



Overview

The Apple® A/UX® operating system is a full implementation of AT&T's UNIX® System V, Release 2, Version 2 (with BSD 4.3 extensions) for the Apple Macintosh® II family of CPUs and the Macintosh SE/30 personal computer.

This industry-standard multi-tasking operating system provides higher education, government, engineering, scientific, and OEM/VAR users with excellent support for software development; research; computer-aided design, engineering, and manufacturing; technical publishing; office productivity; and database applications.

Version 1.1.1 enhances the usefulness of A/UX by allowing more Macintosh applications to run in the A/UX environment, and by broadening the range of platforms it supports to include the Macintosh IIci and Macintosh SE/30. It also supports the optional X Window System add-on product and conforms to the POSIX Federal Information Processing Standard (FIPS).

Features

Benefits

► Apple Tape Backup 40SC tape subsystem support

► Enables local tape backup using standard UNIX utilities, which provide flexible archival and restore facilities.

► Apple Macintosh desk accessory support

► Allows users to set parameters and select network printers for Macintosh and A/UX applications by using the Chooser and the Control Panel.

► File transfer between Macintosh and A/UX file systems

► Allows users to move their data files and applications between the Macintosh and A/UX environments.

► Macintosh video driver support

► Allows use of compatible video cards and monitors without requiring special drivers.

► Support for the AppleCD SC™ CD-ROM drive

► Allows inexpensive mass distribution of large A/UX file systems on compact discs.

► Other software enhancements

► Incorporates the latest functions of BSD networking (Version 4.3) and NFS (Version 3.2).
► Provides disk input/output up to two and a half times faster than the previous version; quadruples SCSI throughput to 1 megabyte per second.

► Multiple-user AT&T UNIX license

► Each binary copy and software update of A/UX Version 1.1.1 includes a 16-user AT&T UNIX license.

Features

Benefits

► Ability to run many 32-bit-compatible Macintosh applications

► Enables users to run both UNIX and Macintosh applications in the same operating environment.

► Support for color through the Macintosh Toolbox and X Window System

► Enables display of 256 colors from a palette of 16 million colors.

► Runs HyperCard® Version 1.2.2

► Allows users to organize information by association and context.
► Lets users create and manage information using virtually any medium.
► Allows for high-speed information searches.

► Support for POSIX Draft 12 and FIPS

► Provides application portability by following the standard guidelines of the Federal Information Processing Standard (FIPS) #151 for UNIX systems, enabling federal government buyers to purchase A/UX systems.

► X Window System Version 11, Release 3 (optional add-on)

► Allows programs written for the X Window System to run and/or use display service in the A/UX environment. Multiple screens and color displays are supported.

► Serial Line/Internet Protocol (SL/IP) support

► Enables internet access to A/UX services such as Sun Microsystems' Network File System (NFS) and standard BSD networking facilities over serial lines.

► AppleTalk® for A/UX Version 2.0 (included with A/UX Version 1.1.1)

► Allows any A/UX application—Macintosh or UNIX—to share Apple LaserWriter® and ImageWriter® printers over the AppleTalk network system. These printers can also be shared by Macintosh computers running the Macintosh operating system.

Product Details

Macintosh Applications Execution

A/UX Version 1.1.1 allows many 32-bit-compatible Macintosh applications to run in the A/UX environment. Macintosh applications that adhere to the specifications for the Macintosh 32-bit environment, as documented in the *Inside Macintosh* series, run in the A/UX environment without change. Most Macintosh Toolbox features—including color and printing—are supported. Sound and direct hardware access are not available.

POSIX Support

A/UX is compliant with both the Federal Information Processing Standard #151 (FIPS) and the POSIX Draft 12 standard. The federal government created FIPS for POSIX Draft 12. POSIX is the trade name of the IEEE P1003 standard for the UNIX operating system.

Apple Tape Backup 40SC Support

A/UX supports the UNIX archival utilities, including *tar* and *cpio*, for the Apple Tape Backup 40SC, which uses preformatted DC2000 1/4-inch tape cartridges in QIC-100 format.

AppleCD SC Support

The AppleCD SC drive can be used as a read-only A/UX file system of up to 500 megabytes, giving information systems providers an inexpensive distribution medium.

Multiuser and Multitasking Support

A/UX supports multiple processes per user, enabling one interactive application to run many subtasks at once. Applications that don't use the screen, such as network communications and printing functions, can also run invisibly behind another application. With *term* or the optional X Window System add-on, multiple interactive programs may run simultaneously. A/UX also supports multiuser activity via two back-panel serial ports or via third-party add-in boards.

Communications

A/UX provides standard UNIX communications such as *cu* and *uucp*, as well as more advanced UNIX facilities such as Berkeley Networking Services, NFS, Yellow Pages, and Mail. Serial, Ethernet, and TCP/IP support are provided. AppleTalk for A/UX Version 2.0 supports AppleTalk printing over LocalTalk™ and EtherTalk™ networks.

Text Editing and Processing

Text editing and processing utilities include *vi*, *ex*, *ed*, *ditroff*, *nroff*, *tbl*, *eqn*, and *pic*. A/UX also includes Adobe Systems' TranScript utility for formatting output to the Apple LaserWriter printer.

Programming

A/UX offers an assembler, a C compiler, debuggers, the Source Code Control System (SCCS), and related tools to assist in developing new applications or porting existing software to A/UX. It also includes a set of UNIX libraries that allow C programs to access the functionality of the Macintosh Toolbox, so that A/UX applications can present the graphics-based user interface familiar to Macintosh users, in addition to the traditional UNIX appearance. Numerous other languages and tools are available from developers.

System Administration

A/UX simplifies configuration and recovery. It automatically configures the smallest kernel possible, and simplifies the manual addition of new drivers. In addition, A/UX keeps redundant copies of crucial files so that, in the event of a damaging system crash, it can automatically return the system to a networkable state.

System Requirements

To use the Apple A/UX operating system, you will need:

- ▶ A Macintosh SE/30, IIci, IIx, or IIcx computer with a minimum of 4 megabytes of RAM, or a Macintosh II computer with a minimum of 4 megabytes of RAM and an Apple Paged Memory Management Unit (PMMU)
- ▶ An Apple hard disk (minimum 80 megabytes) or the equivalent
- ▶ An Apple or equivalent monitor that is compatible with A/UX Version 1.1.1
- ▶ For Ethernet connectivity, the Apple EtherTalk NB Card or equivalent for the Macintosh II, IIx, IIcx, or IIci. For the Macintosh SE/30, an Ethernet interface card is required.

Optional Equipment

- ▶ Additional memory
- ▶ An Apple Tape Backup 40SC or the equivalent
- ▶ An AppleCD SC drive

Technical Specifications

Portability standard

- ▶ AT&T UNIX System V, Release 2, Version 2
- ▶ Compliant with the System V Interface Definition (SVID), and conforms to the System V Verification Suite (SVVS)
- ▶ 4.3 BSD extensions (including signals, job control, groups, sockets, TCP/IP, subnets, and domains)
- ▶ Compliant with FIPS #151 and the IEEE P1003.1 (POSIX Draft 12) standard

Shells (command-line interpreters)

- ▶ Bourne, Korn, C

Development tools

- ▶ Editors (*vi*, *ex*, *ed*, *ditroff*, *nroff*, *tbl*, *eqn*, and *pic*)
- ▶ Assembler and C compiler
- ▶ *Lint*, *lex*, *yacc*
- ▶ Debuggers (*adb*, *sdb*)
- ▶ Linker (*ld*)
- ▶ Source control (SCCS, *make*, and other UNIX tools)

Communications

- ▶ Network access via Ethernet or serial lines using TCP/IP or SL/IP protocols, or via direct serial or modem connections
- ▶ File transfer, terminal emulation, and electronic mail with UNIX systems via *uucp* protocols
- ▶ Local area networking over Ethernet with the EtherTalk NB Card or over serial lines using SL/IP
- ▶ Transparent file sharing over Ethernet or serial lines using NFS Version 3.2
- ▶ Remote log-in and execution, resource sharing, file transfer, and electronic mail with Berkeley Networking Services (from BSD 4.3)
- ▶ Domains, name service, and subnets
- ▶ Remote execution or display service via X Window System Version 11, Release 3 (optional add-on)

Apple enhancements

- ▶ Access to Macintosh Toolbox for A/UX applications and Macintosh applications
- ▶ Automatic recovery of files in case of a crash
- ▶ Automatic reconfiguration of device drivers
- ▶ File transfer utility that converts Macintosh files to A/UX files
- ▶ AppleTalk printing support over LocalTalk and EtherTalk networks. (EtherTalk printing to LaserWriter and ImageWriter printers requires an EtherTalk-to-LocalTalk router such as the AppleTalk Internet Router.)



Apple A/UX Operating System Version 1.1.1

Ordering Information

Macintosh IIfx A/UX System

Order No. B0159LL/A
Macintosh IIfx personal computer with A/UX 1.1.1 on 80-megabyte internal hard disk

Macintosh IIfx A/UX System

Order No. B0097LL/A
Macintosh IIfx personal computer with A/UX 1.1.1 on 80-megabyte internal hard disk

Macintosh IIfx A/UX System

Order No. B002LL/C
Macintosh IIfx personal computer with A/UX 1.1.1 on 80-megabyte internal hard disk

A/UX External 80MB Hard Disk

Order No. M8004/D
A/UX 1.1.1 on 80-megabyte hard disk

A/UX Internal 80MB Hard Disk

Order No. M8011/C
A/UX 1.1.1 on 80-megabyte hard disk

A/UX Tape Product 1.1.1

Order No. B0043LL/B
A/UX 1.1.1 on a 40-megabyte tape cartridge

A/UX Floppy Disk Product

Order No. M8143/D
A/UX 1.1.1 on 800K floppy disks

A/UX Update Tape Product

Order No. B0055LL/C
Update A/UX Versions 1.0, 1.0.1, or 1.1 to A/UX 1.1.1 with a 40-megabyte tape cartridge

A/UX Update Floppy Disk Product

Order No. B0056LL/C
Update A/UX Versions 1.0, 1.0.1, or 1.1 to A/UX 1.1.1 with 800K floppy disks

A/UX Manual Set

Order No. M8044/A
15-binder manual set, includes references and guides on such topics as system administration, text-processing tools, man (manual) pages, software development tools, and networking

Related Products and Services

Apple 68851 Paged Memory Management Unit (PMMU)*

Order No. M0221

Macintosh II EtherTalk NB Card

Order No. M0405

Apple Tape Backup 40SC

Order No. M2640/A

Apple 4MB Memory Expansion Kit*

Order No. M0707

AppleCD SC Drive

Order No. M2700/A

Apple Hard Disk 80SC

Order No. M2688/A

X Window System for A/UX

Order No. M0709

Inside Macintosh

Available from APDA™

A/UX Hotline—5-hour Telephone Support

Order No. M8130

A/UX Hotline—15-hour Telephone Support

Order No. M8140

A/UX Manual Set Update Service—Single Copy

Order No. M8125

A/UX Software Set Update Service—Individual Workstation

Tape Order No. M8007
Disk Order No. M8002

*Dealer installation is required.

Information for Programmers and Developers

The Apple Programmers and Developers Association (APDA) provides a wide range of development products and documentation—from Apple and other suppliers—for programmers and developers who work with Apple equipment. For information about APDA, contact:

APDA
Apple Computer, Inc.
20525 Mariani Avenue, M/S 33G
Cupertino, CA 95014
800-282-APDA (800-282-2732)
Fax: (408) 562-3971
Telex: 171-576
AppleLink: APDA

If you plan to develop Apple-compatible hardware or software products for sale through

retail channels, you can get valuable support from Apple Developer Programs. Write to:

Apple Developer Programs
Apple Computer, Inc.
20525 Mariani Avenue, M/S 51W
Cupertino, CA 95014

For the name of your nearest authorized Apple A/UX dealer, call 800-538-9696.

Apple Computer, Inc.

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Cupertino, CA 95014
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August 1989. Product specifications are subject to change without notice. Printed in the U.S.A.
M8142/B