

The XENIX™  
Operating System

Release Notes  
for the Apple Lisa 2™

**The Santa Cruz Operation, Inc.**

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Release Notes  
**XENIX™ 3.0 for the Apple™ LISA 2™**  
 May 24, 1984

## 1.1 Preface

This release of the XENIX 3.0 operating system for Apple's new Lisa 2 family of computers supports both the LISA 2/5 and 2/10 systems and is distributed on the new Sony micro-floppydisks. This document contains information about new features, programs and updates, as well as instructions for installing XENIX. Please read through it before installing the XENIX software.

## 1.2 XENIX Software Packages

The XENIX System is available in three packages: the XENIX Operating System, the XENIX Development System, and the XENIX Text Processing System. The XENIX Operating System package contains the operating system kernel, a screen oriented text editor (`ex/vi`), the Berkeley `csb`, the Microsoft user-friendly, menu driven Visual Shell `vsh`, `uucp`, for XENIX to XENIX communications, and over 100 utility programs. This is the fundamental package of the XENIX System and is the basic building block for the other XENIX packages as well as most application software.

The XENIX Development System (DS) includes the C compiler (`cc`), the linker (`ld`), program debugger (`adb`), source code control system (`scs`), the C libraries, and other utilities useful for software development.

The XENIX Text Processing (TP) package contains text formatters with both printer and typesetter capabilities (`nroff` and `troff`), formatters for mathematical equations and tables (`eqn` and `tbl`), a spelling checker (`spell`), and other text processing utilities.

In order to help you use the available disk space most effectively, we have provided two charts. One shows the amount of free space available on different Lisa 2 versions. The other lists block usage (512 bytes/block) by various portions of the XENIX System.

The XENIX OS may be installed in three separate sections. The OS Run Time System (floppy disks 1-3), which must be installed in any case, contain enough of XENIX to run most application software. The OS Utilities (floppy disks 4-6) contain additional utilities, which are very useful but not absolutely required (such as `vi` and `csb`). These files can be installed as needed. The OS `uucp` (floppy disk 7) contains the utilities for `cu`, `uucp` and `micnet` for communications between XENIX (and other UNIX) systems. These files are also optional. Refer to the Contents listings for each of the three XENIX System packages at the end of the Release Notes for the files contained on each floppy disk.

## XENIX for the Apple LISA 2

VERSION	FREE SPACE (in blocks)	SWAPSPACE (not available to user)
Lisa 2/5 (/usr on second profile)	7744 9728	1984
Lisa 2/10	16456	3000

XENIX System	Blocks	Comments
Run-time System	2500	Boot floppydisk, floppydisks 1-3
Utilities	4700	floppydisks 4-6
uucp	700	floppy disk 7
Development System	3000	floppydisks 1-4
Text Processing System	3000	floppydisks 1-4

### 1.3 Hardware Supported

1. This version of XENIX now runs on the Lisa 2/5 and 2/10 configurations. At runtime, the system dynamically configures itself based on the peripherals attached, so the same XENIX kernel will run on either the 5MB ProFile or the 10MB 'widget' hard disk. (NOTE: if you have a system with a 5 MB internal hard disk, which is not an announced Apple product, you will need a different Boot disk. Contact The Santa Cruz Operation Telemarketing Department to obtain the alternate Boot disk.)
2. XENIX can run with just 512 kilobytes of main memory, but for best performance in most multi-user applications, upgrading to a full 1024 kilobytes of main memory is strongly recommended.
3. XENIX permits the use of three independent virtual screens on the console display. This allows the user to select from any of up to three simultaneously running programs, simulating three independent terminals within the Lisa console (see the manual page `console(M)` in the M section of the XENIX Reference).
4. The two built-in serial ports may be accessed via devices `/dev/tty0a` and `/dev/tty0b`. Modem control is provided on serial port A only.

5. With the addition of the Tecmar quad asynch card in expansion slot 3, four additional serial ports are available bringing the total number of serial ports to six. These can be used for printers, modems, hard-wired connections to other computers, or terminals. Contact The Santa Cruz Operation's Telemarketing department for information on the Tecmar card which is scheduled for release July 1, 1984.
6. An Apple Dot Matrix Printer, with a parallel interface, may be attached to the lower port of a parallel interface card in expansion slot 1.
7. An Apple Imagewriter serial printer is supported through the use of a shell script called *!esc!lopen*. This file may be easily adapted to other serial printers.
8. Up to three additional ProFiles may be used with this release. In addition to the disk attached to the internal parallel port, ProFile disks may be attached to parallel interface cards in the expansion slots. One ProFile may be attached to the upper port of a parallel interface card in expansion slot 1. Two more ProFiles may be attached to a parallel card in slot 2.
9. Support for the mouse is provided by the kernel through the special file */dev/mouse*. (The mouse is accessed at the system call level via the *ioctl* mechanism.)
10. Preliminary support for the 70MB Priam disk is included. XENIX is configured to communicate with the Priam interface in expansion slot 2. Since this Apple product is not yet officially announced, its functionality is subject to change.

## 1.4 New Features

1. A hard disk boot block that works on both the 5MB and 10MB hard disks is provided.
2. Since the new Sony drives do not have a visible eject button (there is one hidden behind the faceplate), XENIX will automatically eject the floppy whenever the device is closed. There is also a new utility called *eject(C)*, that ejects the micro-floppy on command. Support for a no-eject device is provided for both raw and cooked devices via the special files named */dev/rfd* and */dev/rfd*.
3. *format(C)* is a new disk formatting program which supercedes *diskntil*. If invoked without any arguments, it defaults to formatting the disk in */dev/rfd*. If invoked with the *-v* flag, it interactively prompts the user to insert floppies, providing a convenient formatting tool.
4. The *uuep(C)* utility permits network communication between XENIX (or other UNIX) systems, using either modem or direct RS-232 serial communication lines. The user can transfer files, send mail messages, and send remote commands to any other XENIX/UNIX system, regardless of

## XENIX for the Apple LISA 2

location.

5. The XENIX *micnet* facility provides the user with a true “local area network” (LAN). A *micnet* LAN consists of XENIX systems connected via serial communication lines through which users can communicate, without knowing the network configuration, or even the particular systems to which other users are connected. Access to remote sites is provided via *uuucp*, used transparently to the user by *micnet*.
6. XENIX Version 3.0 includes all the XENIX 2.3 system calls, plus those in AT&T's UNIX System III. This allows for all programs compiled under 2.3 to run unchanged in the 3.0 environment.
7. The 3.0 shell, upon logging in, will first execute the shell file */etc/profile* and then execute the file *.profile* in the user's home directory. A standard */etc/profile* using */usr/bin/tset* and */etc/ttytype* to provide convenient setup of the *TERM* and *TERMCAP* environment variables is provided.
8. An improved *termcap* with capability for black-on-white (*lisa*) or white-on-black (*liswb*) screens is now standard.
9. The Microsoft Visual Shell *vsh*, is included in this release. This menu-oriented shell gives users some of the available commands that the user can run by selecting from a menu. *vsh* is a good shell for users who may not want to master a command language right away to use XENIX or a specific XENIX application. The *vsh* is designed to do all of the things that the command-line shells do. Refer to the XENIX *User's Guide* chapter on “Using the Visual Shell” for more on *vsh*.
10. The time zone in this release is initially set to Pacific Standard Time (PST/PDT). Change this setting on installation of the XENIX Operating System if you are in a different time zone. Edit the */etc/profile* and */etc/rc* variable *TZ* to reinitialize the time zone. This will set the appropriate time zone when a user logs in. There is no need to change the *.profile* for a user, unless they call in from a different time zone, and want to override the local standard. Each *cs* user will need to modify their *.login* file with the appropriate *TZ* setting.

### 1.5 Installation Instructions

The XENIX *Installation Guide* has detailed instructions on installing the XENIX Operating System on your computer. If you are already running an older version of XENIX on the Lisa, the instructions for installing this new release can be found in the last section of the XENIX *Installation Guide*.

The XENIX *Operations Guide* contains details on configuring any peripherals you want to attach to the system. The XENIX *User's Guide* will help you become familiar with using XENIX. It covers logging in and out, creating and maintaining file systems, using the text editors (*vi* and *ed*), *mail*, the various shells (*sh*, *cs*, and *vsh*), the communication programs, and other XENIX utilities.

Floppydisk 1

.profile  
bin/basename  
bin/cat  
bin/chgrp  
bin/chmod  
bin/chown  
bin/cmp  
bin/copy  
bin/cpio  
bin/date  
bin/dd  
bin/df  
bin/disable  
bin/enable  
    linked to /bin/disable  
bin/du  
bin/dump  
bin/dumppdir  
bin/ed  
bin/red  
    linked to /bin/ed  
bin/env  
bin/printenv  
    linked to /bin/env  
bin/expr  
bin/false  
bin/fgrep  
bin/file  
bin/find  
bin/grep  
bin/id  
bin/kill  
bin/lc  
bin/lpr  
bin/mkdir  
bin/nohup  
bin/passwd  
bin/pr  
bin/ps  
bin/pwd

Floppydisk 2

bin/restor  
bin/rmdir  
bin/sed  
bin/settime  
bin/sleep  
bin/sort  
bin/stty  
bin/su  
bin/sum  
bin/sync  
bin/tail

Floppydisk 2 continued

bin/tee  
bin/test  
bin/[  
    linked to /bin/test  
bin/touch  
bin/tr  
bin/true  
bin/tset  
bin/tty  
bin/wc  
bin/who  
bin/yes  
etc/asktime  
etc/checklist  
etc/cron  
etc/ddate  
etc/default/dump  
etc/default/cron  
etc/default/dumppdir  
etc/default/lpd  
etc/default/mkuser  
etc/default/passwd  
etc/default/restor  
etc/default/su  
etc/dmesg  
etc/fixperm  
etc/getty  
etc/group  
etc/inir  
etc/login  
etc/mknod  
etc/mkuser  
etc/mnttab  
etc/motd  
etc/profile  
etc/rc  
etc/rmuser  
etc/setmnt  
etc/shutdown  
etc/sulogin  
etc/systemid  
etc/sysadmin

Floppydisk 3

etc/termcap  
etc/ttys  
etc/ttytype  
etc/umount  
etc/update  
etc/utmp  
etc/wall  
lib/cvtdate

Floppydisk 3 continued

```
usr/adm/wtmp
usr/adm/messages
usr/adm/msgbuf
usr/bin/at
usr/bin/atq
usr/bin/atrm
usr/bin/more
usr/lib/atrun
usr/lib/crontab
usr/lib/lpd
usr/lib/mkuser.help
usr/lib/mkuser.mail
usr/lib/mkuser.prof
usr/lib/more.help
usr/lib/tabset/ambas
usr/lib/tabset/bee hive
usr/lib/tabset/diablo
usr/lib/tabset/std
usr/lib/tabset/stdcrt
usr/lib/tabset/teleray
usr/lib/tabset/vt100
usr/lib/tabset/xerox1720
usr/spool/at/lasttimedone
dev/mkdev
bin/eject
bin/format
etc/rts.perms
etc/lpopen
mdec/boot.pf0
mdec/mkboot
mdec/pfboot
once/init.rts
```

Floppydisk 4

```
bin/awk
bin/banner
bin/cal
bin/chroot
bin/comm
bin/crypt
bin/esh
bin/csplit
bin/dc
bin/diff
bin/diff3
bin/dircmp
bin/dirname
bin/dtype
bin/egrep
bin/ex
bin/vi
    linked to /bin/ex
```

Floppydisk 4 continued

```
bin/edit
    linked to /bin/ex
bin/view
    linked to /bin/ex
bin/getopt
bin/grpcheck
bin/hd
bin/head
bin/join
bin/line
```

Floppydisk 5

```
bin/mesg
bin/ncheck
bin/newgrp
bin/nice
bin/nl
bin/od
bin/pstat
bin/pwadmin
bin/pwcheck
bin/sddate
bin/sdiff
bin/uname
bin/uniq
bin/who
bin/write
bin/xargs
etc/accton
etc/base.perms
etc/devnm
etc/dial
etc/other.perms
usr/adm/pacct
usr/adm/sulog
usr/bin/acctcom
usr/bin/assign
usr/bin/deassign
    linked to /usr/bin/assign
usr/bin/bc
usr/bin/bdiff
usr/bin/bfs
usr/bin/calendar
usr/bin/finger
usr/bin/formatpriam
usr/bin/logname
usr/bin/mail
usr/bin/pack
```



Floppydisk 6

```
usr/bin/pcat
usr/bin/unpack
  linked to /usr/bin/pcat
usr/bin/quot
usr/bin/random
usr/bin/split
usr/bin/units
usr/bin/vsh
usr/bin/what
usr/cdemo/.cshrc
usr/cdemo/login
usr/demo/.profile
usr/vdemo/.profile
usr/lib/calprog
usr/lib/cronlog
usr/lib/diff3prog
usr/lib/diffh
usr/lib/ex2.13preserve
usr/lib/ex2.13recover
usr/lib/ex2.13strings
usr/lib/lib.bc
usr/lib/makekey
usr/lib/mail/aliases.hash
usr/lib/mail/aliashash
usr/lib/mail/execmail
usr/lib/mail/mailhelp.cmd
usr/lib/mail/mailhelp.esc
usr/lib/mail/mailhelp.set
usr/lib/mail/mailrc
usr/lib/vsh/VSHELL.HPP
usr/lib/vsh/VSHELL.HPT
usr/lib/vsh/menu.def
usr/lib/unittab
usr/pub/ascii
once/init.other
```

Floppydisk 7

```
bin/cu
etc/default/micnet
etc/netutil
etc/uucp.perms
usr/bin/rcp
usr/bin/rmail
usr/bin/uucp
usr/bin/uulog
usr/bin/uunow
usr/bin/uusend
usr/bin/uux
usr/lib/mail/daemon.mn
usr/lib/mail/exec.mn
usr/lib/mail/faliases
usr/lib/mail/mail.local
```

Floppydisk 7 continued

```
.usr/lib/mail/mail.mn
usr/bin/remote
  linked to /usr/lib/mail/mail.mn
usr/lib/mail/maliases
usr/lib/uucp/L-devices
usr/lib/uucp/L-dialcodes
usr/lib/uucp/L.sys
usr/lib/uucp/L.cmds
usr/lib/uucp/USERFILE
usr/lib/uucp/uucico
usr/lib/uucp/uuclean
usr/lib/uucp/uuxqt
once/init.uucp
```



Floppydisk 1

/bin/adb  
/bin/as  
/bin/make  
/lib/c68  
/lib/c68o  
/lib/libc.a  
/bin/ar  
/bin/cb  
/bin/cc  
/bin/gets

Floppydisk 2

/bin/hdr  
/bin/ld  
/bin/nm  
/bin/ranlib  
/bin/regcmp  
/bin/size  
/bin/strings  
/bin/strip  
/bin/time  
/bin/tsort  
/etc/soft.perms  
/lib/cpp  
/lib/crt0.o  
/lib/libFW.a  
/lib/libm.a  
/lib/mcrt0.o  
/usr/bin/admin  
/usr/bin/cdc  
/usr/bin/rmdel  
    linked to /usr/bin/cdc  
/usr/bin/comb  
/usr/bin/cref  
/usr/bin/ctags  
/usr/bin/delta

Floppydisk 3

/usr/bin/get  
/usr/bin/help  
/usr/bin/lex  
/usr/bin/lint  
/usr/bin/lorder  
/usr/bin/m4  
/usr/bin/mkstr  
/usr/bin/prof  
/usr/bin/prs  
/usr/bin/ratfor  
/usr/bin/sact  
/usr/bin/unget  
    linked to /usr/bin/sact  
/usr/bin/sccsdiff

Floppydisk 3 continued

/usr/bin/val  
/usr/bin/xref  
/usr/bin/xstr  
/usr/bin/yacc  
/usr/include/a.out.h  
/usr/include/sys/a.out.h  
    linked to /usr/include/a.out.h  
/usr/include/ar.h  
/usr/include/assert.h  
/usr/include/core.h  
/usr/include/ctype.h  
/usr/include/curses.h  
/usr/include/dbm.h  
/usr/include/dumpprestor.h  
/usr/include/errno.h  
/usr/include/execargs.h  
/usr/include/fcntl.h  
/usr/include/grp.h  
/usr/include/math.h  
/usr/include/mnttab.h  
/usr/include/pwd.h  
/usr/include/regexp.h  
/usr/include/setjmp.h  
/usr/include/sgtty.h  
/usr/include/signal.h  
/usr/include/stand.h  
/usr/include/stdio.h  
/usr/include/string.h  
/usr/include/sys/acct.h  
/usr/include/sys/assert.h  
/usr/include/sys/buf.h  
/usr/include/sys/callo.h  
/usr/include/sys/conf.h  
/usr/include/sys/dir.h  
/usr/include/sys/fblk.h  
/usr/include/sys/file.h  
/usr/include/sys/filsys.h  
/usr/include/sys/ino.h  
/usr/include/sys/inode.h  
/usr/include/sys/iobuf.h  
/usr/include/sys/ioctl.h  
/usr/include/sys/locking.h  
/usr/include/sys/map.h  
/usr/include/sys/mount.h  
/usr/include/sys/param.h  
/usr/include/sys/proc.h  
/usr/include/sys/reg.h  
/usr/include/sys/relysym.h  
/usr/include/sys/relysym86.h  
/usr/include/sys/sites.h  
/usr/include/sys/space.h  
/usr/include/sys/stat.h

Floppydisk 4

/usr/include/sys/sysinfo.h  
/usr/include/sys/system.h  
/usr/include/sys/text.h  
/usr/include/sys/timeb.h  
/usr/include/sys/times.h  
/usr/include/sys/ttold.h  
/usr/include/sys/tty.h  
/usr/include/sys/types.h  
/usr/include/sys/user.h  
/usr/include/sys/utsname.h  
/usr/include/sys/var.h  
/usr/include/termio.h  
/usr/include/time.h  
/usr/include/ustat.h  
/usr/include/utmp.h  
/usr/include/varargs.h  
/usr/lib/cref/aign  
/usr/lib/cref/atab  
/usr/lib/cref/cign  
/usr/lib/cref/crpost  
/usr/lib/cref/ctab  
/usr/lib/cref/eign  
/usr/lib/cref/etab  
/usr/lib/cref/upost  
/usr/lib/help/ad  
/usr/lib/help/bd  
/usr/lib/help/cb  
/usr/lib/help/cm  
/usr/lib/help/cmds  
/usr/lib/help/co  
/usr/lib/help/de  
/usr/lib/help/default  
/usr/lib/help/ge  
/usr/lib/help/he  
/usr/lib/help/prs  
/usr/lib/help/rc  
/usr/lib/help/un  
/usr/lib/help/ut  
/usr/lib/lex/ncform  
/usr/lib/libcurses.a  
/usr/lib/libdbm.a  
/usr/lib/libl.a  
/usr/lib/libtermcap.a  
/usr/lib/libtermmlib.a  
    linked to /usr/lib/libtermcap.a  
/usr/lib/liby.a  
/usr/lib/lint1  
/usr/lib/lint2  
/usr/lib/libl.a

Floppydisk 4 continued

/usr/lib/xrefa  
/usr/lib/xrefb  
/usr/lib/yaccpar  
/once/init.soft

Floppydisk 1

/usr/bin/troff  
/usr/bin/nroff  
/usr/dict/words  
/usr/lib/spell/hlista  
/etc/text.perms

Floppydisk 2

/usr/bin/col  
/usr/bin/cut  
/usr/bin/cw  
/usr/lib/macros/cmp.n.t.m  
/usr/lib/macros/cmp.t.t.m  
/usr/bin/cwcheck  
/usr/bin/deroff  
/usr/bin/diction  
/usr/bin/diffmk  
/usr/bin/eqn  
/usr/bin/eqncheck  
/usr/bin/explain  
/usr/bin/hyphen  
/usr/bin/look  
/usr/bin/mmm  
/usr/bin/mncheck  
/usr/bin/mmt

Floppydisk 3

/usr/bin/neqn  
/usr/bin/paste  
/usr/bin/prep  
/usr/bin/ptx  
/usr/bin/soelim  
/usr/bin/spell  
/usr/bin/style  
/usr/bin/tbl  
/usr/lib/dict.d  
/usr/lib/dprog  
/usr/lib/eign  
/usr/lib/explain.d  
/usr/lib/font/ftB  
/usr/lib/font/ftBC  
/usr/lib/font/ftC  
/usr/lib/font/ftCE  
/usr/lib/font/ftCK  
/usr/lib/font/ftCI  
    linked to /usr/lib/font/ftCK  
/usr/lib/font/ftCS  
/usr/lib/font/ftCW  
/usr/lib/font/ftG  
/usr/lib/font/ftH  
    linked to /usr/lib/font/ftG  
/usr/lib/font/ftGI

Floppydisk 3 continued

/usr/lib/font/ftHI  
    linked to /usr/lib/font/ftGI  
/usr/lib/font/ftGM  
/usr/lib/font/ftHM  
    linked to /usr/lib/font/ftGM  
/usr/lib/font/ftGR  
/usr/lib/font/ftI  
/usr/lib/font/ftL  
/usr/lib/font/ftLI  
/usr/lib/font/ftPA  
/usr/lib/font/ftPB  
/usr/lib/font/ftPI  
/usr/lib/font/ftR  
/usr/lib/font/ftS  
/usr/lib/font/ftSB  
/usr/lib/font/ftSI  
/usr/lib/font/ftSR  
/usr/lib/font/ftUD  
/usr/lib/font/ftFD  
    linked to /usr/lib/font/ftUD  
/usr/lib/font/ftXM  
/usr/lib/macros/an  
/usr/lib/macros/cmp.n.d.an  
/usr/lib/macros/cmp.n.d.m  
/usr/lib/macros/cmp.n.t.an  
/usr/lib/macros/cmp.t.d.an  
/usr/lib/macros/cmp.t.d.m  
/usr/lib/macros/cmp.t.t.an  
/usr/lib/macros/mmn  
/usr/lib/macros/mmt  
/usr/lib/macros/ucmp.n.an  
/usr/lib/macros/ucmp.n.m  
/usr/lib/macros/ucmp.t.an  
/usr/lib/macros/ucmp.t.m

Floppydisk 4

/usr/lib/spell/hlistb  
/usr/lib/spell/hstop  
/usr/lib/spell/spellin  
/usr/lib/spell/spellout  
/usr/lib/spell/spellprog  
/usr/lib/style1  
/usr/lib/style2  
/usr/lib/style3  
/usr/lib/suftab  
/usr/lib/term/tab2631  
/usr/lib/term/tab2631-c  
/usr/lib/term/tab2631-e  
/usr/lib/term/tab300  
/usr/lib/term/tab300-12  
/usr/lib/term/tab300s  
/usr/lib/term/tab300S  
    linked to /usr/lib/term/tab300s

Floppydisk 4 continued

```
/usr/lib/term/tab300s-12
/usr/lib/term/tab300S-12
  linked to /usr/lib/term/tab300s
/usr/lib/term/tab37
/usr/lib/term/tab382
/usr/lib/term/tab4000A
/usr/lib/term/tab450
/usr/lib/term/tab450-12
/usr/lib/term/tab832
/usr/lib/term/tabX
/usr/lib/term/taab1
/usr/lib/term/tablp
/usr/lib/term/tabtn300
/usr/lib/tmac/tmac.an
/usr/lib/tmac/tmac.m
/usr/lib/tmac/tmac.s
/usr/lib/tmac/tmac.scover
/usr/lib/tmac/tmac.sdisp
/usr/lib/tmac/tmac.skeep
/usr/lib/tmac/tmac.srefs
/usr/pub/eqnchar
/usr/pub/greek
/once/init.text
```