NEXTSTEP RELEASE 3.1 FOR INTEL PROCESSORS HARDWARE COMPATIBILITY GUIDE

NEXTSTEP FOR INTEL PROCESSORS DEVICE SUPPORT OVERVIEW

This document describes in general terms the types of PC-compatible hardware that is supported by NEXTSTEP Release 3.1 for Intel Processors. Although many different vendors' systems will work with NEXTSTEP, the systems listed here have been tested and found to be compatible with NEXTSTEP. For any hardware specification or purchase, please contact NeXT for the latest update to this guide.

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When considering a complete system or add-on card, please refer to any available NeXTanswers™ before purchasing equipment.

NeXTanswers™: This guide and many other kinds of information are available from NeXTanswers, NeXT's free information-retrieval system. For NeXTanswers documents by fax, call (415) 780-3990 from a touch-tone phone. For NeXTanswers by Internet mail, send e-mail to nextanswers@next.com with the two-word subject: INDEX HELP.

Driver Updates: NeXT and third parties are constantly developing and enhancing drivers for NEXTSTEP. Updates to existing drivers, or new drivers can be downloaded from the Internet via e-mail or ftp. NeXTanswers provides an easy method to obtain drivers by e-mail. As described above, follow the instructions for obtaining a document via return e-mail. (Note: You must be able to receive NeXT Mail in order to receive a driver through e-mail) To obtain drivers by ftp, use ftp to access ftp.next.com, log in as ‘anonymous’ with any password and cd to pub. In that directory, there is README file that explains how to download drivers and other NeXTanswers information. The drivers are located under NeXTanswers/Files/Drivers. If you have any further questions about how to obtain a Driver Update contact NeXT Technical Support at 1-800-848-NeXT, option 4.

For current device support, please request the latest edition of this NEXTSTEP Hardware Compatibility Guide from NeXTanswers or by calling 1-800-TRY-NeXT (or your local NeXT representative).

Future versions of this guide will contain contact information for the NEXTSTEP-compatible hardware manufacturers and systems integrators mentioned here.

NEXTSTEP-Compatible Desktop Systems

OVERVIEW

GENERAL REQUIREMENTS FOR DESKTOP SYSTEMS

CPU	i486®-based or Pentium™-based PC compatible computer. This includes 486SX, 486SL, 486DX, 486DX2, or Pentium. 486SX systems require a floating-point coprocessor, or upgrade to 486DX or DX2.
EXPANSION BUS	ISA or EISA expansion bus.
AVAILABLE HARD DISK SPACE	NEXTSTEP supports multiple partitioned hard disks, allowing the user to install and boot several operating systems from the same local hard disk. Larger local disks are recommended for stand-alone systems or for systems with a local non-NEXTSTEP partition. **User Environment** 120 MB partition minimum, 200 MB recommended for stand-alone systems. **User + Developer Environments** 330 MB partition minimum, 400 MB recommended.
RAM REQUIREMENTS	RAM requirements vary depending upon your selection of graphics adapter.

Graphics System	Minimum RAM Required	Recommended RAM
16-bit color	16 MB	24 MB
8-bit grayscale	12 MB	16 MB
2-bit grayscale	8 MB	12 MB

GRAPHICS ADAPTERS	See “NEXTSTEP for Intel Processors Graphics” in this guide for details on graphics support.
DISK INTERFACES	IDE and several SCSI hard disk interfaces are supported. Note: A SCSI adapter and SCSI CDROM are required for installation of NEXTSTEP.
POINTING DEVICES	Microsoft®- and Logitec®- compatible PS/2® and serial mice. Logitec bus mouse.
PRINTERS	Any PostScript printer connected via a serial or parallel port, including the NeXT Color Printer (connected via a SCSI port). NeXT recommends color PostScript printers with PostScript Level II for proper color support.
NETWORKING	Several Ethernet and Token Ring networking adapters are supported. A networking adapter is optional.
SOUND	NEXTSTEP can support certain PC sound cards for both playback and recording. A sound card is optional.

NEXTSTEP-Compatible Desktop Systems

TABLE LEGEND

Vendor	Model	Expansion Bus	CPU/Speed	Graphics Architecture	Supported Graphics								Support Status	Notes
					2-bit Grayscale		8-bit Grayscale		16-bit Color					
					640 x 480	1024 x 768	1024 x 768	1280 x 1024	800 x 600	1024 x 768	1120 x 832	1280x 1024		

VENDOR Vendor, manufacturer, or system provider.

MODEL Model number or name of system or series of systems tested with NEXTSTEP.

EXPANSION BUS Standard expansion buses supported. ISA, EISA, VL-Bus (VESA LocalBus), and PCI. Note: EISA systems are compatible with ISA add-on cards.

CPU/SPEED CPUs and CPU speeds (in MHz) available with this series of systems.

GRAPHICS ARCHITECTURE Graphics architecture of the built-in or included graphics adapter. Includes interface (LocalBus, VL-Bus, EISA) and graphics controller. For systems tested with add-on graphics, see “NEXTSTEP for Intel Processors Graphics” in this guide for choice of supported adapters.

SUPPORTED GRAPHICS Supported resolution of the built-in or included graphics adapter. Gray areas indicate supported resolutions and number indicates video frame buffer size (in megabytes) required to support that resolution. “Built-in VGA” indicates resolution supported by built-in standard VGA graphics; higher resolution support may require an add-on graphics adapter.

SUPPORT STATUS Current status of NEXTSTEP compatibility testing.

3.1 Supported by NEXTSTEP Release 3.1.

Driver Update Req. Indicates systems that are compatible with NEXTSTEP and can run at Standard VGA resolution. Higher resolution support will be available with a driver update (available August 93).

Driver Update Avail. Indicates systems that are compatible with NEXTSTEP and require an available driver update for high resolution support

Note: See page 1 of this document for instructions on how to obtain the latest Driver Updates.

NOTES Miscellaneous notes concerning support of this system.

NEXTSTEP-Compatible Desktop Systems

PC MANUFACTURERS

Vendor refer to footnote below 1,2	Model	Expansion Bus	CPU/Speed	Graphics Architecture	Supported Graphics								Support Status	Notes
					2-bit Grayscale		8-bit Grayscale		16-bit Color					
					640 x 480	1024 x 768	1024 x 768	1280 x 1024	800 x 600	1024 x 768	1120 x 832	1280x1 024		
ALR	Evolution IV/e	EISA VL-BUS	486 DX, DX2 33, 50, 66 MHz	VL-Bus ATI 68800					1MB	2MB			ATI Driver Update Req.	LAN Interface on Tri-Combo card not yet supported
AST	Power Premium	EISA	486 DX, DX2 33, 50, 66 MHz	Add-on EISA	Built-in VGA		Select add-on EISA Graphics Adapter						3.1	
	Premmia 4/d	EISA	486 DX, DX2 33, 66 MHz	LocalBus ATI 68800					1MB				ATI Driver Update Req.	
COMPAQ	Deskpro L-Series	EISA	486 DX 50 MHz	EISA QVision			See NEXTSTEP for Intel Processors Graphics section for more info on QVIsion support.						3.1	
	Deskpro M-Series	EISA	486 DX, DX2 33, 50, 66 MHz	EISA QVision									3.1	
	Deskpro 5 / M-Series	EISA	Pentium 60, 66 MHz	EISA QVision									3.1	
DATA GENERAL	Dasher LE2	EISA	486 DX2 66 MHz	LocalBus ATI 68800					1MB	2MB			3.1	
DEC	MTE d2	EISA	486 DX2 66 MHz	LocalBus S3-805			1MB		1MB				S3 Driver Update Req.	
	MTE d2	EISA	486 DX2 66 MHz	LocalBus S3-928			1MB	2MB	1MB	2MB		4MB	S3 Driver Update Req.	
DELL	450DE/2 DGX	EISA	486 DX2 50 MHz	LocalBus JAWS							2MB		3.1	
	ME Series	EISA	486 DX, DX2 33, 50, 66 MHz	LocalBus S3-805			1MB		1MB				3.1	
	M-Series	ISA	486 DX, DX2 33, 50, 66 MHz	LocalBus S3-805			1MB		1MB				3.1	
	L-Series (S3-805)	ISA	486 DX2 66 MHz	LocalBus S3-805			1MB		1MB				3.1	
	L-Series (ET-4000W32)	ISA	486 DX, DX2 33, 50 MHz	LocalBus S3-805		1MB							3.1	33, 50 MHz models may use ET-4000W32
EPSON	Progression NX	ISA	486 DX, DX2 33, 66 MHz	LocalBus C&T Wingine						2MB			3.1	
	NX	ISA	486 DX, DX2 33, 66 MHz	LocalBus C&T Wingine						2MB	2MB		Wingin e Driver Update Avail.	
	Progression	ISA	486 DX, DX2 33, 66 MHz	LocalBus C&T Wingine					1 MB				3.1	
GATEWAY	V-Series	ISA VL-Bus	486 DX, DX2 33, 50, 66 MHz	VL-Bus ATI 68800					1MB	2MB			3.1	

1. When considering a complete system or add-on card, please refer to any available NeXTanswers before purchasing equipment. To contact NeXTanswers, see page one (1) for instructions.

2. A SCSI adapter and SCSI CDROM are required for installation of NEXTSTEP.

NEXTSTEP-Compatible Desktop Systems

PC MANUFACTURERS (CONTINUED)

Vendor refer to footnote below 1,2	Model	Expansion Bus	CPU/Speed	Graphics Architecture	Supported Graphics								Support Status	Notes
					2-bit Grayscale		8-bit Grayscale		16-bit Color					
					640 x 480	1024 x 768	1024 x 768	1280 x 1024	800 x 600	1024 x 768	1120 x 832	1280x1 024		
HEWLETT PACKARD	Vectra U-Series	EISA	486 DX, DX2 33, 50, 66 MHz	Add-on EISA	Built-in VGA		Select add-on EISA Graphics Adapter						3.1	
	Vectra N-Series	ISA	486 DX, DX2 33, 50, 66 MHz	LocalBus S3-805			1MB		1MB				3.1	
	Vectra NI-Series	ISA	486 DX, DX2 33, 50, 66 MHz	LocalBus S3-805			1MB		1MB				3.1	Inc. LAN adapter not yet supported
	Vectra XM-Series	ISA	486 DX, DX2 33, 50, 66 MHz	LocalBus S3-928			1MB	2MB	1MB	2MB			S3 Driver Update Req.	Inc. LAN adapter not yet supported
IBM	ValuePoint 466DX2/S	ISA VL-Bus	486 DX, DX2 33, 66 MHz	LocalBus S3-805			1MB		1MB				S3 Driver Update Req.	Only SCSI hard drives are currently supported on these systems.
	ValuePoint 466DX2/D	ISA VL-Bus	486 DX, DX2 33, 66 MHz	LocalBus S3-805			1MB		1MB				S3 Driver Update Req.	Only SCSI hard drives are currently supported on these systems.
	ValuePoint 466DX2/T	ISA VL-Bus	486 DX, DX2 33, 66 MHz	LocalBus S3-805			1MB		1MB				S3 Driver Update Req.	Only SCSI hard drives are currently supported on these systems.
INTEL	GX/Professional	EISA	486 DX2 66 MHz	LocalBus ATI 68800						2MB			3.1	Driver Update Req. for on-board sound support.
LOGISYS / **LUCKY GOLDSTAR**	LG 486NX	ISA VL-Bus	486 DX, DX2 33, 66 MHz	LocalBus C&T Wingine						2MB			3.1	
NCR	3333	ISA VL-Bus	486 DX2 66 MHz	VL-Bus	Built in VGA		Select add-on VL-Bus Graphics Adapter						3.1	Std. VL-Bus graphics adapter not supported
NEC	PowerMate Express/e	EISA	486 DX, DX2 33, 50, 66 MHz	Add-on EISA	Built in VGA		Select add-on EISA Graphics Adapter						3.1	
	I-Series	ISA	486 DX, DX2 33, 50, 66 MHz	LocalBus ET4000AX									3.1	
	Image 466	ISA	486 DX2 66 MHz	LocalBus ET4000W3 2									3.1	
UNISYS	U6000 DT2	EISA	486 DX2 66 Mhz	LocalBus ATI 68800					1MB	2MB			3.1	Requires high-resolution RAMDAC for NEXTSTEP support. On-board SCSI & LAN not yet supported.
ZENITH	Z-Station XEn	EISA	486 DX, DX2 33, 50, 66 MHz	Add-on EISA	Built in VGA		Select add-on EISA Graphics Adapter						3.1	
HARDWARE SYSTEMS INTEGRATORS														
CONTINENTAL COMPUTER	3800 NeXT EISA	EISA VL-Bus	486 DX, DX2 33, 50, 66 MHz	VL-Bus ATI 68800					1MB	2MB			3.1	
	3800 NeXT ISA	ISA VL-Bus	486 DX, DX2 33, 50, 66 MHz	VL-Bus ATI 68800					1MB	2MB			3.1	
GEC COMPUTERS	Jet F86	ISA, EISA VL-Bus	486 DX, DX2 33, 50, 66 MHz	VL-Bus ATI 68800					1MB	2MB			3.1	

1. When considering a complete system or add-on card, please refer to any available NeXTanswers before purchasing equipment.
To contact NeXTanswers, see page one (1) for instructions.

2. A SCSI adapter and SCSI CDROM are required for installation of NEXTSTEP.

NEXTSTEP-Compatible Portable Systems

OVERVIEW

GENERAL REQUIREMENTS FOR PORTABLE SYSTEMS

CPU

i486-based PC compatible portable computer. This includes 486SX, 486SL, 486DX, 486DX2. 486SX systems require a floating-point coprocessor, or upgrade to 486DX or DX2.

AC-POWERED PORTABLES

AC-powered portables require at least one ISA or EISA slot for a SCSI adapter to install NEXTSTEP from CD-ROM.

BATTERY-POWERED PORTABLES AND DOCKING STATIONS

Battery-powered portables require a docking station with at least one ISA slot for a SCSI adapter to install NEXTSTEP from a SCSI CD-ROM drive. Once NEXTSTEP is installed, the portable may be used away from the docking station.

AVAILABLE HARD DISK SPACE

NEXTSTEP supports multiple partitioned hard disks, allowing the user to install and boot several operating systems from the same local hard disk. Larger local disks are recommended for stand-alone systems or for systems with a local non-NEXTSTEP partition.

User Environment 120 MB partition minimum, 200 MB recommended for stand-alone systems.

User + Developer Environment 330 MB partition minimum, 400 MB recommended.

RAM REQUIREMENTS

RAM requirements vary depending upon the user's selection of graphics adapter.

Graphics System	Minimum RAM Required	Recommended RAM
16-bit color	16 MB	24 MB
8-bit grayscale	12 MB	16 MB
2-bit grayscale	8 MB	12 MB†

Note: Since 16-bit color and 8-bit grayscale support require LocalBus, VL-Bus, PCI, or EISA graphics adapters, only AC-powered portables with EISA slots can support 16-bit color or 8-bit grayscale.

GRAPHICS ADAPTERS

Current display panel technology in popular portable PC-compatibles is limited to 640 x 480 resolution and cannot yet display 16-bit color. These systems do not yet support the linear frame buffer NEXTSTEP requires for 16-bit color or 8-bit grayscale. Therefore, NEXTSTEP supports these systems with 2-bit grayscale at 640 x 480. Active matrix or plasma panels are recommended for better cursor tracking response. ISA systems (AC-powered or through a docking station) can support add-on, high-resolution 2-bit grayscale graphics adapters and EISA-based AC-powered portables can support 16-bit color or 8-bit grayscale graphics with an add-on EISA graphics adapter.

DISK INTERFACES

Both built-in IDE and add-on SCSI hard disk interfaces are supported. Battery-powered portables require a docking station to install a SCSI hard disk interface card.

POINTING DEVICES

Microsoft- and Logitec-compatible PS/2 and serial mice are supported.

PRINTERS

Any PostScript printer connected via a serial or parallel port, including the NeXT Color Printer (connected via a SCSI port). NeXT recommends color PostScript printers with PostScript Level II for proper color support.

NETWORKING

Ethernet and Token Ring networking adapters are supported. Battery-powered portables require a docking station to install a networking adapter. A networking adapter is optional.

SOUND

NEXTSTEP can support certain PC sound cards for both playback and recording. Battery-powered portables require a docking station to install a sound card. A sound card is optional.

† *NeXT recommends a minimum of 12 MB of RAM for acceptable performance on portables.*

NEXTSTEP-Compatible Portable Systems

TABLE LEGEND

Vendor	Model	Power Source	Built-in Panel Type	Built-in Expansion	Docking Station Expansion	CPU/Speed	Max DISK/ RAM	Supported Graphics Resolution 2-bit Grayscale				Support Status	Notes
								Built-in Panel	External Monitor				
								640 x 480	640 x 480	800 x 600	1024 x 768		

VENDOR
Vendor, manufacturer, or system provider.

MODEL
Model number or name of system (or series of systems) tested with NEXTSTEP.

POWER SOURCE
Standard power source: AC or battery.

BUILT-IN PANEL TYPE
Built-in display panel technology: passive matrix, active matrix, or plasma.

BUILT-IN EXPANSION
For AC-powered portables: Fax/Modem, etc., + ISA or EISA slots. For battery-powered portables: Fax/ Modem, PCMCIA, etc. This is reference information only, and does not represent supported devices.

DOCKING STATION EXPANSION
For battery-powered portables, ISA, Mass Storage (MS), Keyboard + Mouse + Monitor Port (KMM). NA indicates not applicable to AC-Powered portables.

CPU/SPEED
CPUs and CPU speeds (in MHz) available with this series of systems.

MAX DISK/RAM
Maximum hard disk and RAM supported by this system. Contact manufacturer for current sizes supported.

SUPPORTED GRAPHICS RESOLUTION 2-BIT GRAYSCALE
Supported resolution of the built-in graphics adapter. Gray areas indicate supported resolutions. “Built-in Panel” indicates resolution supported by built-in graphics display panel. “External Monitor” indicates resolution supported by the built-in graphics adapter when connected to an external monitor.

SUPPORT STATUS
Support Status indicates current status of compatibility testing with NEXTSTEP.

3.1 Supported by NEXTSTEP 3.1.

NOTES
Miscellaneous notes concerning support of this system.

NEXTSTEP-Compatible Portable Systems

PC MANUFACTURERS

Vendor Refer to foot-note below 1,2,3	Model	Power Source	Built-in Panel Type	Built-in Expan-sion	Docking Station Expansion	CPU/Speed	Max DISK/ RAM	Supported Graphics Resolution 2-bit Grayscale				Support Status	Notes
								Built-in Panel	External Monitor				
								640 x 480	640 x 480	800 x 600	1024 x 768		
ALTIMA	433D	Battery	Passive Matrix Mono	Fax/Modem	ISA	486 DX 33 MHz	200/20					3.1	Contact NeXTanswers for update on pointer support.
AST	PowerExec 4SL	Battery	Passive Mono or Color	Fax/Modem	ISA, MS, KMM	486SL 25 MHz	200/32					3.1	
	PowerExec 4SL	Battery	Active Matrix Mono	Fax/Modem	ISA, MS, KMM	486SL 25 MHz	200/32					3.1	
COMPAQ	Portable 486/M	AC	Passive Matrix Mono	Fax/Modem EISA	NA	486 DX, DX2 33, 66 MHz	525/32					3.1	
	Portable 486/C	AC	Active Matrix Color	Fax/Modem EISA	NA	486 DX, DX2 33, 66 MHz	525/32					3.1	
	LTE Lite4/25c	Battery	Active Matrix Color	Fax/Modem	ISA, MS, KMM	486SL 25 MHz	200/20					3.1	Contact NeXTanswers for update on built-in trackball support
NEC	Prospeed 486C	AC	Active Matrix Color	Fax/Modem EISA	NA	486SX 20 MHz	200/20					3.1	Requires floating- point upgrade
	UltraLite Versa M	Battery	Passive Matrix Mono	PCMCIA	ISA, MS, KMM	486SL 20, 25 MHz	180/12					3.1	
	UltraLite Versa C	Battery	Active Matrix Color	PCMCIA	ISA, MS, KMM	486SL 20, 25 MHz	180/12					3.1	
TOSHIBA	T6400DX	AC	Passive Mono or Plasma	Fax/Modem ISA	NA	486 DX, DX2 33, 50 MHz	200/32					3.1	
	T6400DXC	AC	Active Matrix Color	Fax/Modem ISA	NA	486 DX, DX2 33, 50 MHz	200/32					3.1	
	T4400SX	Battery	Passive Mono or Plasma	Fax/Modem	ISA, MS, KMM	486SX 25 MHz	120/20					3.1	Requires floating- point upgrade
	T4400SXC	Battery	Active Matrix Color	Fax/Modem	ISA, MS, KMM	486SX 25 MHz	120/20					3.1	Requires floating- point upgrade
	T4400C	Battery	Active Matrix Color	Fax/Modem	ISA, MS, KMM	486DX 25 MHz	200/20					3.1	

1. When considering a complete system or add-on card, please refer to any available NeXTanswers before purchasing equipment.
To contact NeXTanswers, see page one (1) for instructions.

2. A SCSI adapter and SCSI CDROM are required for installation of NEXTSTEP.

3. A docking station, SCSI adapter and SCSI CDROM are required for installation of NEXTSTEP.

NEXTSTEP for Intel Processors Graphics

OVERVIEW

NEXTSTEP GRAPHICS SYSTEM

NEXTSTEP for Intel Processors' Display Postscript graphic system supports such advanced capabilities as scalable fonts, unified imaging model for both screen display and printing, image transparency (also known as alpha channel), Pantone color matching, and Pixar Interactive Renderman 3D imaging. NEXTSTEP's window server composites multiple layers of images, and allows the user to work with images of any quality with any supported imaging model, in other words users can work with a 32-bit color image even on a 2-bit grayscale system! In order to provide these sophisticated capabilities NEXTSTEP requires a “workstation”-style linear frame buffer graphics system and a high performance 32-bit data path to the frame buffer. The number of colors or shades of gray, depth of transparency, etc., varies depending on the image model supported.

Imaging Model	Colors or Shades of Gray	Transparency (alpha channel)	Window Server Support for Renderman 3D Graphics
32-bit color	24-bit (16M colors)	8-bit (256 levels)	Yes
16-bit color	12-bit (4,096 colors)	4-bit (16 levels)	Yes

32-BIT COLOR

32-bit color support on Intel-based PCs is planned for the 3.2 release of NEXTSTEP for Intel Processors.

16-BIT COLOR

Graphics Architectures Supported Intel JAWS (such as DELL Processor-Direct Graphics), Chips and Technologies Wingine, ATI Graphics Ultra Pro (68800), S3-805, S3-928 and Compaq QVision. Due to the performance requirements of 16-bit color, these graphics adapters must be connected via LocalBus, VESA LocalBus (VL-Bus), PCI or EISA. The ISA expansion bus does not provide the 32-bit data path, or adequate performance to support NEXTSTEP 16-bit color. Future support is planned for the Tseng Labs ET-4000W32. Refer to the Desktop Systems and Add-on Graphics Adapter charts for specific adapter support.

Supported Resolutions 800 x 600, 1024 x 768, 1120 x 832 or 1280x1024. Specific support varies by graphics adapter and graphics frame buffer size.

8-BIT GRAYSCALE

Graphics Architectures Supported S3-805 and Compaq QVision. Due to the performance requirements of 8-bit grayscale, these graphics adapters must be connected via LocalBus, VESA LocalBus (VL-Bus), PCI or EISA. The ISA expansion bus does not provide the 32-bit data path, or adequate performance to support NEXTSTEP 8-bit grayscale. Future support is planned for the ATI Graphics Ultra Pro (68800), Tseng Labs ET-4000W32i and S3-928. Refer to the Desktop Systems and Add-on Graphics Adapter charts for specific adapter support.

Supported Resolutions 1024 x 768 or 1280 x 1024. Specific support varies by graphics adapter and graphics frame buffer size.

2-BIT GRAYSCALE

NeXT has developed a special driver that simulates the linear frame buffer required by NEXTSTEP's graphics system on segmented frame buffer graphics adapters such as standard VGA and Super VGA cards. This allows NEXTSTEP to support most standard VGA cards as well as certain Super VGA cards. Refer to the Desktop Systems and Add-on Graphics Adapter charts for specific adapter support.

Graphics Architectures Supported Standard VGA compatible and certain Super VGA graphics adapters using the Tseng Labs ET-4000AX or Cirrus Logic GD 542X. These graphics adapters can be connected via LocalBus, VESA LocalBus (VL-Bus), PCI, EISA or ISA.

Supported Resolutions 640 x 480 (Standard VGA) or 1024 x 768 (Super VGA).

NEXTSTEP for Intel Processors Graphics

TABLE LEGEND

Graphics Controller	Vendor	Model	Expansion Bus/Interface	Supported Graphics Resolutions							Driver	Support Status	Notes
				2-bit Grayscale		8-bit Grayscale		16-bit Color					
				640 x 480	1024 x 768	1024 x 768	1280 x 1024	800 x 600	1024 x 768	1120 x 832			

GRAPHICS CONTROLLER	Graphics controller used by the add-on graphics adapter.
VENDOR	Vendor, manufacturer, or system provider of the graphics adapter.
MODEL	Model number or name of the add-on adapter.
EXPANSION BUS/ INTERFACE	Expansion Bus or Interface used by this graphics adapter: LocalBus, VL-Bus (VESA Standard LocalBus), PCI, ISA, or EISA.
SUPPORTED GRAPHICS RESOLUTIONS	Supported resolution of the graphics adapter. Gray areas indicate supported resolutions and number indicates video frame buffer size (in megabytes) required to support that resolution.
DRIVER	Name of graphics driver used by NEXTSTEP for Intel Processor' Configure application (Video Devices section).
SUPPORT STATUS	Support Status indicates current status of compatibility testing with NEXTSTEP. **3.1** Supported by NEXTSTEP 3.1.
NOTES	Miscellaneous notes concerning support of this graphics adapter.

NEXTSTEP for Intel Processors Graphics

MANUFACTURERS OF GRAPHICS ADAPTERS

Graphics Controller	Vendor	Model	Expansion Bus/Interface	Driver Supported Graphics Resolutions							Driver	Support Status	Notes
				2-bit Grayscale		8-bit Grayscale		16-bit Color					
				640 x 480	1024 x 768	1024 x 768	1280 x 1024	800 x 600	1024 x 768	1120 x 832			
ATI 68800	ATI	Graphics UltraPro VL-Bus	VL-Bus					1 MB	2 MB		ATI Ultra Pro	3.1	
	ATI	Graphics UltraPro EISA	EISA					1 MB	2 MB		ATI Ultra Pro	3.1	
COMPAQ QVISION	Compaq	QVision 1024/E	EISA			1 MB		1 MB			Compaq QVision	3.1	
	Compaq	QVision 1280/E	EISA			1 MB	2 MB	1 MB	2 MB		Compaq QVision	3.1	
CIRRUS LOGIC GD542X	STB	Horizon	ISA		.5 MB						Cirrus Logic GD542X	3.1	
JAWS	DELL	450DE/2 DGX	LocalBus							2 MB	DELL JAWS DGX	3.1	Upgrade for DELL 450DE only
TSENG LABS ET-4000AX			ISA		.5 MB						Tseng Labs ET-4000	3.1	Please refer to future versions of this guide for specific adapters.
STANDARD VGA	Various	Various	ISA								Default VGA Adapter	3.1	

ADDITIONAL DEVICE SUPPORT

NEXTSTEP FOR INTEL PROCESSORS DEVICE SUPPORT

NEXTSTEP supports a variety of additional devices and add-on adapters.

DISK INTERFACES	Both IDE and several SCSI hard disk interfaces are supported.
POINTING DEVICES	Microsoft®- and Logitec®-compatible PS/2® and serial mice. Logitec bus mouse.
PRINTERS	Any PostScript printer connected via a serial or parallel port, including the NeXT Color Printer (connected via a SCSI port). NeXT recommends PostScript printers with PostScript Level II for proper color support.
NETWORKING	Several Ethernet and Token Ring networking adapters are supported. A networking adapter is optional.
SOUND	NEXTSTEP can support certain PC sound cards for both playback and recording. A sound card is optional.
ADDITIONAL DEVICES	Other popular PC peripherals such as FAX/Modems will be supported.

DRIVERKIT

NEXTSTEP for Intel Processors incorporates a newly developed object-oriented driver architecture called DriverKit. DriverKit allows the quick development of device drivers for new peripherals and add-on cards for Intel-based PCs running NEXTSTEP. DriverKit's architecture allows drivers to be loaded at run-time, thereby allowing users to add additional cards or devices to their systems without re-installing the main operating system. Loadable device drivers also allow NeXT and third parties to easily distribute additional drivers as they become available. NeXT is actively working with hardware manufacturers and third parties to provide additional drivers for NEXTSTEP for Intel Processors.

Developers interested in the DriverKit should contact NeXT Developer Relations (1-800-TRY-NeXT) and join the registered developer program.

NEXTSTEP for Intel Processors

ADDITIONAL DEVICE SUPPORT LEGEND

Device Type	Vendor	Model	Expansion Bus/Interface	Additional Features	Driver	Support Sta-tus	Notes

DEVICE TYPE	Class of device or adapter supported.
VENDOR	Vendor, manufacturer, or system provider of the supported device or adapter.
MODEL	Model number or name of the supported device or adapter.
EXPANSION BUS/ INTERFACE	Expansion Bus or Interface used by this device: CPU Board (built onto the systems CPU board), LocalBus, VL-Bus (VESA Standard LocalBus), PCI, ISA, or EISA. Note: EISA expansion bus slots are compatible with ISA adapters.
ADDITIONAL FEATURES	Additional features of the device, or class of devices. This includes additional capabilities and/or protocols supported by this device or adapter.
DRIVER	Name of driver used by NEXTSTEP for Intel Processor's Configure application.
SUPPORT STATUS	Support Status indicates current status of compatibility testing with NEXTSTEP. **3.1** Supported by NEXTSTEP 3.1. **Driver Update Req.** Indicates complete support of this device requires an updated driver from NeXT. **Driver Update Avail.** Indicates complete support of this device requires an available driver update. Note: See page 1 of this document for instructions on how to obtain the latest Driver Updates. **Planned 3.2** Indicates that drivers sufficient for support of this device are planned for the next major release of NEXTSTEP, or a future driver update diskette.
NOTES	Miscellaneous notes concerning support of this device or adapter.

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ADDITIONAL DEVICE SUPPORT PRODUCTS

Device Type refer to footnote below 1	Vendor	Model	Expansion Bus/Interface	Additional Features	Driver	Support Status	Notes
FLOPPY DISK		3.5in 1.44MB Floppy			Floppy Disk Controller	3.1	
IDE HARD DISK INTERFACE		IDE			IDE Disk Controller	3.1	
SCSI HARD DISK INTERFACE	Adaptec	1540 B or C	ISA		Adaptec 1542B SCSI Adapter	3.1	
		1542 B or C	ISA		Adaptec 1542B SCSI Adapter	3.1	Built-in floppy disk interface not supported
		1740	EISA			Planned 3.2	
		1742	EISA			Planned 3.2	Built-in floppy disk interface not supported
	Bus Logic	542B	ISA		Adaptec 1542B SCSI Adapter	3.1	
		747S	EISA		Adaptec 1542B SCSI Adapter	3.1	
	DPT	2011/90	ISA	512K-16.5MB Cache upgradable		Planned 3.2	Req. Specific firmware version. See NeXTanswers.
		2011/95	ISA	512K-16.5MB Cache upgradable		Planned 3.2	Built-in floppy disk interface not supported. Req. Specific firmware version. See NeXTanswers.
		2012/90	EISA	512K-16.5MB Cache upgradable	DPT 2012-B EISA SCSI Adapter	3.1	Req. Specific firmware version. See NeXTanswers.
		2012/95	EISA	512K-16.5MB Cache upgradable	DPT 2012-B EISA SCSI Adapter	3.1	Built-in floppy disk interface not supported. Req. Specific firmware version. See NeXTanswers.
SCSI TAPE		SCSI Tape			SCSI Tape Driver	Driver Update Avail.	
PARALLEL PORT		Standard Parallel Port			On-Board Parallel Port	3.1	Add-on Parallel Cards Not Supported.
SERIAL PORTS		Standard Serial Ports		Supports COM1 & COM2	On-Board Serial Ports	3.1	
LOCAL AREA NETWORK ADAPTERS	3COM	EtherLink III (3C509)	ISA	Ethernet Coax	3COM EtherLink III Ethernet Adapter	3.1	Twisted Pair not Supported
	3COM	EtherLink III(3C579)	EISA	Ethernet Coax	3COM EtherLink III Ethernet Adapter	3.1	Twisted Pair not Supported
	SMC	EtherCard PLUS Elite 16 (8013)	ISA	Ethernet Coax or Twisted Pair	SMC 16 Ethernet Adapter	3.1	
	Intel	EtherExpress 16 (TP, Coax or Combo)	ISA	Ethernet Coax or Twisted Pair	Intel EtherExpress Ethernet Adapter	3.1	Support of TP port requires a Driver Update.
		TokenExpress ISA/16s	ISA	Token Ring	Intel TokenExpress ISA Token-Ring	3.1	

1. When considering a complete system or add-on card, please refer to any available NeXTanswers before purchasing

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ADDITIONAL DEVICE SUPPORT PRODUCTS (CONTINUED)

Device Type refer to footnote below 1	Vendor	Model	Expansion Bus/Interface	Additional Features	Driver	Support Status	Notes
POINTING DEVICES	Microsoft	MS Mouse or Compatible	Serial or PS/2 Mouse Port		Serial Mouse or PS/2-Style Mouse	3.1	
	Logitec	Mouse Man (Right or Left)	Serial or PS/2 Mouse Port		Serial Mouse or PS/2-Style Mouse	3.1	
		Mouse Man Bus	Bus Mouse Adapter		Bus Mouse	3.1	
AUDIO DEVICES	Media Vision	ProAudio Spectrum 16	ISA	Up to CD Quality Stereo Record & Playback	ProAudioSpectrum 16	3.1	
		Pro Studio 16	ISA	Up to CD Quality Stereo Record & Playback	ProAudioSpectrum 16	3.1	
	Intel	GX/Professional CPU-Board Audio Support	CPU Board	Up to CD Quality Stereo Record & Playback		GX Sound Driver Update Req.	
	Compaq	Business Audio	CPU Board	Up to CD Quality Stereo Record & Playback		Driver Update Req.	
	Microsoft	Sound System	ISA	Up to CD Quality Stereo Record & Playback		Driver Update Req.	
		Standard PC Speaker Support	CPU Board	System Audio Alerts only	System Beep Driver	3.1	
PRINTERS	NeXT	NeXT Color Printer	SCSI			3.1	
		Standard Adobe PostScript Printers	Serial or Parallel			3.1	PostScript Level II recommended for proper color support.

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