



NeXTSTATION COLOUR NeXTSTATION TURBO COLOUR



NeXTstation Colour computers combine near photographic quality colour and an object-oriented operating and development environment in an easy-to-use, professional colour workstation.

In addition to the same powerful core technologies found in all NeXTstation™ computers, the 25-megahertz NeXTstation Colour and 33-megahertz NeXTstation Turbo Colour can also display 4,096 colours simultaneously on NeXT's MegaPixel Colour Displays. The ability to display true colour images makes these systems ideal for publishing, presentations, graphic design, computer-aided design, data analysis, and virtually all other applications where colour display capabilities are required.

NeXTstation Colour computers – which may be configured with 16 to 128 MB of memory – take advantage of the colour support offered in Display PostScript®, which features the capability of real-time software dithering allowing NeXTstation Colour computers to display 32-bit-per-pixel images in 16 bits with near photographic quality.

The technical advances featured in the NeXTstation Colour product line, combined with an operating and development environment unequalled in the computer industry, add up to a system capable of handling today's – and tomorrow's – true colour requirements and applications.

FEATURES AND BENEFITS

Motorola 68040	Combined central processing (CPU), floating-point (FPU) and paged memory management (PMMU) units with 8 kilobytes of on-chip cache memory.	A highly integrated microprocessor providing excellent computing performance, high data transfer rate, and exceptional reliability.
16-bit-per-pixel colour		NeXTstation Colour computers can display 4,096 colours simultaneously, with real-time software dithering of 32-bit images, letting you create images of near-photographic quality.
NeXT-designed ICs	Memory controller	Supports up to 128 MB of fast, interleaved RAM, with prefetching.
	Peripheral controller	Supports off-loading of all seven DMA peripheral channels from the main processor, and is capable of running at 50 MB per second.
Motorola 56001 DSP		Provides fast processing of large matrix calculations - used for generating CD-quality sound, music, speech, and tone detection.
MegaPixel Colour Display	1120 x 832 resolution with 92 dpi	The 17-inch or 21-inch colour displays let you view sharp, clear text and graphics as well as breathtaking colour images, with enough space for running multiple applications simultaneously.
Eight built-in ports	SCSI Two RS-423 serial ports DSP I/O port Display port Laser printer port Two Ethernet (twisted and thin) ports	Support of up to seven SCSI peripherals. Allows NeXTstations to be tailored to meet your needs with popular serial-based peripherals such as fax and data modems without using expansion slots. Supports direct I/O access to the DSP. Provides connection to built-in video. Allows direct connection to NeXT's 400 dpi Laser Printer. Provides easy connection to virtually any Ethernet network without having to purchase additional cards or adaptors.
Built-in sound I/O		Allows voice input to applications with sound-handling capabilities and provides dual channel CD-quality output.
NeXT 2.88 MB floppy disk drive		2.88 MB of storage space using extended density (ED) disks, as well as 720 KB and 1.44 MB disks. Allows for convenient transfer of data files between Macintosh®, OS/2®, and MS-DOS®.
16 MB on-board RAM	4 high-speed SIMM memory sockets expandable to 128 MB	Supports 16 and 32 MB SIMMs in two-SIMM increments. When denser chips (16 MB) become available, NeXTstations can be upgraded up to 128 MB.
Optional parity support		Parity memory checking is available when optional parity RAM is installed.
NeXTstep™		UNIX®-based operating environment optimized for multitasking and networking. Offers superior graphical user interface and development environment, with the only object-oriented system software available on the market today.

PRODUCT DETAILS

68040 Processor

The 68040 is a fast and highly integrated microprocessor with clock speeds of either 25 MHz or 33 MHz. The 68040 contains 1.2 million transistors, more than any other microprocessor in its class. This incredible number of transistors is required because the 68040 is actually four chips in one; a central processing unit, a floating point unit, a paged memory management unit, and 8 kilobytes of cache memory. The system clock speed is identical to the CPU bus speed, providing an average execution time per instruction of 1.3 clock cycles.

There are two 4-kilobyte memory caches, one for data, the other for instructions, along with burst mode read and write-back caching for improved data transfers.

56001 DSP

Built into the NeXTstation's design is the 56001 DSP, a 25 MHz digital signal processor. With 24 K of static RAM cache, upgradable to 96 K, the DSP is dedicated to the task of handling digital signals - such as sound - at exceptional speeds.

The DSP is capable of generating compact-disc-quality sound: 44.1 kHz sampling rate with 16-bit resolution and full stereo.

Other uses for the DSP range from receiving still and video images to a variety of other data transmission and acquisition activities.

Network Support

Built-in networking, both thin and twisted-pair Ethernet ports are designed into all NeXT® computers.

Network software and administrative tools are preloaded on all hard drives to simplify connecting to virtually any network, with no additional cards to purchase, install, or configure.

DMA Architecture

NeXT computers were designed to handle the most complex tasks efficiently. Rather than emulating a traditional PC or workstation architecture, NeXT systems used a direct memory access (DMA) architecture similar to that of mainframe computers for off-loading I/O functions from the CPU to the peripheral controller (PC) chip to maximize system throughput.

RAM Configurations

NeXTstation Colour computers are currently available in 16, or 32 MB RAM configurations. To support the fast memory transfer capability of the Turbo Memory Controller (TMC), NeXTstations utilise very-high speed (70-nanosecond) 72-pin DRAM SIMMs.

RAM upgrades can be added incrementally in two-SIMM increments up to 32 MB of RAM.

When denser chips (16 MB) become available, NeXTstations can be upgraded up to 128 MB.

Parity memory is also an option, and can be ordered on a select number of 16 MB configurations.

SCSI

SCSI is an expandable high-performance interface for connecting NeXTstations to hard disks and other peripherals, such as the NeXT Colour Printer, NeXT CD-ROM Drive, scanners, and other devices. Up to seven SCSI peripherals (including the internal hard disk) can be connected.

SCSI data transfer rates are up to 4.8 MBytes per second (SCSI implementation).

A SCSI-II-type connector was used on NeXTstations to provide high data reliability in CPU-to-peripheral connection.

Sound I/O

NeXT computers have been designed to accept and process sound.

Using the built-in microphone in the MegaPixel Display™ or an external microphone, voice messages can be easily added to electronic mail or used to annotate applications.

NeXTstep

Based on the industry's first object-oriented system software, NeXTstep offers an elegant graphical user interface and one of the most productive development environments available today.

UNIX

NeXT's operating system is based on the Mach UNIX kernel developed at Carnegie Mellon University, which features shared memory, fast inter-process communication, multi-tasking, and network support.

NeXT's UNIX is compatible with UNIX 4.3 BSD (Berkeley Software Distribution).

Display PostScript

NeXT offers a unified imaging model, Display PostScript, for imaging on both the screen and printer.

Bundled Software

Each NeXTstation ships with an unprecedented amount of end-user and development software including:

End-User Applications

- Workspace Manager™
- NeXTmail™
- Digital Webster™ (Webster's Ninth New Collegiate Dictionary™ and Collegiate® Thesaurus) - English only
- Digital Librarian™
- Mathematica® - for higher education customers only
- FaxReader
- Preferences
- Preview for PostScript®
- PrintManager

System Administration Applications

- VT100™
- BuildDisk
- BuildDOS
- InstallTablet
- MailManager
- NetInfoManager
- NetManager
- PrinterTester
- UserManager

NeXTstep Release 2.2 Extended also includes:

Example Applications and Utilities

- Oxford® Dictionary of Quotations
- William Shakespeare: The Complete Works (for Digital Librarian)
- Dataviz/Bridge
- TEX™ Document Processing System (Radical Eye Software)

Developer Tools

- Interface Builder™
- NeXT Compiler for the Objective C Language
- C++ Language Compiler
- Objective C Class Definitions
- 56001 DSP Tools
- GNU Emacs
- GNU Debugger
- Bug-56™ Debugger (Ariel)
- Malloc Debugger
- ApplInspector™
- PostScript Tools
- Application Kit™
- Music Kit™
- Sound Kit™
- On-line technical documentation
- Edit



TECHNICAL SPECIFICATIONS

PROCESSORS

Motorola 68040 25/33 MHz CPU

- Integrated Central Processing Unit
- Integrated Memory Management Unit
- Integrated Floating-Point Unit
- Integrated 8-kilobyte instruction/data caches

Performance 25 MHz

- 18.6 Dhrystone MIPS
- 2.0 MFLOPS DP LINPACK
- 10.9 SPEC marks

Performance 33 MHz

- 25 Dhrystone MIPS
- 2.9 MFLOPS DP LINPACK
- 16.3 SPEC marks

Memory Controller

- Controls up to 128 MB of interleaved main memory
- Performs in-line memory prefetching

Peripheral Controller

- Controls 7 DMA channels
- 50 MB/sec bandwidth

Motorola 56001 25 MHz Digital Signal Processor

MEMORY

DRAM Main Memory

- 16 MB to 128 MB of main memory
- Optional main memory parity checking
- Expandable using DRAM SIMM modules

DSP Static Memory

- 24 kilobytes DSP static RAM
- Expandable up to 96 kilobytes using an SRAM SIMM module

INTERNAL MASS STORAGE

3.5-inch Floppy Disk Drive

- 2.88 MB formatted capacity using extended density (ED) disks
- 3.5-inch third-height form factor
- Read/Write compatible with 720 KB and 1.44 MB disks

105 MB Hard Disk Drive

- 3.5-inch third-height form factor
- 105 MB formatted capacity
- 17 ms average seek time
- 4.0 MB/sec maximum transfer rate (synchronous)
- Software Release 2.2 pre-installed on disk

250 MB Hard Disk Drive (optional)

- 3.5-inch half-height form factor
- 239 MB formatted capacity
- 13 ms average seek time
- 4.0 MB/sec maximum transfer rate (synchronous)
- Software Release 2.2 pre-installed on disk

400 MB Hard Disk Drive (optional)

- 3.5-inch half-height form factor
- 406 MB formatted capacity
- 13 ms average seek time
- 4 MB/sec maximum transfer rate (synchronous)
- Software Release 2.2 Extended preinstalled on disk

DISPLAY

MegaPixel Colour Display

- 17-inch MegaPixel Colour Display
- 16-inch viewable (true flat square)
- 1120 x 832 resolution at 2 bits/pixel
- 68 Hz refresh rate, noninterlaced
- 92 dots per inch
- CD-quality stereo sound via line outs and headphone jack
- Glare-reduction screen
- Built-in tilt mechanism

Sound Box

- Integrated monophonic speaker and microphone
- Headphone and RCA-style stereo output jacks
- NeXT keyboard and mouse interface

INPUT DEVICES

Keyboard

- 84 keys, including: cursor keys, numeric pad, monitor brightness, sound volume, and power on/off

Mouse

- Two-button opto-mechanical mouse

COMMUNICATION AND INTERFACES

- Thin Ethernet, IEEE 802.3a compatible at 10 Mbit/sec
- Twisted-pair Ethernet, 10BaseT-compatible at 10 Mbit/sec
- Two RS-423 serial ports
- SCSI-2 connector with transfer rate of 4.8 MB/sec (burst rate)
- Laser printer port (for NeXT 400 dpi Laser Printer)
- Digital Signal Processor port
- MegaPixel Display port

OTHER NeXTSTATION COLOUR SPECIFICATIONS

Size

- 397.8 mm (h) x 364.5 mm (w) x 64 mm (d) (15.66 in. x 14.35 in. x 2.5 in.)
- Magnesium structure with plastic housing

Weight

- 5.5 kg to 6.6 kg (12 lbs. to 14.5 lbs.)

Power

- Parallel Resonance Switching technology
- 100V to 240V, 47 Hz to 63 Hz self-adapting
- 150W, 2.5A maximum (including MegaPixel Display)

OPERATING ENVIRONMENT

- Ambient temperature: 0°C to 40°C (32°F to 104°F)
- Relative humidity: 10% to 90%
- Altitude: 0 to 4,572 m (0 to 15,000 ft.)

REGULATIONS

- UL478, CSA 220, and IEC950 (EN60950) product safety requirements
- FCC Class A, VCCI Class 1, CISPR-22 Class A (EN550022) EMI requirements

All performance numbers shown were attained using Release 3.0 compilers, GNU C 1.36, Absoft FORTRAN 77 3.1, Greenhills Fortran-68000 1.8.5, Kuck and Associates Preprocessor.

ORDERING INFORMATION

NeXTSTATION TURBO COLOUR 16/250 COMPUTER SYSTEM

NeXTstation Turbo Colour - 16/250
Order No. N1200-4492
Order No. for Germany N1200-4506
NeXTstation professional workstation with 16 MB of RAM two each 8 MB SIMMs), built-in 2.88 MB floppy disk drive, and 250 MB hard disk drive; includes 0.5 m MegaPixel Display cable

NeXTSTATION TURBO COLOUR 32/400 COMPUTER SYSTEM

NeXTstation Turbo Colour - 32/400
Order No. N1200-4495
Order No. for Germany N1200-4509
NeXTstation Colour professional workstation with 32 MB of RAM (four each 8 MB SIMMs), built-in 2.88 MB floppy disk drive, and 400 MB hard disk drive; includes 0.5 m MegaPixel Colour Display cable

MegaPixel Colour Display 220V

Order No. N4001-4130
17-inch MegaPixel Colour Display
16-inch viewable (true flat square)

MegaPixel Colour Display 220V

Order No. N4005-4204
21-inch MegaPixel Colour Display
20-inch viewable (true flat square)

Sound Box™

Order No. N4004
Sound Box with integrated speaker microphone, stereo output jacks and NeXT keyboard and mouse interface

NeXT System Starting Point™ Kit

UK	Order No. N8504-4807
France	Order No. N8504-4808
Germany	Order No. N8504-4810
Euro-English*	Order No. N8504-4811
Swiss-French	Order No. N8504-4812
Swiss-German	Order No. N8504-4813
Spain	Order No. N8504-4814
Portugal	Order No. N8504-4815
Italy	Order No. N8504-4816
Sweden	Order No. N8504-4817

*Includes USA keyboard

Keyboard
Mouse
CPU power cord
Keyboard tilt feet
Complete setup, learning, and reference documentation
Limited one-year warranty statement