Part Three

Selecting Multimedia Hardware

Buying a multimedia computer may be the most complicated shopping you ever do. Four factors make it difficult. First, because there is no industrywide standard for multimedia, each vendor creates its own brand and produces multimedia applications that work with only its brand. Potential buyers hesitate because they know that getting Brand X will prevent them from running applications made for Brand Y. Second, there are so many options you can add on to a multimedia computer that even once you decide which brand to buy, you might still find it confusing when choosing multimedia peripherals. Third, it is hard to get a list of all the options that are available because vendors are interested in showing only those they sell. Finally, once you buy your computer and select the options you want, installing and getting them to work can be complicated and time-consuming.

The next four chapters in this book will help you overcome these dilemmas. The good news is that once you finally do get your multimedia computer up and running, you should not have many (hopefully, not any) problems. In other words, most of the difficulty will happen right at the beginning, and if you can persevere through the startup problems, your time and effort will be repaid by the many benefits you will reap from your multimedia computing.

10

Competing Multimedia Standards

After completing this chapter, you will be able to:

■ **Understand the competing standards of multimedia and comprehend what is meant by the phrase** *multi multimedia*

■ **Realize how lack of standardization retards the progress of multimedia development**

■ **Consider the level at which standardization would be appropriate**

■ **Know which multimedia formats will have the most longevity**

■ **Understand the basic architecture of the Microsoft MCI (Media Control Interface)**

■ **Gauge the market penetration of Apple's QuickTime**

■ **Know how Jini extends the concept of Sun's Java to everyday appliances**

■ **Consider the expanding role of Sony's PlayStation as a platform for educational multimedia**

● The multimedia computer industry is beset by an unfortunate lack of standardization. Instead of uniting the nation's best minds toward creating a compatible cross-platform system for multimedia, the computer industry is hard at work creating multiple standards and competing products. If this were happening accidentally, one might be more willing to tolerate the situation. Instead, vendors deliberately create disparity to differentiate their products from the competition and to make past purchases obsolete so customers will buy more hardware. In the area of graphics alone, there are more than 30 so-called standards for storing pictures in computer files. When an industry provides 30 different ways of doing something, there is no standard.

Computer industry leaders fail to recognize how self-defeating this lack of standardization is. They should learn a lesson from the musicians. During the early 1980s, the National Association of Music Merchants and the Audio Engineering Society began to discuss how a lack of standards was retarding the market for music synthesizers. Consumers were afraid to buy a keyboard because there was no guarantee that it would be compatible with later models in the same product line, much less with synthesizers made by other vendors. In 1983, the Musical Instrument Digital Interface (MIDI) standard was released, and all of the music merchants endorsed it. Consumers were no longer afraid of obsolescence, and music synthesizer sales mushroomed. Vendors made more money not so much because their market share increased, but because the entire market grew exponentially as a result of standardization.

Multi Multimedia

Instead of having one multimedia standard, consumers are faced with a complicated array of competing software and hardware platforms that the author (Hofstetter 1993) describes as "multi multimedia." When you create an application, you must be careful to store your objects in formats that will have the most longevity and compatibility. Otherwise the time and effort you spend will have to be reinvested when the so-called standards change.

Microsoft's MCI

Microsoft's MCI provides Windows users with a strategic approach to coping with this lack of standardization. *MCI* stands for Media Control Interface. The purpose of the MCI is to provide a device-independent means of developing multimedia software. The idea is that vendors who make multimedia hardware supply an MCI translation table for each device. Instead of hard-coding applications to specific devices, developers use MCI commands that get converted automatically by the translation table into the specific instructions needed to control the device. The MCI commands consist of generic multimedia instructions such as PLAY, RECORD, PAUSE, SEEK, SAVE, and STOP.

If you have a Windows PC, you can find out what MCI devices you have by clicking your Windows Start button, going to Settings—Control Panel, selecting Multimedia, and double-clicking Media Control Devices, as illustrated in Figure 10-1. To find out more about Microsoft's multimedia directions, follow the *Multilit* Web site links to Microsoft Windows Media.
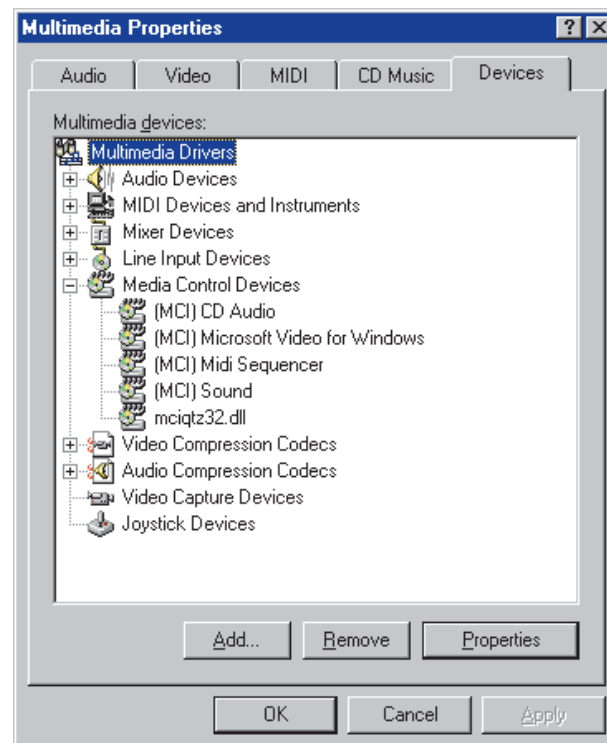

Figure 10-1   Microsoft MCI Drivers provide standardized control of CD Audio, Video for Windows, MIDI, and waveform sound devices.

Figure 10-2   The Apple QuickTime Player.

Apple's QuickTime

Apple's QuickTime is to the Macintosh what the MCI is to Windows. Like the MCI, QuickTime supports digital audio, MIDI, compact disc, and digital video. QuickTime is emerging as a popular cross-platform standard for multimedia. Figure 10-2 shows the QuickTime Player, which runs on both Windows and Macintosh computers. In Chapter 35, you will learn how to edit movies with QuickTime Pro, which also runs on both Windows and Macintosh computers. When this book went to press, Apple claimed that 57% of Web sites that use video use QuickTime. For the latest information and to download the QuickTime Player for free, follow the *Multilit* Web site link to QuickTime.

Sun's Java and Jini

The goal of Sun's Java is to solve the problem of multi multimedia by creating a machine-independent technology for using the same application from any kind of machine—a Windows PC, a Macintosh computer, a network computer, a TV set-top box, a handheld computer, or an Internet phone. Through a connection technology called Jini, Sun is extending the Java concept to household appliances. Imagine a stove

Figure 10-3   Some of the devices that Sun plans to connect with its Jini technology.

that can send you an e-mail message warning you that someone forgot to turn it off when you left for vacation. Figure 10-3 shows some of the other devices that Sun plans to connect with its Jini technology.

Both of the major browsers—Netscape Navigator and Microsoft Internet Explorer—come with Java interpreters built in. Due to arguments and competition between Sun and Microsoft, however, you must double-check to make sure that Java applets you create for one platform will run on the other. For more information about Java, follow the *Multilit* Web site link to the Java technology home page. To learn more about Jini, follow the link to Jini Connection Technology.

Sony's PlayStation

Normally you wouldn't think of a game machine like the Sony PlayStation® game console in Figure 10-4 as a platform for more general-purpose kinds of multimedia. Lightspan, Inc. Software changed that with a product called Lightspan Achieve Now, which was created in conjunction with Sony. Lightspan Achieve Now is a comprehensive interactive software curriculum that conforms to state and national education standards. Developed by and for educators for use in elementary and middle schools. Lightspan Achieve Now is cleverly designed to run on a Windows PC or to go home on a Sony PlayStation® game console. Students take the PlayStation CDs home like any workbook or textbook. After a lesson in counting, for example, teachers hand out a CD that reinforces how to count by twos. Children solve math problems in an imaginary land known as Googol®, and they learn to read with Mars Moose®, pictured in Figure 10-5. Hollywood artists used Autodesk's 3D Studio animation software to create the characters and bring them to life. To get more information and try out demos of LightSpan, Inc. adventures, follow the *Multilit* Web site link to Lightspan Achieve Now.

Figure 10-4   The Sony PlayStation® game console, for which Lightspan, Inc. developed a series of curriculum-based, educational CDs called Lightspan Achieve Now.

Figure 10-5   Mars Moose® is a 3-D animated character with whom children learn to read in an emergent literacy program from Lightspan, Inc.

Coping with Multi Multimedia

Due to the competitive nature of our capitalistic society, in which vendors feel the need to differentiate products so the consumer will see the difference and buy their brands, we need to accept the fact that we are going to have to live with multi multimedia for the foreseeable future. The best strategy for coping with multi multimedia is to keep abreast of emerging multimedia standards and purchase the products that follow those standards. To locate the standards, follow the *Multilit* Web site links to the World Wide Web Consortium (W3C), the Internet Engineering Task Force (IETF), the Internet Society (ISOC), and the International Organization for Standardization (ISO), which has a special Information Technology Task Force (ITTF). All of these organizations are devoted to the creation of the standards that are needed to evolve and globalize the Internet and its underlying multimedia technologies and applications.

e x e r c i s e s

1. Visit your local computer store and find out what multimedia brands it carries. Does it sell Microsoft MCI-based multimedia PCs? Does it carry Apple QuickTime-based Macintoshes? Sony PlayStations? What other brands does it have? Ask which brand sells best in your community and why.

2. To standardize everything about multimedia today would be a mistake. The field is still too young for that, and there must be room for experimentation. On the other hand, certain objects could be standardized now. For example, there are more than 30 "standard" ways of storing bitmaps. The time and effort spent converting images from one format to another could be saved by an industrywide standard for storing bitmaps. Are there other multimedia objects that should be standardized now? List them and state why.

3. Explain how Microsoft's MCI helps developers cope with the multi multimedia dilemma.

4. SMIL is an emerging standard for delivering multimedia sequences of synchronized text, images, sound, and video over the Web. Go to the World Wide Web Consortium site at w3c.org and follow the links to SMIL. What does SMIL stand for? What is the current status of the SMIL standard? Have any major vendors come out with products based on SMIL? Name the product that you consider to be the most significant to support SMIL.