Hardware Glossary

Acronyms and Abbreviations

ABR available bit rate

AC alternating current

ACPI Advanced Configuration and Power Interface

A/D analog to digital

ADA   Americans with Disabilities Act

ADC analog-to-digital converter

ADSL Asymmetric Digital Subscriber Line

AEC acoustic echo cancellation

AGP Accelerated Graphics Port

ANSI American National Standards Institute

API application programming interface

APIC Advanced Programmable Interrupt Controller

APM Advanced Power Management

APS analog protection system

ARC advanced RISC computing

ASCII American Standard Code for Information Interchange

ATA AT Attachment

ATAPI ATA Packet Interface

ATM Asynchronous Transfer Mode

ATSC Advanced Television Systems Committee

AT#UD Unimodem diagnostics command

AUI Attachment Unit Interface

A/V audio/video

AVGA Advanced VGA

BAR base address register

BDA BIOS Data Area

BIOS basic I/O system

BNC Bayonet Nut Connector. (*Also* British Naval Connector *or* Bayonet Neil Consulman)

BPB BIOS Parameter Blocks

bpp bits per pixel

bps bits per second

CAD computer-aided design

CBR constant bit rate

CDMA code division multiplexed access

CDPD cellular digital packet data

CHAP Challenge Handshake Authentication Protocol

CID CompatibleID

CIS card information structure

CMOS complementary metal-oxide semiconductor

COM (1) Component Object Model; (2) legacy serial port

CPTWG Copyright Protection Technical Working Group

CPU central processing unit

CRC cyclic redundancy check

CSEL Cable Select

CSN Card Select Number

CSR control and status register

CSS copy scramble system

CT Computer Telephony

D/A digital to analog

DAC digital-to-analog converter

dB decibel

DBC Device Bay Controller

DC direct current

DCE Data Communications Equipment

DDC display data channel

DDC2B *DDC Standard, Version 2.0*, Level B

DDI device driver interface

DDK Device Driver Kit

DES data encryption standard

DHCP Dynamic Host Configuration Protocol

DIB device-independent bitmap

DIP dual in-line package

DLL dynamic link library

DLS Downloadable Samples

DMA direct memory access

DMI Desktop Management Interface

DMTF Desktop Management Task Force

DRAM Direct Random Access Memory

DSP digital signal processor

DSS directory synchronization server

DSVD digital simultaneous voice/data

DTMF dual tone multifrequency

DTV digital television

DVB Digital Video Broadcast

DVC Digital Video Compression

DVD Optical disk storage that encompasses audio, video, and computer data

ECC error correction code

ECP extended capabilities port

ECR Engineering Change Request

EDID Extended Display Identification Data

EDT European Deaf Telephone

EGA enhanced graphics adapter

EIA Electronics Industries Association

8-VSB ATSC 8-Vestigial Side Band

EIO Extended I/O

EISA Extended Industry Standard Architecture

EMF enhanced metafile

EMI electromagnetic interference

EPG electronic program guide

EPP enhanced parallel port

ESCD Extended System Configuration Data

ETSI European Telecommunications Standards Institute

ExCA Exchangeable Card Architecture

FAT file allocation table

FAQ frequently asked questions

FCC Federal Communications Commission

FDC floppy disk controller

FDDI Fiber Distributed Data Interface

FEC forward error correction

FIFO first in/first out

FM frequency modulation

FP floating point

fps frames per second

FS A *See Glossary.*

FSIP full-scale input

FSK Frequency Shift Keyed

FSOP full-scale output

FTP file transfer protocol

GART Graphics Address Re-mapping Table

GDI Graphics Device Interface

GIDEI General Input Device Emulation Interface

GSM global system for mobile communications

HCL Hardware Compatibility List

HCT Hardware Compatibility Tests

HDLC high-level data link control

HDTV high-definition television

HEL hardware emulation layer

HFC hybrid fiber-coax

HID Human Interface Device

HRTF Head Related Transfer Function

HSCDS high-speed cable data services

Hz Hertz

IAL Intel Architecture Labs

ICC International Color Consortium

ICM Image Color Matching

ID identifier

IDE Integrated Device Electronics

IEC International Electrotechnical Commission

IEEE Institute for Electrical and Electronics Engineers

IETF Internet Engineering Task Force

IF Implementers Forum

IHV independent hardware vendor

I/O input/output

IOCTL I/O control

IP Internet Protocol

IPL Initial Program Load

IPX Internetwork Packet Exchange

IR infrared

IrDA Infrared Data Association

IRP I/O request packet

IRQ interrupt request

ISA Industry Standard Architecture

ISDN Integrated Service Digital Network

ISO International Standards Organization

ISO/OSI International Standards Organization Open Systems Interconnection

ISP Internet service provider

ISV independent software vendor

I2O intelligent I/O

ITU International Telecommunication Union

IVR interactive voice response

K kilobyte

Kbps kilobytes per second

Kss kilo-samples per second

L2 Level 2

LAN local area network

LBA logical block addressing

LCD liquid crystal display

LED light-emitting diode

LPCM location PCM

LPT line printer

LSB least significant bit

LUN logical unit number

LVE Live Video Extensions

m meter

MAC Media Access Control

MB megabyte

Mb/s megabits per second

MDK Modem Developers Kit

MEI Matsushita Electronics Incorporated

MESN Media Status Event Notification

MIDI Musical Instrument Digital Interface

MIP Multimission Interactive Picture

MP@ML Main Profile at Main Level

MPEG Moving Picture Expert Group

ms millisecond

MSB most significant bit

MSCDEX Microsoft CD-ROM Extensions

MSDN Microsoft Developer Network

MUX multiplex

NABTS North American Basic Teletext

NDIS Network Driver Interface Specification

NetBEUI NetBIOS Extended User Interface

Net PC Network PC

NICAM Near-Instantaneously Companded Audio Multiplex

NIDRR National Institute for Disability
and Rehabilitation Research

NIUF National ISDN User's Forum

NMI Nonmaskable Interrupt

nrt non-real time

NTFS Windows NT file system

NT-1 network terminator

NTSC National Television System Committee

OAM operation and maintenance

OEM original equipment manufacturer

OFDM Orthogonal Frequency
Division Multiplexing

OpenHCI Open Host Controller Interface

OR *See Glossary.*

OSR OEM service release

PAL Phase Alternation Line

PC personal computer

PCI Peripheral Component Interconnect

PCIC PC Card I/O cards

PCI PM *PCI Bus Power Management
Specification, Revision 1.0* or higher

PCI 2.1 *PCI Local Bus Specification, Revision 2.1*

PCM pulse coded modulation

PCMCIA Personal Computer Memory
Card International Association

PCR peak cell rate

PDA Personal Digital Assistant

PIC programmable interrupt controller

PID program ID

PIO programmed I/O

PIT programmable interrupt timer

PME power management event

POST power-on self-test

POTS plain old (analog) telephone service/system

PPP point-to-point protocol

PRI primary rate interface

PS/2 Personal System/2

PSTN Public Switched Telephone Network

PTT Post, Telephone, and Telegraph

QOS quality of service

RADSL rate adaptive digital subscriber line

RAID redundant array of inexpensive disks

RAM random-access memory

RAMDAC RAM digital-to-analog converter

RF radio frequency

RFC request for comments

RFP request for proposals

RISC reduced instruction set computing

RM resource management

RNA remote network access

ROM read-only memory

RP recommended practice

RSA public-key cipher for encryption/decryption

RSX Intel Realistic Sound eXperience

rt real time

SAP (1) Service Access Protocol;
(2) secondary audio programming

SAR segmentation and re-assembly

SCAM SCSI Configured Automatically

SCART Solent Club for Amateur Radio and Television; *also called* Peritel

SCID service channel ID

SCL system clock line

SCSI small computer system interface

SDK Software Developers Kit

SFF Small Form Factor

SIG Special Interest Group

SIR Serial IR

SIT Special Information Tone

SMART Self-Monitoring, Analysis, and Reporting Technology

SMBus System Management Bus

SMPTE Society of Motion Picture and Television Engineers

SNMP Simple Network Management Protocol

SNR signal-to-noise ratio

SOHO small office/home office

SPI Service Provider Interface

SPID service profile ID

SPX Sequenced Packet Exchange

SRC sample rate converter

STI Still Image architecture

STS/EN Status and Enable

SVGA Super VGA

TAM telephone answering machine

TAPI Telephony Application Program Interface

TCO total cost of ownership

TCP/IP Transmission Control Protocol/ Internet Protocol

TDD Telephone Device for the Deaf

TDMA time division multiplexed access

telset local telephone instrument

TFTP Trivial File Transfer Protocol

THD+N total harmonic distortion

3-D three-dimensional

TIA Telecommunications Industry Association

TP twisted pair

2-D two dimensional

UART Universal Asynchronous Receiver/Transmitter

UBR unspecified bit rate

UDF Universal Disk Format

UHCI Universal Host Controller Interface

UHF ultra-high frequency

unidriver universal printer driver

Unimodem universal modem driver

USB Universal Serial Bus

V volts

VBE VESA BIOS Extension

VBI vertical blanking interval

VBR variable bit rate

VCI virtual channel ID

VCR video cassette recorder

VDD Virtual display driver

VDIF Video Display Information Format

VDS virtual DMA services

VESA Video Electronics Standards Association

VfW Video for Windows

VGA video graphics array

VHF very high frequency

VLB VESA local bus

VPE Video Port Extensions

VPI virtual path ID

VpicD virtual PIC device

Vpp voltage point-to-point

VRML virtual reality modeling language

VRMS volts root-mean-square

VSD vendor specific driver

Vsync vertical synchronization

VxD virtual device driver

WAN wide area network

WBEM Web-Based Enterprise Management

WC write combining

WDL Windows Driver Library

WDM Win32 Driver Model

WfM Wired for Management

WHIIG *Windows Hardware Instrumentation Implementation Guidelines*, *Version 1.0*

WHQL Windows Hardware Quality Labs

WinSock Windows Sockets 2.0

WMI Windows Management Instrumentation

WSS Windows Sound System

YUV *See Glossary.*

ZV Zoomed Video

Glossary

A

AC-3 An audio standard developed by Dolby Laboratories for delivering 5.1 audio. This system compresses six channels of digital audio into 384 Kbps versus 4 Mb/s uncompressed.

ACPI Advanced Configuration and Power Interface. A specification that defines a new interface to the system board. This interface enables the operating system to implement operating system–directed power management and system configuration. ACPI allows system manufacturers to build systems consistent with the OnNow design initiative for instantly available PCs.

ACPI hardware Computer hardware with the features necessary to support operating system power management and with the interfaces to those features described using the Description Tables as specified in the ACPI specification.

adapter *See* device.

add-on devices Devices that are traditionally added to the base PC system to increase functionality, such as audio, networking, graphics, SCSI controller, and so on. Add-on devices fall into two categories: devices built onto the system board, and devices on expansion cards added to the system through a system-board connector such as PCI.

ADSL Asymmetric Digital Subscriber Line. A method for moving data over regular phone lines. An ADSL circuit is much faster than a regular phone connection, even though the wires coming into the subscriber's premises are the same (copper) as used for regular phone service.

analog A method of signal representation by an infinitely smooth universe of numeric values. Measurements that are characterized as analog include readings of voltage and current. *Compare with* digital.

analog video A video signal that represents an infinite number of smooth gradations between given video levels. *Compare with* digital video.

API Application programming interface. A set of routines that an applications program uses to request and carry out lower-level services performed by a computer operating system.

APM Advanced Power Management. A software interface (defined by Microsoft and Intel) between hardware-specific power management software (such as that located in a system BIOS) and an operating system power management driver.

architecture A general term referring to the structure of all or part of a computer system. Also refers to the design of system software, such as the operating system, as well as to the combination of hardware and basic software that links machines on a computer network.

ASCII American Standard Code for Information Interchange. The most popular coding method used by small computers for converting letters, numbers, punctuation, and control codes into digital format.

ATA AT Attachment. A compatible register set, and a 40-pin connector and its associated signals. More commonly known as IDE.

ATAPI ATA Packet Interface. A hardware and software specification that documents the interface between a host computer and the CD-ROM drives using the ATA bus.

ATM Asynchronous transfer mode. A transmission protocol that segments user traffic into small, fixed-size units called cells that are transmitted to their destination, where they are reassembled into the original traffic. During transmission, cells from different users may be intermixed asynchronously to maximize utilization of network resources.

AUI Attachment Unit Interface. The portion of the Ethernet standard that specifies how a cable is to be connected to an Ethernet card. AUI specifies a cable connected to a transceiver that plugs into a 15-pin socket on the network adapter.

B

BIOS Basic I/O system. A set of routines that works closely with the hardware to support the transfer of information between elements of the system, such as memory, disks, and the monitor. Although critical to performance, the BIOS is usually invisible to the end user; however, programmers can access it.

BNC Bayonet Nut Connector. *Also* British Naval Connector *or* Bayonet Neil Consulman. A type of connector used with coaxial cables such as the RG-58 A/U cable used with the 10Base-2 Ethernet system.

C

CD-ROM Compact disc read-only memory. A 4.75-inch laser-encoded optical memory storage medium (developed by NV Philips and Sony Corporation) with the same constant linear velocity (CLV) spiral format as compact audio discs and some video discs. CD-ROMs can hold about 550 MB of data.

class For hardware, the manner in which devices and buses are grouped for purposes of installing and managing device drivers and allocating resources. The hardware tree is organized by device class.

class driver A driver that provides system-required, hardware-independent support for a given class of physical devices. Such a driver communicates with a corresponding hardware-dependent port driver, using a set of system-defined device control requests, possibly with additional driver-defined device control requests. Under WDM, the class driver creates a device object to represent each adapter registered by minidrivers. The class driver is responsible for multiprocessor and interrupt synchronization.

codec Coder-decoder. A filter that manipulates data in some form, usually by compressing or decompressing the data stream.

COM (1) Component Object Model; the core of OLE (object linking and embedding). Defines how OLE objects and their clients interact within processes or across process boundaries. (2) Legacy serial port.

concatenate To join sequentially.

configuration manager The Windows Plug and Play system component that drives the process of locating devices, setting up their nodes in the hardware tree, and running the resource allocation process. Each of the three phases of configuration management—boot time, real mode, and protected mode—have their own configuration managers.

controllerless modem *Also* host-based controller. A modem that consists of a DSP without the usual microcontroller. The host CPU provides the AT command interpreter, modem-control functions, and v.42bis implementation. *Compare with* software modem.

control method A definition of how an ACPI-compatible operating system can perform a simple hardware task. For example, the operating system invokes control methods to read the temperature of a thermal zone. Control methods are written in an encoded language called AML (ACPI Machine Language).

CPU Central processing unit. A computational and control unit of a computer; the device that interprets and executes instructions. By definition, the CPU functions as the "brain" of the computer.

CSN Card Select Number. The handle created by the system BIOS or the operating system through the isolation process and assigned as a unique ID to each Plug and Play card on the ISA bus.

D

DDC Display data channel. The Plug and Play baseline for monitors. The communications channel between a monitor and the display adapter to which it is connected. This channel provides a method for the monitor to convey its identity to the display adapter.

device Any circuit that performs a specific function, such as a parallel port.

Device Bay An industry specification that defines a mechanism for both peripheral devices and system bays. Allows adding and upgrading PC peripheral devices without opening the chassis.

device ID A unique ASCII string for a device created by enumerators to identify a hardware device and used to cross-reference data about the device stored in the registry. Distinguishes each logical device and bus from all others on the system.

device node *Also* devnode. The basic data structure for a given device, built by the configuration manager. Device nodes are built into memory at system start-up for each device and enumerator. Each device node contains information about the device, such as currently assigned resources.

device object A kernel-mode–only object type used to represent a physical, logical, or virtual device whose driver has been loaded into the system.

devnode *See* device node.

digital A method of signal representation by a set of discrete numerical values, as opposed to a continuously fluctuating current or voltage. *Compare with* analog.

digital video A video signal represented by computer-readable binary numbers that describe a finite set of colors and luminance levels. *Compare with* analog video.

disk I/O controller *Also* hard disk controller. A special-purpose chip and circuitry that directs and controls reading from and writing to a computer's disk drive.

DLL Dynamic link library. API routines that user-mode applications access through ordinary procedure calls. The code for the API routine is not included in the user's executable image. Instead, the operating system automatically points the executable image to the DLL procedures at run time.

DMA Direct memory access. A method of transferring data between peripheral and host memory without processor intervention. The system board uses a DMA controller to handle a fixed number of channels, each of which can be used by only one device at a time.

DMI Desktop Management Interface. A framework created by the DMTF. DMTF specifications define industry-standard interfaces for instrumentation providers and management applications.

docking station The base computer unit into which a user can insert a portable computer, expanding it to a desktop equivalent. A typical docking station provides drive bays, expansion slots, all the ports on an equivalent desktop computer, and AC power.

driver Kernel-mode code used either to control or emulate a hardware device.

DSP Digital signal processor. An integrated circuit designed for high-speed data manipulations. Used in audio, communications, image manipulation, and other data-acquisition and data-control applications.

DTV Digital television. DTV standards allow standard resolution mode—with about twice the horizontal resolution of conventional analog broadcasts—as well as HDTV mode. Video uses MPEG-2 digital compression, and audio uses AC-3 (Digital Dolby) compression.

DVD Optical disk storage that encompasses audio, video, and computer data.

E

ECP Extended capabilities port. An asynchronous, 8-bit–wide parallel channel defined by IEEE 1284-1944 that provides PC-to-peripheral and peripheral-to-PC data transfers.

EISA Extended Industry Standard Architecture. A 32-bit PC expansion bus designed as a superset of the ISA bus. Designed to expand the speed and data width of the legacy expansion bus while still supporting older ISA cards.

embedded controller The general class of microcontrollers used to support OEM-specific implementations, mainly in mobile environments. The embedded controller performs complex low-level functions through a simple interface to the host microprocessor.

embedded controller interface ACPI defines a standard hardware and software communications interface between an operating system driver and an embedded controller—for example, Smart Battery and AML code. This allows any operating system to provide a standard driver that can directly communicate with an embedded controller in the system, thus allowing other drivers to communicate with and use the resources of system embedded controllers.

EPG Electronic program guide. The on-screen user interface that allows users to select, manage, and search television programs and other content-viewing options.

expansion bus A group of control lines that provide a buffered interface to devices located either on the system board or on cards that are plugged into expansion connectors. Common expansion buses included on the system board are USB, PC Card, and PCI.

expansion card A card that connects to an expansion bus and contains one or more devices.

expansion ROM *See* option ROM.

F

FDC Floppy disk controller. A special-purpose chip and associated circuitry that directs and controls reading from and writing to a computer's disk drive.

FIFO First in/first out. A method for processing a queue in which items are removed in the same order in which they were added.

FS A Decibels relative to full scale, measured using "A weighting" filters.

G

GUID Globally unique ID. A 16-byte value generated from the unique ID on a adapter, the current date and time, and a sequence number. This is used to allow any party to create IDs that will be guaranteed not to overlap with other similarly created IDs.

H

hardware branch The hardware archive root key in the registry that is a superset of the memory-resident hardware tree. Although the hardware tree contains information only about those devices currently detected and running in the system, the registry contains a complete list of all hardware ever installed on the particular computer. The hardware root key is \\Hkey_Local_Machine\Hardware.

hardware tree A record in RAM of the current system configuration, based on the information for all devices in the hardware branch of the registry. The hardware tree is created each time the system is started or whenever a dynamic change occurs in the system configuration.

HCI Host controller interface. For example, a system-level interface supporting USB.

HCL Hardware Compatibility List. A registry of products that have been tested by WHQL and that have passed Windows compatibility testing.

HCT Hardware Compatibility Tests. A suite of tests from WHQL that verifies hardware and device driver operations under a specific operating environment. These tests exercise the combination of a device, a software driver, and an operating system under controlled conditions to verify that all components operate properly.

HDTV High-definition television. A proposed standard that recommends doubling the current 525 lines per picture to 1050 lines, and increasing the screen aspect ratio (that is, width to height) from the current 12:9 to 16:9, which would create a television screen shaped more like a movie screen.

HID specification The device class definition developed by the USB standards group for Human Interface Devices. Serves as the basis for WDM input device support, and unifies input devices by providing flexible data reporting, typeless data, and arrayed and variable input and output.

I

ID Identifier. Generally, any text string used as a label, such as the name of a procedure or a variable in a program, or the name attached to a hard drive or floppy disk.

IDE Integrated Device Electronics. A type of disk drive interface where the controller electronics reside on the drive itself, eliminating the need for a separate adapter card.

IEEE Institute of Electrical and Electronics Engineers, pronounced "I-triple-E." Founded in 1963, IEEE is an organization composed of engineers, scientists, and students. IEEE is best known for developing standards for the computer and electronics industry.

INF file Information file. A file created for a particular adapter that provides the operating system with information required to set up a device, such as a list of valid logical configurations for the device, the names of driver files associated with the device, and so on. The device manufacturer typically provides an INF file on a disk with an adapter.

INI file Initialization file. Commonly used under Windows 3.*x* and earlier, INI files have been used by both the operating system and individual applications to store persistent settings related to an application, driver, or piece of hardware. In Windows and Windows NT, INI files are supported for backward compatibility, but the registry is the preferred location for storing such settings.

I/O Input/output. Two of the three activities that characterize a computer (input, processing, and output). Refers to the complementary tasks of gathering data for the microprocessor to work with and making the results available to the user through a device such as the display, disk drive, or printer.

IOCTL I/O control. A custom class of IRPs available to user mode. Each WDM class driver has a set of IOCTLs that it uses to communicate with applications. The IOCTLs give the class driver information about intended usage by applications. The class driver performs all IOCTL parameter validation.

IPL Initial program load. A device used by the system during the boot process to load the operating system into memory.

IRP I/O request packet. Data structures that drivers use to communicate with each other. The basic method of communication between kernel-mode devices. An IRP is a key data structure for WDM, which features multiple layered drivers.

IRQ Interrupt request. A method by which a device can request to be serviced by the device's software driver. The system board uses a PIC to monitor the priority of the requests from all devices. When a request occurs, a microprocessor suspends the current operation and gives control to the device driver associated with the interrupt.

ISA Industry Standard Architecture. An 8-bit (and later, a 16-bit) legacy expansion bus that provides a buffered interface from devices on expansion cards to the PC internal bus.

ISDN Integrated Service Digital Network. A set of communications standards that enables a single phone line or optical cable to carry voice, digital network services, and video.

ISR Interrupt service routine. A routine whose function is to service a device when it generates an interrupt.

L

LAN Local area network. A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other device on the network. *Compare with* WAN.

LBA Logical block address. A unit of data supplied or requested by a host computer.

legacy Any feature in the system based on older technology for which compatibility continues to be maintained in other system components.

M

Microsoft DirectShow *Formerly* ActiveMovie. A cross-platform API for developers of multimedia applications that provides a user-mode connection and Stream architecture to support high-quality digital video, high-fidelity audio, and special effects.

Microsoft DirectX A low-level API that provides user-mode media interfaces for games and other high-performance multimedia applications. DirectX is a thin layer, providing direct access to hardware services. DirectX takes advantage of available hardware accelerators and emulates accelerator services when accelerators are not present.

MIDI Musical Instrument Digital Interface. An industry-standard connection for computer control of musical instruments and devices. A hardware and data standard for communicating between hardware. Most references involve only the data standard, which is a byte stream used for controlling musical instruments and storing the output of such instruments.

minidriver A hardware-specific DLL that uses a Microsoft-provided class driver to accomplish most actions through functions call and provides only device-specific controls. Under WDM, the minidriver uses the class driver's device object to make system calls.

miniport driver A device-specific kernel-mode driver linked to a Windows NT or WDM port driver, usually implemented as a DLL that provides an interface between the port driver and the system.

motherboard *See* system board.

MPEG Moving Picture Expert Group. Refers to one of several standard video-compression schemes. A codec for squeezing full-screen, VHS-quality digital video into a small data stream so that it can be played from a CD-ROM drive.

multifunction device A piece of hardware that supports multiple, discrete functions, such as audio, mixer, and music, on a single adapter.

multimedia Refers to the delivery of information that combines different content formats, such as motion video, audio, still image, graphics, animation, text, and so forth.

N

NDIS Network Driver Interface Specification. The interface for network drivers used in Windows and Windows NT operating systems. NDIS provides a common mechanism by which any given NDIS-compatible transport driver can communicate with any NDIS-compatible network adapter driver. Moreover, it provides for multiple transports to work over multiple network adapters by supporting multiplexing between transports and drivers.

Net PC Network PC. A PC designed to meet the industry specification for Network PC systems, which optimizes PC design for flexibility and manageability in order to reduce the total cost of ownership (TCO).

NMI Nonmaskable Interrupt. An interrupt that cannot be overruled by another service request. A hardware interrupt is called nonmaskable if it cannot be masked by the processor interrupt flag.

NTSC National Television System Committee of the Electronics Industries Association (EIA). The standards-setting body for television and video in the United States. Sponsor of the NTSC standard for encoding color, a coding system compatible with black-and-white signals and the first system used for color broadcasting in the United States. The broadcast standard for the United States and Japan. *See also* PAL format *and* SECAM.

NTSC format A color-television format having 525 scan lines, a field frequency of 60 Hz, a broadcast bandwidth of 4 MHz, line frequency of 15.75 KHz, frame frequency of 1/30 of a second, and a color subcarrier frequency of 3.58 MHz. *See also* PAL format *and* SECAM.

O

OEM Original equipment manufacturer. Used primarily to refer to PC systems manufacturers.

OnNow A design initiative that seeks to create all the components required for a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears off and that responds immediately to user or other requests.

OpenGL An operating system independent, industry-standard API for 3-D color graphics programming. Typically used for engineering, visualization, simulation, and other graphics-intensive applications.

option ROM *Also* expansion ROM. Optional read-only memory found on an expansion card. Option ROMs usually contain additional firmware required to properly boot the peripheral connected to the expansion card, for example, a hard drive.

OR A logical operation for combining two bits or two Boolean values. If one or both values are true, it returns the values of true. *Compare with* XOR.

P

PAL format Phase Alternation Line format. The European video standard, except for France. *See also* NTSC *and* SECAM.

PC 97 The 1997–98 requirements for PC system and peripheral design for the "Designed for Microsoft Windows" logo, as defined in *PC 97 Hardware Design Guide.*

PC 98 The 1998–99 requirements for PC system and peripheral design for the "Designed for Microsoft Windows" logo, as defined in *PC 98 System Design Guide,* which is an addendum to *PC 97 Hardware Design Guide.*

PC Card A trademark of PCMCIA. A removable device that is designed to be plugged into a PCMCIA slot and used as a memory-related peripheral.

PCI Peripheral Component Interconnect. A high-performance, 32-bit or 64-bit bus designed to be used with devices that have high bandwidth requirements, such as a display subsystem.

PCM Pulse coded modulation. A method of encoding information in a signal by varying the amplitude of pulses. The most common method of encoding an analog signal into a digital bit stream, usually 16 bits per sample.

PCMCIA Personal Computer Memory Card International Association. Sometimes used to refer to a controller for a type of expansion card documented in the PCMCIA standards.

Plug and Play A design philosophy and set of specifications that describe hardware and software changes to the PC and its peripherals that automatically identify and arbitrate resource requirements among all devices and buses on the system. Plug and Play specifies a set of API elements that are used in addition to, but not in place of, existing driver architectures.

Plug and Play BIOS A BIOS with responsibility for configuring Plug and Play cards and system-board devices during system power up. Provides run-time configuration services for system-board devices after start-up. *See also* ACPI.

power management Mechanisms in software and hardware to minimize system power consumption, to manage system thermal limits, and to maximize system battery life. Power management involves trade-offs among system speed, noise, battery life, processing speed, and power consumption.

push technology In client/server applications, to send data to a client without the client requesting it—for example, sending e-mail. In contrast, the World Wide Web is based on a pull technology, where the client browser must request a web page before it is sent. Broadcast media are push technologies because they send information out regardless of whether anyone is tuned in.

R

RAM Random access memory. Semiconductor-based memory that can be read and written by the microprocessor or other hardware devices.

RAMDAC RAM digital-to-analog converter. A chip built into some VGA and SVGA display adapters that translates the digital representation of a pixel into the analog information needed by the monitor to display it.

rasterization The conversion of vector graphics (images described mathematically as points connected by straight lines) to equivalent images composed of pixel patterns that can be stored and manipulated as sets of bits.

Red Book audio The data format standard for conventional audio CDs used in home stereo systems.

registry In Windows and Windows NT, the tree-structured hierarchical database where general system hardware and software settings are stored. The registry supersedes the use of separate INI files for all system components and applications that know how to store values in the registry.

resource (1) Any sort of set from which a subset can be allocated for use by a client, such as memory or bus bandwidth. This is not the same as resources that are allocated by Plug and Play. (2) A general term that refers to IRQ signals, DMA channels, I/O port addresses, and memory addresses for Plug and Play.

resource conflict In Plug and Play device configuration, the result of more than one device sharing a nonshareable resource. Conflicts can cause the device to be partially functional or nonfunctional, orz can cause the PC to malfunction completely.

RISC Reduced instruction set computing. A type of microprocessor design that focuses on rapid and efficient processing of a relatively small set of instructions. RISC architecture limits the number of instructions that are built into the microprocessor, but optimizes each so it can be carried out very rapidly—usually within a single clock cycle.

RISC-based Refers to computers based on Windows NT-compatible implementations of RISC processors.

S

SCI System control interrupt. A system interrupt used by hardware to notify the operating system of ACPI events. The SCI is an active low, shareable, level interrupt.

SCSI Small computer system interface, pronounced "scuzzy." An I/O bus designed as a method for connecting several classes of peripherals to a host system without requiring modifications to generic hardware and software.

sealed case A PC system design that does not provide end-user–accessible internal expansion slots. This is the equivalent of "no user-serviceable parts inside" for consumer appliances. A sealed case can provide external expansion capabilities.

SECAM Sequential Couleur a Memoire (Sequential Color with Memory). The television standard for France, Russia, and most of Eastern Europe. As with PAL, SECAM is based on a 50-Hz power system, but it uses a different encoding process and displays 819 horizontal lines per frame at a scan rate of 25 frames per second (50 fields per second). *See also* NTSC *and* PAL format.

SIPC Simply Interactive PC. A vision guiding investments that Microsoft is making in software and hardware advances to make the PC as simple, convenient, and approachable as an appliance.

SMBus System Management Bus. A two-wire interface based on the I²C protocol. The SMBus is a low-speed bus that provides positive addressing for devices, as well as bus arbitration.

software device A filter in kernel streaming and DirectShow (formerly ActiveMovie) that has no underlying hardware associated with it.

software modem *Also* host-based signal processing or pumpless modem. Performs signal processing on the host CPU, and implements the controller using V.42bis. The modem hardware consists of a telephone-line interface and digital-to-analog and analog-to-digital conversion circuitry. The hardware does not contain a DSP or a microcontroller. *Compare with* controllerless modem.

Sound Blaster Hardware produced by Creative Labs, Inc., that represents for MS-DOS–based games one of the major hardware interfaces for both audio and music (specifically MIDI) data.

SPI Service Provider Interface. Component in Microsoft networking, TAPI, and other communications technologies.

spin down A power-management capability in which a hard drive shuts down its spindle motor.

Still Image architecture *Also* STI. A WDM architecture for still-image devices. A still-image minidriver provides support for still-image devices such as scanners and cameras under the WDM Still Image architecture.

SVGA Super VGA. A video standard established by VESA to provide high-resolution color display on IBM-compatible computers. The most common SVGA standard is 1024 × 768 pixels resolution.

S-Video *Also* Y/C video. A video signal that separates the luminance and color (Y and C) components of the signal for improved quality over composite video. The type of video signal used in the Hi8 and S-VHS videotape formats. Transmits luminance and color portions separately, using multiple wires, thus avoiding the NTSC encoding process and its inevitable loss of picture quality.

system board *Also* motherboard *or* planar. The primary circuit board in a PC that contains most of the basic components of the system.

system devices Devices on the system board, such as interrupt controllers, keyboard controller, real-time clock, DMA page registers, DMA controllers, memory controllers, FDC, IDE ports, serial and parallel ports, PCI bridges, and so on. These devices are typically integrated into the supporting chip set.

T

TAPI Telephony API. A set of Win32-based calls that applications use to control modems and telephones by routing application function calls to the appropriate service-provider DLL for a modem.

telephony Telephone technology.

tuple A data structure defined by PCMCIA to describe a single, specific characteristic of a PC Card device. Tuples are chained together to form the CIS, which describes to system software the PC Card's resource requirements and other characteristics. Tuples consist of a tuple code, an offset to the next tuple, and a number of bytes specific to the tuple.

TWAIN API for image acquisition developed by an association of industry leaders. The *TWAIN Specification, Version 1.6* or higher, is available from http://www.twain.org.

U

UART Universal Asynchronous Receiver/Transmitter. A module composed of a circuit that contains both the receiving and transmitting circuits required for asynchronous serial communication.

Unimodem Universal modem driver. A driver-level component that uses modem description files to control its interaction with the communications driver.

UPS Uninterruptible power supply. A device connected between a computer and a power source that ensures that electrical flow to the computer is not interrupted because of a blackout and, in most cases, protects the computer against potentially damaging events such as power surges.

USB Universal Serial Bus. A bi-directional, isochronous, dynamically attachable serial interface for adding peripheral devices such as game controllers, serial and parallel ports, and input devices on a single bus.

user mode The nonprivileged processor mode in which application code executes, including protected subsystem code in Windows NT.

V

VAR Value added reseller or retailer. A company that resells hardware and software packages made by another company (such as an OEM) with extra components added (such as specialist software) to developers and/or end users.

VBI Vertical blanking interval. The time interval between television fields needed for the scanning gun to move from the bottom of the screen to the top for the start of the next field.

VCACHE In Windows, a 32-bit protected-mode cache driver.

VCOMM In Windows, a 32-bit protected-mode communications driver.

VCR Video cassette recorder. An analog magnetic recording and playback machine. Typically used for recording and viewing full-motion video. Also useful as a data backup device.

VGA Video graphics array. A video adapter that supports 640×480-pixel color resolution. A video display standard for boot devices under Windows operating systems.

VM Virtual machine. Software that mimics the performance of a hardware device.

VPE Video Port Extensions. Extensions to the DirectDraw API to control the video stream from the video port within the context of VGA memory.

VxD Virtual device driver. A device driver that runs at the privileged ring 0 protected mode of the microprocessor. Can extend the services of the Windows kernel, supervise hardware operations, or perform both functions. Such driver files are usually named according to the scheme VxD, where *x* refers to the device or service supported.

W

WAN Wide area network. A communications network that connects geographically separated areas. *Compare with* LAN.

warm docking A method of removing or installing a mobile system in a docking station by which the computer can be docked or undocked while in a reduced power state, such as suspend.

WBEM Web-based Enterprise Management. Technology based on standards being developed by DMTF and IETF. WBEM will provide a mechanism to specify information exchange between management applications and managed components.

WDL Windows Driver Library. *See* WHQL.

WDM Win32 Driver Model. A 32-bit driver model based on the Windows NT driver model that is designed to provide a common architecture of I/O services for both Windows and Windows NT for specific classes of drivers. These driver classes include USB and IEEE 1394 buses, audio, still-image capture, video capture, and HID-compliant devices such as USB mice, keyboards, and joysticks. Provides a model for writing kernel-mode drivers and minidrivers, and provides extensions for Plug and Play and power management.

WHQL Windows Hardware Quality Labs. Provides compatibility testing services to test hardware and drivers for Windows NT and Windows. Administers testing for the "Designed for icrosoft Windows" logo programs. Author of WDL and HCL. For more information, see the web site at http://www.microsoft.com/hwtest/.

Win32 API A 32-bit application programming interface for both Windows and Windows NT that includes operating system capabilities, security, and API routines for Windows-based applications.

Windows Refers to the Microsoft Windows 98 operating system, including any add-on capabilities and any later versions of the operating system.

Windows NT Refers to the Microsoft Windows NT version 5.0 operating system, including any add-on capabilities and any later versions of the operating system, unless specific design issues are defined that relate to version 5.0.

Windows NT DDK Documents the Windows NT driver model (upon which WDM is based) and is an essential component for building WDM drivers. Provided through MSDN Professional membership.

Windows NT driver model The layered device driver model used under the Windows NT operating system. For information, see *Inside Windows NT*, by Helen Custer (Microsoft Press, 1993; ISBN 1 -55615-481-X).

WMI Windows Management Instrumentation. Extensions to WDM developed for Windows NT 5.0 and Windows 98 to provide an operating system interface through which instrumented components can provide information and notifications.

workstation In general, a powerful computer with considerable calculating and graphics capabilities.

X

XOR Exclusive OR. A Boolean operation that yields "true" if and only if one of its operands is true and the other is false. *Compare with* OR.

Y

YcrCb *See* YUV.

YUV The method of color encoding for transmitting color video images while maintaining compatibility with black-and-white video. Uses less bandwidth than the three separate video signals in an RGB video transmission. Consists of two major components: luminance (Y), which corresponds to the brightness of an image pixel, and chrominance (UV or CrCb), which corresponds to the color of an image pixel.

Z

Zero Administration initiative for Windows *Also* Zero Administration initiative. An initiative that focuses on improving Windows and Windows NT for maximum automation of administrative tasks with centralized control and maximum flexibility.