

# **16X DVD-ROM DRIVE**

**User's Manual**

**CLASS 1 LASER PRODUCT**  
**APPAREIL A LASER DE CLASSE 1**  
**LASER KLASSE 1**  
**LUOKAN 1 LASERLAITE**  
**PRODUIT LASER**  
**CATEGORIE 1**

**DANGER** INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM

**VORSICHT** INSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN

**ATTENTION** RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION AUX RAYONS.

### **LASER**

#### ◆ for DVD

Type	Semiconductor laser GaAs
Wave length	635-665 nm
Output Power	Typical

#### ◆ for CD

Type	Semiconductor laser GaAlAs
Wave length	760-810 nm
Output Power	Typical

### **Copyright Statement**

It is a criminal offence, under applicable copyright laws, to make unauthorised copies of copyright-protected material, including computer programs, films, broadcasts and sound recordings. This equipment should not be used for such purposes.

### **FCC Compliance Statement**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

### **FCC Warning 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 correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the 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.

### **CAUTION**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **FOR EUROPE**



"The drive is in conformity with the EMC directive and low-voltage directive."

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## INTRODUCTION

Welcome to a multimedia world of DVD technology. This high-performance DVD-ROM drive of ATAPI interface plays DVD titles at maximum 16X DVD-ROM speed and plays CD-ROMs at maximum 48X speed. With the bundled software, you can enjoy the wide range of educational and entertaining CD/DVD titles with theater quality.

DVD stands for Digital Versatile Disc or Digital Video Disc which has high-density capacity of storing 4.7 gigabytes of data on single side and up to 17GB on double side and dual layer. In addition, a DVD is MPEG-2 compressed video compatible and has Dolby Digital Surround Sound audio (known as AC-3) capabilities. That is, the combination of DVD titles, your stereo setup and this DVD-ROM drive package will bring you incredible sound and visual effect.

Here are some important features:

- ◆ 5.25" half-height internal drive
- ◆ Fast speed and quick access time
- ◆ High data transfer rate (CAV\* technology)
- ◆ Efficient power saving feature
- ◆ Superior error recovery
- ◆ Reading capability of single/dual layer DVD-ROM/Video discs, CD-DA, CD-ROM, CD-ROM XA, CD-I, Photo CD, Video CD, CD Extra, CD-Text, CD-R, CD-RW
- ◆ Horizontal & Vertical operation
- ◆ Good vibration resistance & low noise

\*CAV: Constant Angular Velocity

## System Requirements

To install and use the DVD-ROM drive, it is recommended that you have the following for your PC system:

- ◆ A Pentium™ II 350 MHz or faster CPU
- ◆ 16 MB RAM (32MB is recommended.)
- ◆ 2 MB free hard disk space
- ◆ 16-bit SoundBlaster™ compatible sound card
- ◆ Amplified stereo speakers
- ◆ Microsoft™ Windows 95/98/Me/NT/2000/XP

To run DVD titles with DVD playback software installed, the basic requirements recommended:

- ◆ Microsoft™ Windows 95/98/98SE/Me/NT4.0 SP5+/2000/XP
- ◆ Intel Pentium II 350MHz or above
- ◆ At least 32 MB RAM
- ◆ 16-bit SoundBlaster™ compatible sound card
- ◆ DVD-ROM drive
- ◆ Display card supporting DirectDraw

☞ *For detailed information, please refer to the software package you use.*

## Package Contents

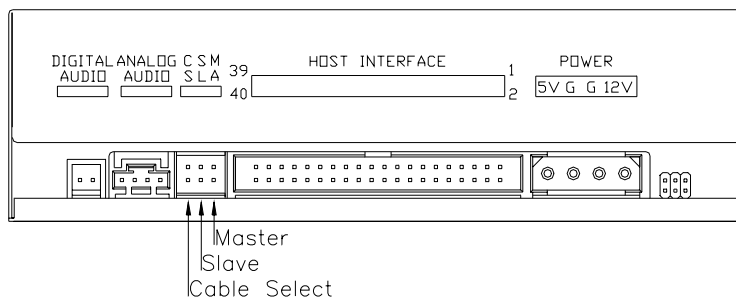
The package contains the following items:

1. DVD-ROM drive
2. Application CD –including application software
3. Audio cable

## INSTALLATION

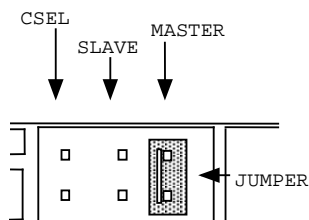
### Host Interface Connections

Most current mainboard models have two IDE ports (primary and secondary) which can connect two IDE cables. Two IDE cables allow you to connect up to four devices, but it is recommended that you separate IDE ports for your hard drive and your DVD-ROM drive.



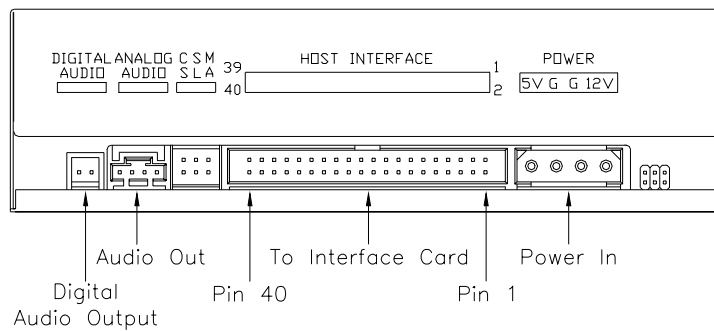
If you connect only one device on the IDE cable, you can set the jumper as “master” or “slave”.

If you connect two devices (e.g. DVD-ROM & CD-RW) on the same cable, set different jumpers for each device (DVD-ROM as “master”, CD-RW as “slave” and vice versa.) The same rule applies to the connection of having your hard disk and one other device on the same cable.



## Hardware Installation

1. Turn off the power to your computer system and all peripheral devices.
2. Disconnect all cables and connectors from the back of your computer, and then remove the cover from the computer.
3. Insert the DVD-ROM drive into one of the vacant 5.25" drive bays and secure it to your PC with all four mounting screws.
4. Connect one end of the 40-pin IDE cable to the IDE connector of the DVD-ROM drive and the other end to the IDE port on your motherboard.



☞ **The red-edge of the IDE cable must be connected to Pin 1 on the DVD-ROM drive.**

5. If you have a sound card that can be connected to this DVD-ROM drive, you can also connect the DVD-ROM drive (as Audio-Out) and the sound card (as Audio-in) with a 4-pin audio cable.

If your mainboard is integrated with built-in sound system, plug the 4-pin audio cable into the CD-IN connector on the mainboard as Audio-in.

6. Re-attach the cover of your computer, and reconnect all power cords to the computer.

## Driver Installation

### For Windows Environment

This DVD-ROM drive is a Plug & Play device. Windows 95/98//Me, and Windows NT/2000/XP will **automatically detect** the drive and **load** the appropriate driver.

If Windows cannot detect the drive, you can operate manually:

1. Click the **Control Panel** icon in **My Computer** and then click **Add New Hardware**. The Add New Hardware window appears.
2. The program will automatically search for your new drive and load the appropriate driver.

## Software Installation

To install DVD playback software under Windows operating system, you could either:

1. Insert the application CD and the installation program will run automatically.

Or

2. Run:\setup.exe on the application CD.

## DVD Region Coding

### Region Playback Control Management

All DVD Video Playback systems have “Region Playback Control” (RPC) which is required by Hollywood movie industry and defined by DVD Forum. You can only play DVD-Video discs with the same region code as your DVD-Video Playback system.

As for DVD-ROM drives, one kind of the DVD-Video Playback system, there are 2 types:

**RPC Phase 1 (as RPC1):** RPC1 drives do not have built-in hardware support for region management. DVD-ROM drives of this kind don't play a part in controlling the playback region. It solely depends on the decoder.

**RPC Phase 2 (as RPC2):** RPC2 drives maintain the region change count information in hardware, and in general, the region of such drives can be changed up to 5 times by the end users under some software decoder. (e.g. PowerDVD)

### Region Codes

**Region 1:** Canada, U.S.

**Region 2:** Japan, Europe, South Africa, and Middle East, Egypt

**Region 3:** Southeast Asia and East Asia

**Region 4:** Australia, New Zealand, Pacific Islands, Central America, Mexico, South America, and the Caribbean

**Region 5:** Eastern Europe, Indian subcontinent, Africa, North Korea, and Mongolia

**Region 6:** China

## DVD Video Decoder for PC Systems

There are three types of DVD-Video decoders on the market:

Type 1: The RPC code has been set by the manufacturer and can't be changed.

Type 2: The RPC code can be changed up to the maximum of four times (except the initial setting).

Type 3: With RPC Phase 2 drives, the DVD-Video decoder copies the same region code as the drive

Here is a table to help you understand how DVD-ROM drives and the decoder (DVD MPEG cards or DVD playback software) work together for region code setting.

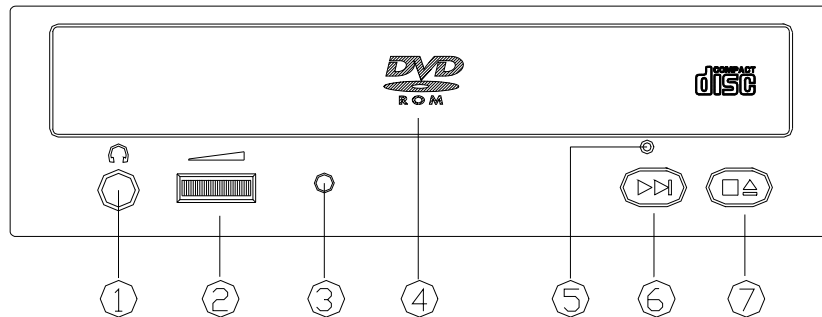
DVD Decoder	DVD Drive	
	RPC Phase 1	RPC Phase 2
Type 1	Decoder	Decoder & Drive
Type 2	Decoder	Decoder & Drive
Type 3	Decoder	Decoder & Drive

### About This DVD-ROM Drive

This DVD-ROM drive you have purchased is a PRC2 drive and the first region code will depend on the DVD title you play. You are allowed to modify the region code 5 times. After the fifth alteration, the region code will be locked and only those DVD titles of the same region code could be played afterwards, so set the code carefully.

## OPERATION & CONNECTION

### Front Panel



#### 1. Headphone Jack

By plugging in the stereo mini jack here, you can listen to audio CD with headphones.

#### 2. Headphone Volume Control

This rotary knob adjusts the volume level of the headphone output. Turning the wheel to the right will increase the audio volume.

#### 3. Led Indicator (dual color)

**Orange** LED for DVD series discs.

**Green** LED for CD family discs.

The indicator flashes Orange and Green when a disc is being loaded and identified and it goes off when the disc is ready.

The indicator flashes when the drive is playing an audio disc or reading a data disc.

#### 4. Disc Tray

This is the tray for the disc. Place the disc in the tray, then press the Close/Eject button or gently push the tray to close it.

### 5. Emergency Eject Hole

When the Eject/Close button doesn't work properly and the disc tray can't be opened, you can insert a paper clip or other small rod into this hole for manual ejection. Please make sure to power off the system before you do that.

### 6. Play/Skip button

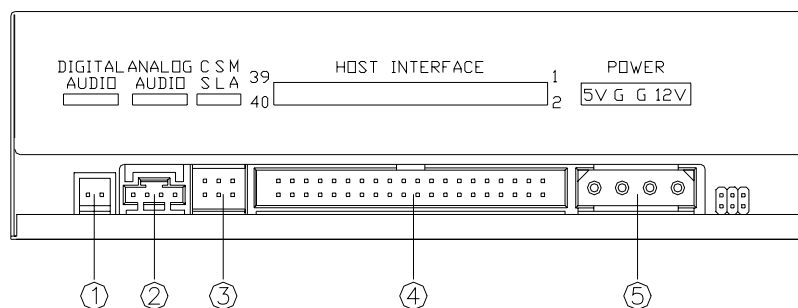
Press this button to play tracks or skip to next track during the playing state.

### 7. Open/Close/Stop/Eject button

This button opens and closes the disc tray. If the tray is closed, pressing the button will eject it. If the drive is playing, pressing this button will stop playing.

*Note: The design of front panel is subject to change without notice.*

## Rear View



### 1. Digital Audio Output Connector

If your sound card has a digital audio IEC958 format connector, you can connect it to this digital audio output connector with a 2-pin audio cable.

### 2. Analog Audio Output Connector

This connector allows you to connect the drive to your sound card with a 4-pin audio cable.

**3. Device Configuration Jumper**

Set the jumper to Master, Slave or Cable Select according to your system configuration.

**4. IDE Interface Connector**

Plug one end of the 40-pin IDE cable here to join the 40-pin IDE connector on the motherboard. The red-edge of the IDE cable must be connected to Pin 1 of each connector.

**5. Power Supply Connector**

By plugging the computer's power supply cable here, you can connect the DVD-ROM drive and your computer system.

## TECHNICAL DATA

### Drive Performance

Data Transfer Rate	DVD-ROM Single layer: 21632KB/s(16X Max.) Dual layer: 13520 KB/s(10X Max.) CD-ROM: 7200KB/s (48X Max.)
Average Access Time ( $\frac{1}{3}$ stroke)	DVD-ROM: 120ms CD-ROM: 95ms
Interface	E-IDE/ATAPI Interface
Data Buffer Memory size	512KB
Burst Rate	PIO Mode 4 – 16.7MB/s Multiword DMA Mode 2–16.7MB/s Multiword UDMA Mode 2–33.3MB/s

### Compact Disc

Disc Size	80mm and 120mm discs
Disc Data Capacity	DVD-ROM: Single layer – 4.7GB Dual layer – 8.5GB (one side) CD-ROM Mode 1: 650MB CD-DA: 747MB
Disc Format Compatibility	
CD Family	CD-DA, CD-ROM, CD-ROM XA, CD-I, Photo CD, Video CD, CD Extra, CD-Text, CD-R, CD-RW,
DVD Family	DVD-Video, DVD-ROM, DVD+RW, DVD-RW

### Physical Specification

Drive Type	5.25" Half-Height Built-in Drive
Mounting Orientation	Horizontal & Vertical
Disc Loading	Tray (motorized)
Audio output level	Line out = $0.6 \pm 10\%$ Vrms Headphone out = $0.6 \pm 10\%$ Vrms
Power Requirements	5V $\pm$ 5%, 12V $\pm$ 10%
Dimension	
Height	41.8 $\pm$ 0.3 mm
Width	148.6 $\pm$ 0.3 mm
Depth	177 $\pm$ 0.3 mm
Weight (net)	0.9kg

### Environment

Temperature	
Operating condition	5°C ~ 45°C
Storage condition	-30°C ~ 60°C
Humidity	
Operating condition	8% ~ 80% (no condensation)
Storage condition	5% ~ 90% (no condensation)



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