



Multimedia PC

# Multimedia PC Computing

*What you need to know*

Multimedia PC computing is not just a vision for the future. Its here today. Multimedia computing is simple in concept: the integration of sound, animation, photo-quality images and video with text and graphics. This simple idea will have a remarkable impact on the way people use computers.

The Multimedia PC Marketing Council has developed a standard multimedia computer specification: the Multimedia PC. Based on the standard desktop PC already used by millions, the Multimedia PC provides users with an affordable approach to multimedia computing that preserves their investments in PC software. The Multimedia PC also takes advantage of the Microsoft® Windows™ operating system, making Multimedia PC software easy to access and integrate with other software applications on your PC.

The list of available or announced Multimedia PC software products already includes 230 titles and applications from 95 software companies. You can recognize these products by the MPC logo above. Multimedia PC titles already include whole reference libraries brought to life with photos, drawings, animations, video and sound; language-instruction titles with spoken lessons and pronunciations; interactive childrens titles with engaging animations, and sounds; and tools to help you build your own multimedia creations. Multimedia functionality is also migrating into business application programs, bringing multimedia capabilities to word processors, spreadsheets, and other popular productivity software. The Multimedia PC brings CD-ROM into the mainstream of personal computing and greatly expands the types of software products available for your PC.

## **Some common questions...**

### **What is a Multimedia PC?**

A Multimedia PC consists of five basic components: a PC, a CD-ROM drive, an audio board, Microsoft Windows 3.1 or Windows 3.0 with Multimedia Extensions 1.0, and a set of speakers or headphones for audio output.

The *minimum* PC configuration for a Multimedia PC is a machine with a 386SX processor and 2 megabytes of RAM, a 30 megabyte hard disk, and a VGA or VGA+ display (virtually all Multimedia PCs produced today exceed these minimum specifications). To this base a CD-ROM drive has been added, to give the Multimedia PC its tremendous information retrieval capabilities. The addition of an audio board and speakers or headphones gives the Multimedia PC its ability to play and manipulate speech, music, and other sounds.

High performance Multimedia PCs which meet or exceed the following specifications are known as Level 2 MPCs: 486SX processor, 4 megabytes of RAM, 160 megabyte hard disk, double-speed CD-ROM drive, and the capability of displaying 65,536 colors

at 640 X 480 resolution.

A Multimedia PC which meets some but not all of the Level 2 specifications is considered an MPC Level 1 computer.

### **How do I get a Multimedia PC?**

You may purchase a Multimedia PC as a pre-configured system or, if your current PC meets the system requirements as described in the MPC Specifications, you can easily upgrade to a MPC Level 1 or Level 2 Multimedia PC with the purchase of an upgrade kit. In addition to upgrading your current machine, an upgrade kit may be used to configure a new system as an MPC.

Prices for full MPC systems start at under \$1,500 and upgrade kits are available starting under \$500. For information regarding companies shipping Level 1 and Level 2 certified MPC systems and upgrade kits, contact the Multimedia PC Marketing Council.

### **What is the meaning of the MPC logo on hardware?**

The distinctive MPC or MPC2 logos certify compliance with the corresponding MPC Specification. Products bearing these marks have passed tests to ensure that they meet the specification requirements. Compliance with the specifications guarantees compatibility with Multimedia PC software.

### **What are the benefits of Level 2 MPCs compared with Level 1?**

Most applications will run faster on the enhanced MPC2 platform. Software-based video will perform better on Level 2 Multimedia PCs. Photo CD applications, not supported on base Level 1 MPCs, will also perform well on Level 2 machines.

Although Level 2 MPCs provide better overall performance, Level 1 MPCs will continue as viable multimedia machines well into the future. (Most of the Level 1 MPCs being sold today meet a number of the Level 2 requirements.)

### **Can I install the Multimedia PC upgrade kit myself?**

Yes, upgrade kits are designed for installation by the user. Upgrade installation requires opening your PC and inserting an audio board into one of the PCs expansion slots, as well as installing an internal, external, or portable CD-ROM drive and loading the necessary system software.

### **How many expansion slots does a Multimedia PC upgrade kit require?**

A Multimedia PC upgrade kit requires one or two slots, depending on the kit manufacturer and whether you select an internal or external CD-ROM drive. A number of upgrade kits with external CD-ROM drives require two expansion slots in your computer. Some upgrade kits offer an integrated audio board and internal CD-ROM drive that occupy only one expansion slot.

### **I already own a CD-ROM drive-- can I use it with a Multimedia PC?**

Yes, some upgrade kit manufacturers offer special packages that allow you to upgrade to a Multimedia PC without buying a new CD-ROM drive. However, CD-ROM drives come in a variety of performance levels, not all of which are sufficient for a Multimedia PC. To be fully compatible with the Multimedia PC standard, the drive must have a transfer rate of at least 150 kB/second and a maximum seek time of 1 second, and utilize no more than forty percent of the computers CPU processing

power (check the Specifications for Level 2 requirements). This information should be included in the technical specifications for your drive. If it is not, check with your drives manufacturer. In addition, you need to be sure that you are using Microsoft MS-DOS® CD-ROM Extensions (MSCDEX) version 2.2 or later and an updated device driver for your CD-ROM drive. The manufacturer of your CD-ROM drive can provide you with version 2.2 of MSCDEX and an appropriate driver.

### **I already have an audio board in my computer-- can I use it with my Multimedia PC?**

Some upgrade kit manufacturers offer special upgrade packages that allow you to use your current audio board. However, many popular audio boards are not fully Multimedia PC compatible. Multimedia PC audio compliance for digitized sound is 8 bit samples at an 11 kHz input sampling rate and 8 bit samples at a 22 kHz output sampling rate (check the Specifications for Level 2 requirements). Your audio board also requires a software driver from the audio board supplier to communicate with Windows. You can obtain this driver from your audio board manufacturer. The Multimedia PC also has audio mixing capabilities that enable it to output a variety of audio sources through a single output jack. Most older audio boards do not have this mixing capability but can be enhanced with external audio mixers that can be purchased separately. Check with your audio board manufacturer for more information.

### **How well will a pieced-together Multimedia PC work?**

It might work very well. However, to be absolutely certain that your system will be one hundred percent compatible with all Multimedia PC software, look for PCs and upgrade kits that bear the MPC logo.

### **Will ordinary speakers or headphones work with my Multimedia PC?**

Yes, but you will need a power source to drive the speakers. This can be a standard stereo amplifier (with an "audio-in" jack) or self-powered speakers, which can be plugged directly into the exposed audio-card socket in the back of your Multimedia PC. Self-powered mini speakers, such as those used with personal stereos, are a popular alternative. Headphones can be plugged directly into the audio card socket and do not require any external power source.

## **Minimum Multimedia PC Level 1 System Requirements**

### **Hardware:**

386SX or higher processor

2 MB RAM

30 MB hard disk

VGA or VGA+ display

Two button mouse

101 key keyboard

### **CD-ROM drive:**

CD-DA outputs, sustained 150 kB/sec transfer rate without consuming more than 40 percent of CPU bandwidth in the process

Average seek time of 1 second or less

MSCDEX 2.2 driver or equivalent that implements the extended audio APIs

Subchannel Q support (P, R-W optional)

Audio board:

- 8-bit DAC, Linear PCM sampling, 22.05 and 11.025 kHz rate, DMA/FIFO with interrupt

- 8-bit ADC, Linear PCM sampling, 11.025 kHz rate, microphone level input

- Music synthesizer

- On-board analog audio mixing capabilities

Serial port, parallel port

MIDI I/O port

Joystick port

Headphones or speakers connected to your computer system

### **System Software:**

Binary compatibility with Windows 3.0 plus Multimedia Extensions or Windows 3.1

## **Minimum Multimedia PC Level 2 System Requirements**

### **Hardware:**

25 MH 486SX or compatible microprocessor

4 megabytes of RAM (8 megabytes recommended)

3.5" Floppy drive

Hard drive (160 MB minimum)

Video display resolution of at least 640x480 with 65,536 (64K) colors

Two button mouse

101 key Keyboard (or functional equivalent)

CD-ROM Drive:

- Doublespeed with CD-DA outputs (Capable of sustained 300 KB/sec transfer rate)

- No more than 40% of the CPU bandwidth may be consumed when maintaining a sustained transfer rate of 150 KB/sec

- Average seek time of 400 milliseconds or less

- 10,000 hours MTBF

- CD-ROM XA ready (mode 1 capable, mode 2 form 1 capable, mode 2 form 2 capable)

- Multisession capable

- MSCDEX 2.2 driver or equivalent that implements the extended audio APIs

- Subchannel Q support (P, R-W optional)

Audio board:

- 16-bit DAC, Linear PCM sampling; 44.1, 22.05, and 11.025 kHz rate, DMA/FIFO buffered transfer capability

- 16 bit ADC, Linear PCM sampling; 44.1, 22.05, and 11.025 kHz rate, DMA/FIFO buffered transfer capability; microphone input

- Music synthesizer

- On-board analog audio mixing capabilities

- CD-ROM XA audio capability is recommended.

- Support for the IMA adopted ADPCM software algorithm is recommended.

Serial port

Parallel port

MIDI I/O port  
Joystick port  
Headphones or speakers connected to your computer system



**System Software:**

Binary compatibility with Windows 3.0 plus Multimedia Extensions or Windows 3.1

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The following chart compares key requirements and recommendations of the Multimedia PC Level 1 and Level 2 Specifications. Complete information about the specifications is available from the Multimedia PC Marketing Council.

	 <b>Level 1</b>	 <b>Level 2</b>
<i>Requirements:</i>		
<b>RAM</b>	2 MB	4 MB
<b>Processor</b>	16 Mhz 386SX	25 Mhz 486SX
<b>Hard Drive</b>	30 MB	160 MB
<b>CD-ROM Drive</b>	150 KB/sec. sustained transfer rate, maximum average seek time 1 second	300 KB/sec. sustained transfer rate, maximum average seek time 400 milliseconds, CD-ROM XA ready, multisession capable
<b>Sound</b>	8-bit digital sound, 8 note synthesizer, MIDI playback	16-bit digital sound, 8 note synthesizer, MIDI playback
<b>Video Display</b>	640 x 480, 16 colors	640 x 480, 65,536 colors
<b>Ports</b>	MIDI I/O, joystick	MIDI I/O, joystick
<i>Recommendations:</i>		
<b>RAM</b>		8 MB
<b>CD-ROM</b>	64 KB on-board buffer	64 KB on-board buffer
<b>Sound</b>		CD-ROM XA audio ability, support for IMA adopted ADPCM algorithm
<b>Video</b>	640 x 480, 256 colors	Delivery of 1.2 megapixels/sec. given 40% of CPU bandwidth

Please note that the above requirements are *minimum* system requirements and not a recommendation by the Multimedia PC Marketing Council for a particular system configuration.