for games, DVD and Video-CD movies in Windows.

1.1. Features

CONFORMING

⇒ Full support MPEG-2 ML/MP (ISO-13818) and MPEG-1 ML/MP (ISO-11172).

VGA DISPLAY RESOLUTION

⇒ High quality color videos display within a scaleable VGA window through feature connector.

⇒ Support VGA display resolution from 640 x 480 up to 1024 x 768 in 16 to 16M color modes.

VIDEO RESOLUTION

⇒ Real-time video decompression up to 720x 576@25 fps for PAL system.

⇒ Real-time video decompression up to 720x 480@30 fps for NTSC system.

AUDIO

⇒ Support MPEG-1, MPEG-2 and Dolby AC-3.51 audio formats.

⇒ Support Dolby AC 35.1 channels of digital audio output.

HOST INTERFACE

⇒ High level support for host control in PCI 2.1 environment.

VIDEO

⇒ Scaleable on VGA Monitor.

⇒ OSD scaling for PAL/NTSC system.

⇒ Support both S video and composite video signal for PAL/NTSC TV system.

⇒ Software configurable video port VIP,VMI, AMC and LBP.

SUPPORT

⇒ Support the following graphics chips through the feature connector.

⇒ S3 Trio 64K V2/DX, Trio 64V+

⇒ S3 Virge, Virge DX/GX2

⇒ Cirrus Logic CL5446, CL5465, CL5480

⇒ ATI (Rage II, Rage II+, RagePro)

⇒ Trident 3D image 795

⇒ Nvidia Riva 128

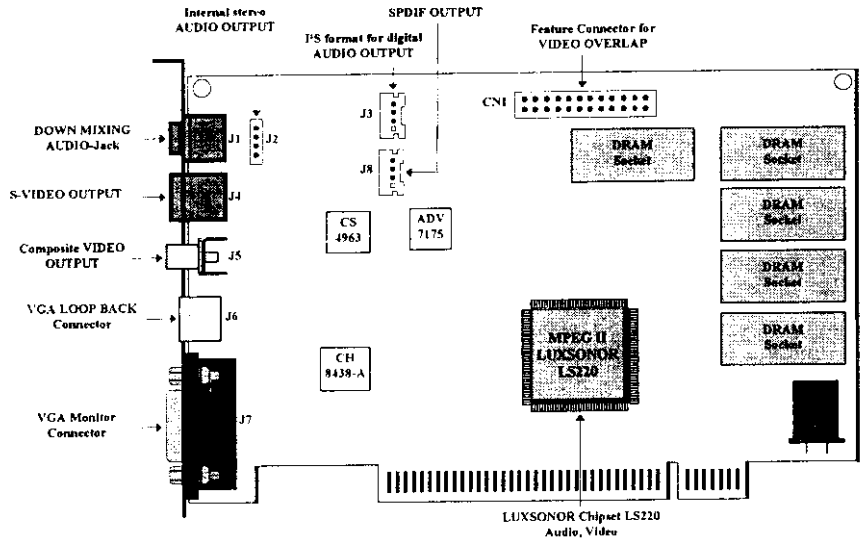
DVD LICENSE

⇒ CSS Copy Protection agreement license.
⇒ Macrovision 7.01 agreement license.
⇒ Dolby AC3 agreement license.

1.2. System Requirements

- PC system with Pentium CPU, at least 133 MHz or compatible is recommended in order to use the Soft AC/3 function in high quality mode.
- Compatible Sound Blaster sound card.

1.3. Card Figure



1.4. Connectors

This DVD Decoder Board includes up to four internal Connectors, one Down Mixing Audio Jack Port, one S-VIDEO Composite Connector, one external RCA Jack, one VGA & Loop Back Connector, and one Connector for the VGA Monitor.

1.4.1. External Connectors:

J1: ..... ϕ 3.5mm Phone Jack for **DOWN MIXING AUDIO.**
J4: ..... 4-pin Connector for **S-VIDEO OUTPUT.**
J5: ..... RCA Jack for **COMPOSITE VIDEO OUTPUT.**

J6:.....9-pin female MINI-DIN Connector for **VGA LOOP BACK.**

J7:.....15-pin Connector for **VGA MONITOR.**

1.4.2. Internal Connectors:

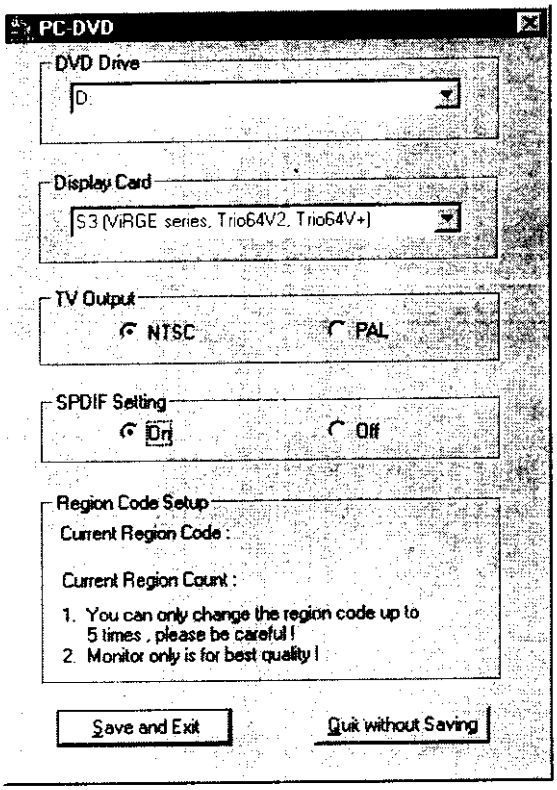
CN1:.....Internal Feature Connector for **VIDEO OVERLAP.**

J2:.....Internal Connector for **STEREO AUDIO OUTPUT.**

J3:.....Internal Connector for **I²S FORMAT for DIGITAL AUDIO OUTPUT.**

J8:.....Internal Connector for **SPDIF OUTPUT.**

1.5. PC-DVD Function



In order to use the SPDIF output to Dolby Pro Logic Surround Sound amplifier and speakers, please run the PCDVDCFG.EXE file.
You will receive the following dialog box as displayed on the opposite.
Go to the "SPDIF Setting" section and click on the ON button.

NOTE:
If you use the SPDIF function, you cannot use the Stereo Audio Output function at the same time.

2. HARDWARE INSTALLATION

2.1. Handling the DVD Decoder Board

WARNING: Static electricity can damage your equipment. Do not take the card out of its static protective bag until you are ready to work with it.

Follow these precautions when handling the board:

- Before you open the static protective bag, touch it to a metal expansion slot cover on the back of your computer. This drains static electricity from the package and from your body.
- Do not touch any exposed printed circuitry after opening the package.
- Keep other people from touching the board. They might have a static-electricity build-up.
- Limit your movement. Movement causes a build-up of static electricity.

2.2. Installing the DVD Decoder Board

Step 1. Turn off the system and all peripheral devices.

Step 2. Disconnect the power cord and all peripheral devices from the system.

Step 3. Remove the system cover and identify an unused PCI slot.

Step 4. Unscrew the slot cover plate, plug in the DVD Decoder Board, and tighten it with the screw.

Step 5. **A) You must have one of the following VGA Cards to use the VIDEO OVERLAP Function:**

- ⇒ S3 (Trio 64K V2/DX, Trio 64V+)
- ⇒ S3 (Virge, Virge DX/GX2)
- ⇒ Cirrus Logic (CL5446, CL5465, CL5480)
- ⇒ ATI (Rage II, Rage II+, RagePro)
- ⇒ Trident 3D image 795
- ⇒ Nvidia Riva 128

Plug the **26-pin flat ribbon cable** into the 26-pin internal **Feature Connector CN1** on the DVD Decoder Board and connect it directly with the other Feature Connector of your VGA Card. Pin 1 of the flat ribbon cable is usually denoted with a red strip.

B) If you do not have one of the above mentioned VGA Cards, you can use the *Full Screen Function* only.

Plug the **LOOP BACK cable** into the 9-pin female MINI-DIN connector **J6** on the DVD Decoder Board and the other side to your VGA Card. The VGA Monitor cable connect to J7.

Step 6. Plug the **RCA cable** into the RCA Jack **J5** (Composite Video) on the DVD Decoder Board and connect it with your TV set. If your TV set supports S-Video input, you can connect an S-VIDEO cable to **J4,** in order to get a better video quality.

Step 7. Put back the system cover, reconnect the system power cord and all peripheral devices. Check and make sure all connections are correct before you turn on the system.

NOTE: You can use only one of the above mentioned methods. (Either Step 5 or Step 6).

3. SOFTWARE INSTALLATION

3.1. Software Contents

There are two diskettes which come with this package, labeled:

"PCI DVD Decoder DRIVER/APPLICATION 1"
"PCI DVD Decoder DRIVER/APPLICATION 2"

Those diskettes include the device drivers and application software for Windows 95.

3.2. Device Driver and Application Installation Under Windows 95

IMPORTANT NOTE ON VPM INSTALLATION:
VPM drivers are provided by your graphics card vendor. We have created this installation guide to help you play back DVD titles on your computer monitor using the PCI DVD board and your graphics card.

This PCI DVD board currently supports the following VGA chips :

- S3 Trio64KV2/DX S3 Trio64V+ S3 Virge DX/GX2
- Cirrus Logic CL5446/ Cirrus Logic CL5480/ Cirrus Logic CL5465
- ATI Rage II/ ATI Rage II+/ ATI Rage Pro
- Nvidia Riva 128
- Trident 795

The PCI DVD Player Installation includes a VPM Initialization file - luxvpm.ini - that is installed along with the other player files. The user must edit the [VGA] entry of this file to specify the type of VGA card being used - S3, CL5446, CL5480, ATIRAGE2, RIVA_128, CL5465, TRIDENT975.

If you have not already done so, please consult the document entitled "readme.txt" before you proceed with the VPM installation. Please follow the step-by-step instructions using the section that describes your graphics card.

3.2.1. General Advice on how to install the Application Software

A) Under *FULL SCREEN* INSTALLATION

When installing the device driver under FULL SCREEN you do not need to install the VPM and DirectX3 device driver, since the installation of them is VGA card independent. Please use the RUN command from the START menu to run the SETUP.EXE file.

B) Under *OVERLAP SCREEN* INSTALLATION

If you want to install the application software under OVERLAP SCREEN, please follow the step-by-step installation guide described in the following chapters.

3.2.2. Installation of S3 Trio64V2/VirgeDX

Step 1. Insert the S3 PCI display adapter into target system. When prompted, insert the associated display driver diskette/s. Windows will ask for system shutdown.

Step 2. When re-booted, install the S3 DirectX3 runtime components. Also install S3 VPM software. The system will ask to be restarted.

Step 3. Upon shutdown, install PCI DVD board. Connect feature connector ribbon cable between the PCI DVD board and display adapter - verify that Pin 1 of display adapter feature connector corresponds to Pin 1 of PCI DVD board VMI VPORT connector.

Step 4. Once Windows has started you will be asked to install the PCI DVD Player device driver. Install the device driver from the installation diskette, labeled **"PCI DVD Decoder DRIVER/APPLICATION 1"**.

Step 5. After you have finished the installation of the device driver, use the RUN command from the START menu to install the Application Software.
Use the command "SETUP.EXE" and click OK. Follow the on-screen instructions of the SETUP program to complete the installation.

NOTE: Optimal Video Quality is currently only obtainable under 256 color scheme

3.2.3. Installation of CIRRUS LOGIC CL5446/CL5480/ CL5465

Step 1. Insert the Cirrus Logic PCI display adapter into target system. When prompted, insert the associated display driver diskette/s. Windows will ask for system shutdown.

Step 2. Upon shutdown, install PCI DVD board. Connect feature connector ribbon cable between the PCI DVD board and display adapter - verify that Pin 1 of display adapter feature connector corresponds to Pin 1 of PCI DVD board VMI VPORT connector.

Step 3. Once Windows has started, install the PCI DVD Player device driver. Install the driver from the installation diskette, labeled **"PCI DVD Decoder DRIVER/APPLICATION 1".**

Step 4. After you have finished the installation of the device driver, use the RUN command from the START menu to install the Application Software. Use the command "SETUP.EXE" and click OK. Follow the on-screen instructions of the SETUP program to complete the installation.

NOTE: Cirrus CL5465 only performs video overlay in 256 colors

3.2.4. Installation of ATI Rage II/Rage II+/Rage PRO

Step 1. Insert the ATI PCI display adapter into target system. When prompted, insert the associated display driver diskette/s. Windows will ask for system shutdown. When re-booted install the ATI VPM software.

Step 2. Upon shutdown, install PCI DVD board. Connect feature connector ribbon cable between the PCI DVD board and display adapter - verify that Pin 1 of display adapter feature connector corresponds to Pin 1 of PCI DVD board VMI VPORT connector.

Step 3. Once Windows has started, install the PCI DVD Player device driver. Install the driver from the installation diskette, labeled **"PCI DVD Decoder DRIVER/APPLICATION 1".**

Step 4. After you have finished the installation of the device driver, use the RUN command from the START menu to install the Application Software. Use the command "SETUP.EXE" and click OK. Follow the on-screen instructions of the SETUP program to complete the installation.

3.2.5. Installation of NVIDIA RIVA 128

Step 1. Insert the Nvidia PCI display adapter into the target system. When prompted, insert the associated display driver diskette/s. Windows will ask for system shutdown.

Step 2. Upon shutdown, install PCI DVD board. Connect feature connector ribbon cable between the PCI DVD board and display adapter - verify that Pin 1 of display adapter feature connector corresponds to Pin 1 of PCI VMI VPORT connector.

Step 3. Once Windows has started, install the PCI DVD Player device driver. Install the driver from the installation diskette, labeled **"PCI DVD Decoder DRIVER/APPLICATION 1".**

Step 4. After you have finished the installation of the device driver, use the RUN command from the START menu to install the Application Software. Use the command "SETUP.EXE" and click OK. Follow the on-screen instructions of the SETUP program to complete the installation.

NOTE: 1.) The Riva 128 requires Microsoft DirtectX5 Runtime Components to be installed on the system.
2.) Video Overlay available only under 256 colors

3.2.6. Installation of TRIDENT 975

Step 1. Insert the Trident PCI display adapter into target system. When prompted, insert the associated display driver diskette/s. Windows will ask for system shutdown.

Step 2. Upon shutdown, install PCI DVD board. Connect feature connector ribbon cable between the PCI DVD board and display adapter - verify that Pin 1 of display adapter feature connector corresponds to Pin 1 of PCI DVD board VMI VPORT connector.

Step 3. Once Windows has started, install the PCI DVD Player device driver. Install the driver from the installation diskette, labeled **"PCI DVD Decoder DRIVER/APPLICATION 1".**

Step 4. After you have finished the installation of the device driver, use the RUN command from the START menu to install the Application Software. Use the command "SETUP.EXE" and click OK. Follow the on-screen instructions of the SETUP program to complete the installation.

3.3. VPM Capabilities for VGA Cards

3.3.1. VPM CAPABILITIES for the S3 KV2 GRAPHICS CHIP

16 Colors: 640x480/ 800x600/ 1024x768	FAIL	FAIL	NA
8-bit Color: 640x480/ 800x600/ 1024x768	OK	OK	OK
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	OK	OK	OK
True Color: 24 bit/ 640x480/ 800x600/ 1024x768	FAIL	NA	NA

3.3.2. VPM CAPABILITIES for the S3 ViRGE DX GRAPHICS CHIP

16 Colors: 640x480/ 800x600/ 1024x768	FAIL	NA	NA
8-bit Color: 640x480/ 800x600/ 1024x768	OK	OK	OK
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	OK	OK	OK
True Color: 24 bit/ 640x480/ 800x600/ 1024x768			
VPM Test	FAIL	FAIL	FAIL
Win95	Spot**	Spot**	Spot**
OSR2	Spot**	Spot**	Spot**

** Spot: Pink spots shown but images quality are OK. Spots disappear when display window is resized.

3.3.3. VPM CAPABILITIES for the CL5480 GRAPHICS CHIP

16 Colors: 640x480/ 800x600/ 1024x768	FAIL	FAIL	NA
8-bit Color: 640x480/ 800x600/ 1024x768	OK	OK	OK
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	OK	OK	OK (> 60Hz Refresh)
True Color: 24 bit/ 640x480/ 800x600/ 1024x768	OK	OK	NA

3.3.4. VPM CAPABILITIES for the CL5446 GRAPHICS CHIP

8-bit Color: 640x480/ 800x600/ 1024x768	OK	OK	FAIL
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	OK	OK	FAIL
24-bit Color: 640x480/ 800x600/ 1024x768	FAIL	FAIL	NA

3.3.5. VPM CAPABILITIES for the ATI Rage II/Rage II+/Rage Pro GRAPHICS CHIP

16 Colors: 640x480/ 800x600/ 1024x768	FAIL	NA	NA
8-bit Color: 640x480/ 800x600/ 1024x768	FAIL	OK	OK
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	FAIL	OK	OK
True Color: 24 bit/ 640x480/ 800x600/ 1024x768	FAIL	FAIL	NA

3.3.6. VPM CAPABILITIES for the NVIDIA RIVA 128 GRAPHICS CHIP

16 Colors: 640x480/ 800x600/ 1024x768	FAIL	NA	NA
8-bit Color: 640x480/ 800x600/ 1024x768	OK	OK	OK
High Color: 16 bit/ 640x480/ 800x600/ 1024x768	FAIL	FAIL	FAIL
True Color: 24 bit/ 640x480/ 800x600/ 1024x768	FAIL	FAIL	NA

Reference
Version 1.0