
CD-ROM

Installation Guide

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CD-ROM Installation Guide

This guide covers the following topics:

- The CD-ROM Package
- CD-ROM Features
- Installing The CD-ROM Software
- Installing The CD-ROM Hardware
- Using Your CD-ROM

Manual Features

This manual uses some icons to call your attention to important information. The icons represent the following:



- Important information



- A recommendation or good idea

Please take a moment to review the manual before installing your CD-ROM drive.

The CD-ROM Package

The CD-ROM package includes the following:

Hardware:

- IDE ATAPI CD-ROM drive
- Audio connector cable
- Mounting screws (4)

Software:

- CD-ROM disk (1)
- Installation Guide

Please make sure that all of these items are present. If anything is missing, contact your vendor for instructions.

The CD-ROM floppy disk has the following software on it:

- CD-ROM IDE device driver (for DOS)
- Driver installation program
- CD-ROM on-disk Hardware Guide
- CD Xpress – buffer management software
- CD Buffer Control Utility – buffer creation utility

CD-ROM Features

The CD-ROM is a combination hardware/software CD-ROM drive solution that provides greatly enhanced performance over conventional CD-ROM drives.

The CD-ROM is a combination of CD-ROM drive hardware and a hard disk drive data buffer which we call the SmartSpace. You reserve space for the SmartSpace buffer on a hard disk in your computer using the Buffer Control Utility that is part of the CD-ROM package. Once the buffer space is reserved, the supplied CD Xpress software creates the buffer and manages CD-ROM data buffering to it.

The benefits of this solution include:

- **Performance Enhancement**
Maximum transfer rates up to 16.6MB/sec or even 33.2MB/sec with an Ultra DMA mode hard disk drive. Average access times of less than 13ms.
- **Greater Reliability**
Lower motor and spindle rotation speed than drives with higher hardware X-factor reduces wear and extends drive life while limiting vibration.
- **Longer Life-Cycle**
Majority of data access is from the hard disk SmartSpace buffer, reducing wear on the CD-ROM drive and extending its life-cycle.
- **Avoids The Upgrade Cycle**
No need to continually upgrade your CD-ROM to the next hardware 'X-factor'; maximum performance is built-in.
- **'Programmable' Drive Performance**
You select the performance level by defining the buffer size, giving you multiple performance options.

CD-ROM – How It Works

CD-ROM utilizes the high performance of a hard disk drive to accelerate access to the CD-ROM drive. The CD Xpress software reads and copies data from the CD-ROM drive to a dedicated SmartSpace buffer on a system hard disk drive. CD-ROM reads access the hard disk buffer rather than the CD-ROM drive, resulting in greatly increased access speed and transfer rate with negligible system performance penalty.

CD-ROM works seamlessly with both the Operating System and all applications that access the CD-ROM drive. When a new CD is inserted in the drive, CD-ROM starts buffering the CD contents automatically. With CD-ROM, data is only transferred from the CD to the buffer when the hard disk and CD-ROM are idle, so there is no noticeable effect on system performance.

CD-ROM performance enhancement depends mainly on the capabilities of the hard disk used for the buffer. This makes the CD-ROM drive 'X-factor' less significant when determining the effective speed of the total solution. More important is the performance of the hard disk drive used for the SmartSpace buffer. The higher the hard disk performance, and the larger the buffer space, the greater the effective speed of the CD-ROM. Ultra DMA transfer mode hard disk drives provide maximum performance.

Installing The CD-ROM Hardware

To install the CD-ROM drive you need to do the following things:

1. Verify all the necessary components are present.

You should have the following:

- CD-ROM drive
- Screws
- Connecting cables – Audio cable, IDE ribbon cable & power lead

The audio signal cable comes with the CD-ROM. The IDE and power cables are part of your computer system. If your current system configuration doesn't have an available IDE connector, you will need to obtain an additional IDE cable. These are inexpensive and widely available.

2. Set the IDE drive mode jumper – default is Slave

The options are Master, Slave and Cable Select. IDE channels have two positions, Master and Slave. On a board with two channels, Primary and Secondary, each channel has a Master and a Slave. The Master is the first device, the Slave the second. In a system with an IDE hard disk drive as the primary hard disk, that drive is the Primary Master.

3. Install the CD-ROM drive in a vacant 5.25-inch expansion bay in your computer.

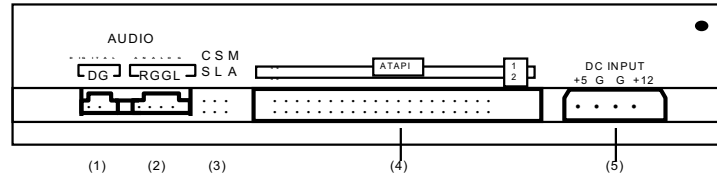
Refer to your computer system manual for instructions on installing peripheral devices in the system expansion bays.

4. Connect an IDE cable and power cable to the rear of the drive.

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Configuring & Installing The CD-ROM Drive

The figure below indicates the position of components on the rear of the CD-ROM drive.



(1) Audio - Digital Out Connector

Digital audio output for low noise transmission.

(2) Audio - Analog Out Connector

Two channels, left and right audio outputs.

(3) Drive Mode Selection Jumpers

Sets the drive mode (Master or Slave)

(4) IDE Interface Connector

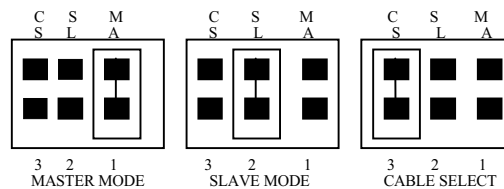
Connects to IDE host adapter with 40-pin IDE cable.

(5) DC(In) Power Connector

Input for power lead from the system power supply.

The basic procedure goes like this:

1. Set the IDE drive mode. The figure below shows the jumper positions. To change the Slave default setting, pull the jumper cap off the pins and put it on the pins for the other setting.



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2. Slide the CD-ROM drive into an open expansion bay and secure it in the bay with the screws that come with the drive.

The screws insert through the sides of the expansion bay into the holes on the drive, two screws on each side. There are four holes on each side to facilitate positioning in a variety of bay designs.

3. Connect the IDE cable to the CD-ROM drive.

Orient the cable so that the colored edge is at the Pin 1 side of the connector on the drive. If the drive is set to Slave mode, you must use the connector in the middle of the IDE cable. If the drive is set to Master mode, use the connector on the end of the cable.



The other end of the IDE cable connects to the system's IDE controller, which may be an expansion card or may be integrated onto the system mainboard, in which case, there will be an IDE cable connector on the mainboard.

In the default scenario, the Master connector on the cable is connected to the system primary IDE hard disk drive and the Slave connector attaches to the CD-ROM drive.

4. Plug a power cable from the system power supply into the DC (In) power connector on the CD-ROM drive.
5. Connect the single end of the audio cable to the Analog Out connector on the CD-ROM drive and the other end to the system sound card or mainboard onboard audio connector using whichever of the two connectors fits.



Remember, you should refer to your system manual for instructions specific to your system. Always unplug everything before working on your system and take precautions against damage from static electric discharge.

Setting Up The CD-ROM Software

There are three software components in the CD-ROM package:

- CD-ROM IDE device driver – IDE device driver for MS-DOS
- CD Buffer Control Utility – reserves buffer space on a formatted hard disk drive
- CD Xpress – creates and manages the SmartSpace buffer

You should install these on your system hard disk drive following this sequence:

- Install Windows 95 if not already installed.
- Install the CD-ROM IDE device driver.
- Run the CD Xpress Setup program on the CD-ROM floppy disk to install CD Xpress and the CD Buffer Control Utility on your hard disk drive.
- Use the CD Buffer Control Utility to reserve hard disk space for the SmartSpace buffer on the target hard disk drive.
- Run CD Xpress to create and manage the SmartSpace buffer in the space reserved by the CD Buffer Control Utility.

To install Windows 95 see the instructions that come with it.

Installing The IDE Device Driver

To install the CD-ROM IDE device driver do the following:

Prerequisite For Installation

For users with MS-DOS versions prior to 6.0:

1. Obtain a current version of MSCDEX.EXE, version 2.22 or above from your system vendor or Microsoft.
2. Copy the MSCDEX.EXE file into the MS-DOS directory (e.g. C:\DOS)

CD-ROM Device Driver Installation

Full instructions for installing the IDE device driver are in the disk-based CD-ROM manual on the CD-ROM floppy disk.

1. Insert the CD-ROM floppy disk in drive A: (or B:).
2. Change the DOS prompt to A:\> (or B:\>).
3. Type INSTALL and press the Enter key.
4. Follow the on-screen instructions.

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Installing Under Windows 95, Windows NT & OS/2 Warp

Please refer to the Windows 95, Windows NT or OS/2 WARP installation guide for instructions.

Note: When installing OS/2 Warp, please use on-listed IDE CD-ROM" to install the CD-ROM. Otherwise, the drive won be detected by the operating system.

Installing The CD Xpress Software

To install and configure the CD Xpress software follow these steps:

1. Install the CD Xpress software:

Run the Setup program on the CD-ROM floppy disk to install the CD Xpress software on your hard disk drive.

- a. Insert the CD-ROM floppy disk in drive A: (or B:).
- b. Run the Setup program from Windows 95.
- c. Follow the on-screen instructions.

When you install the CD Xpress software, the Setup program automatically creates a Highpoint CD Xpress folder in the Program Files folder on C: drive. The folder contains the CD Xpress, CD Buffer Control, Clear CD Buffer, Stop CD Xpress, Uninstall and ReadMe file icons.



The "Readme.txt" file on the CD-ROM floppy disk contains additional information about installing and using CD Xpress.

2. Use the Buffer Control Utility to reserve disk space for the SmartSpace buffer.

You can run the CD Buffer Control Utility later to change the buffer size or remove it. See the detailed instructions in the next section.

Please Note: The IDE device driver is for using the CD-ROM drive as an unbuffered IDE CD-ROM drive under MS-DOS. CD Xpress does not require this driver to operate under Windows 95. If you don need to use the CD-ROM drive under DOS you don need to install the driver. CD Xpress does not operate in DOS mode.

Using The CD Buffer Control Utility

The CD Buffer Control Utility reserves space from the end of the target hard disk drive's storage space. You can use it to both reserve and resize the buffer space. To run the utility and reserve hard disk buffer space, do as follows:

1. After installation, run the CD Buffer Control Utility from the Highpoint CD Xpress folder on the hard disk drive.
2. The first program screen will appear. Press the Enter key to proceed.
3. The next screen will show a list of the installed CD-ROM drives and ask you to select the target drive.
4. The next screen will show a list of the installed hard disk drives and ask you to select the target drive.



If there is no buffer space already set aside, the reserved amount will be 0 MB. You then change this to the amount of buffer space you require in the next step.

5. The next screen displays the maximum amount of space available for buffer space in megabytes. Reserve the buffer space needed for the performance level you want by pressing the Enter key. See the next section for information on selecting the buffer size.
6. A confirmation screen comes up next. To confirm you want to reserve the buffer space, press the Enter key.

Understanding Buffer Size & Performance

The buffer size you reserve directly affects the performance of the CD-ROM. When CD Xpress is installed, it automatically buffers the data on a CD-ROM disk inserted in the CD-ROM drive. If the amount of data on the disk is larger than the buffer size, only a portion of the data can be buffered, resulting in some performance degradation.

If the data on the disk is smaller than the buffer size, all the data is buffered, boosting performance (access time and transfer rate) to that of the hard disk the buffer is on. Since many CD-ROM titles do not use a disk entire storage space, the entire disk may be buffered even if the buffer size is smaller than 650MB.

The CD-ROM effective performance depends on two factors, the performance of the hard disk drive you use for the SmartSpace buffer, and whether or not the SmartSpace is large enough to buffer all the data stored on a given disk. You can decide how much disk space to devote to improving CD-ROM performance versus conserving disk space for conventional uses.

Using Your CD-ROM Drive

Once you installed both the software and hardware components in your Windows 95 system, you can enjoy the benefits of the CD-ROM high performance while using the CD-ROM in a normal fashion. The front panel controls are shown in the figure below.

- (1) Headphone Jack – Accepts a 3.5mm stereo mini plug.
- (2) Volume Control – Adjusts the headphone volume.
- (3) Activity Indicator – Flashes when data is being accessed from a disc, or when the drive is playing an audio CD.
- (4) Disc Tray – Holds discs (label up) in the drive. Opens using (6).
- (5) Play/Next Track Button – Plays an audio CD or skips to the next track of an audio CD once it is playing.
- (6) Load/Eject Button – Opens and closes the Disc Tray to allow loading or removing a CD. Stops playing an audio CD. The disc tray is motorized and extends automatically.
- (7) Mechanical Eject – If software eject and the Eject button fail to eject a disc, you can make the tray release manually by gently pushing a thin wire (e.g. a straightened paper clip) into this hole.



For specifications and other detailed information, see the drive instruction manual on the CD-ROM floppy disk.

See the 'readme' file on the CD-ROM floppy disk for any post-publication advisories.