The XENIX® Operating System

for the IBM® PC Release Notes

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Release Notes

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Release 1.1
XENIX® 3.0 for the IBM® PC
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1. Preface

This document contains information about features and programs of XENIX 3.0 Release 1.1 for the IBM PC. *Please read through this entire document before installing XENIX for the IBM PC.*

2. IMPORTANT NOTE ABOUT INSTALLATION

Please refer to the *Installation Guide* in the binder marked XENIX Operating System *Installation Guide/Operations Guide/User's Guide* to install the XENIX Operating System. If you have purchased all three Systems, (XENIX Operating System, Development System and Text Processing System) you can use the XENIX *Installation Guide* to install them all at once. If you wish to install the Development System and/or the Text Processing System at a later time, refer to the *Release Notes* at the beginning of the appropriate guide (XENIX *Programmer's Guide* or XENIX *Text Processing Guide*). Read the installation notes in their entirety and make sure you completely understand the installation process before installing the product.

The three systems are delivered on these floppies:

XENIX Operating System	– Bootable Floppy, Root Floppy, Floppies 1–9
XENIX Development System (Optional)	– Floppies 1–5
XENIX Text Processing System (Optional)	– Floppies 1–4

NOTE: In order to conserve disk space installation of Floppy #8 of the XENIX Operating System, which contains files used by the cu(C) and uucp(C) for communication between XENIX and/or UNIX™ systems, is optional. The XENIX *Installation Guide* contains more information on this optional step. However, you MUST go on to install Floppy #9 to complete the System installation.

3. Compatible Software and Hardware

This section covers some of the hardware and software which has been found to be compatible with XENIX for the IBM PC.

3.1 Software Applications Available

The following software application packages are available from The Santa Cruz

Operation for use with XENIX on the IBM PC.

Lyrix™	Word Processing System
Informix®	Relational Database Management System
Multiplan®	Electronic Worksheet
LEVEL II COBOL™	GSA certified high level 1974 ANSI standard

Call The Santa Cruz Operation or your local dealer for more information.

3.2 Computers

In addition to the IBM PC XT, XENIX for the IBM PC has been successfully installed on the following machines. This list is subject to change without notice.

Manufacturer	Model
AT&T	6300
Columbia	1600–4
COMPAQ	PLUS
Direct	with 10 megabyte hard disk
Eagle	Turbo
Leading Edge	with 10 megabyte hard disk
Olivetti	(Available in Europe)
Sperry	with 10 megabyte hard disk
Tava	with 10 megabyte hard disk

3.3 Hard Disks

In addition to the hard disks listed in the IBM PC XT documentation, the following hard disk is supported for use with the IBM PC.

Manufacturer	Model
Univation	10 and 20 megabyte Hard Disks

3.4 Multi–Function Memory Cards

The following multi–function memory cards are supported.

Manufacturer	Model
AST	Six Pack Plus
Quadram	Quad Board
Sigma	Maximizer
Microsoft	Ram Card
Tecmar	Captain, 1st Mate

NOTE: Generally, any multi–function card which is plug compatible may work, although only for additional memory (i.e. real–time clocks and other extras may not function as expected). Serial and parallel ports may work, but must be jumpered.

3.4.1 Sigma Products Memory Card

The clock interrupt jumper IRQ5/IRQ2 should be set to IRQ2.

3.4.2 AST Six Pack Plus Memory Card

The Port Enable Jumper Block must have the switch set to pin 2 (not pin 1). The IRQ Enable Jumper Block must have the switch set to IRQ3 (not IRQ4).

3.5 Modems

The Hayes Smartmodem 1200 is supported for autodialing using **uucp**(C). Any standard RS-232 modem will work with XENIX for the IBM PC using **cu**(C). However, you will not be able to use autodialing. Future releases will support autodialing for **cu**(C) and modems other than the Hayes.

4. Features of the 1.1 Release

This section relates important features of XENIX for the IBM PC.

4.1 System Performance

The 1.1 Release contains several performance enhancements including optimized serial, console and disk I/O, and a faster hard disk boot.

4.2 PC-DOS or MS™-DOS support

XENIX for the IBM PC supports the coexistence of DOS (PC-DOS or MS-DOS) and XENIX on the same hard disk. Consult Appendix C of the XENIX *Operations Guide* and the manual entries for **fdisk**(C) and **dos**(C). The **fdisk**(C) utility creates and changes multiple disk partitions, allowing separate XENIX and DOS partitions. **fdisk**(C) has similar functionality to the DOS utility of the same name. The utilities mentioned in **dos**(C) allow access to DOS files on the hard disk and floppy diskettes.

To read DOS version 1.1 eight sector floppies you must use the proper device. For single sided floppies use:

```
fd048ss8
```

For double sided floppies use:

```
fd048ds8
```

The file */etc/default/msdos* is an easily configurable file used to alias default device names of **dos**(C) options. For a more complete description of using */etc/default/msdos* see the manual page **dos**(C) in the XENIX *Reference*.

Reserve a sufficiently large partition for XENIX via **fdisk**(C) should you decide to install XENIX and DOS on the same hard disk. Each cylinder on an IBM PC XT is 34,816 bytes of storage. The number of cylinders allocated for a XENIX partition is based upon the size of your system.

Following is a list of the available configurations and the recommended number of cylinders for each. **fdisk**(C) reports that 162 cylinders is the minimum size to reserve for XENIX. **fdisk**(C) doesn't allow for any free blocks. However, these figures have been calculated to provide 1700 1K blocks of free space available to the XENIX file system:

PACKAGE	CYLINDERS
XENIX Operating System	172
XENIX OS + Development System	221
XENIX OS + Text Processing System	211
XENIX OS, Dev. Sys. + Text Proc. Sys.	260

NOTE: The size of a cylinder depends on the type of hard disk you have. For example, the Miniscribe Half High (or equivalent) hard disk contains 17,408 bytes of storage per cylinder. Check your hard disk manual for the size of the cylinders on your hard disk. If you have one of these types of disks, use the following table to allocate cylinders for the XENIX System:

PACKAGE	CYLINDERS
XENIX Operating System	344
XENIX OS + Development System	442
XENIX OS + Text Processing System	422
XENIX OS, Dev. Sys. + Text Proc. Sys.	520

If you wish to use one hard disk for XENIX and one hard disk for DOS, you must have XENIX on the boot drive. DOS can be booted from a floppy, or you can maintain a small DOS boot file on the boot drive which accesses files on the other hard disk. You can mount XENIX file system partitions on a second disk. Refer to the XENIX *Reference* manual pages for **fdisk**(C), **mount**(C), and **mkfs**(C) and the XENIX *Operations Guide* chapter on "Using Peripheral Devices" section on "Adding a Second Hard Disk" for more information.

4.3 Multiscreen™ and Color Support

The IBM PC console under XENIX can act as a console and up to 9 separate terminals, each of which can support different activities (see the manual page for **console**(M) in the XENIX *Reference* and the chapter "Using Peripheral Devices" in the XENIX *Operations Guide*). Please note that messages from the kernel appear on the console screen. When this happens the console screen displays instead of the current screen.

If you have a color monitor the XENIX utility **setcolor**(C) allows you to select the foreground and background screen colors from a palette of 16 colors (see the manual page for **setcolor**(C) in the XENIX *Reference*).

4.4 Software Reboot

The 1.1 Release allows software rebooting. You need not power off to reboot. The following message is displayed after a system shutdown.

```
** Safe to Power Off **
      -or-
** Hit Any Key to Reboot**
```

Note: If the floppy drive door is closed, the computer will attempt to boot off a floppy. The floppy drive door must be open when you use the software reboot to boot off the hard disk.

4.5 Memory Limitations

Some utilities may not run on systems with less than 384 kilobytes of main memory. **vsh**(C), the Microsoft visual shell and **vi**(C), the Berkeley full-screen editor, are examples of these. When you invoke a utility that needs more memory than available, the message "Killed" appears on your screen.

vi(C), and **vsh**(C) are supported for machines with 384 kilobytes of main memory or greater.

4.6 Small Version XENIX

We have included the option of installing a smaller version of the XENIX kernel and **fsck**(C) for configurations with less than 384 kilobytes of main memory. They will run on systems with at least 256 kilobytes of main memory. Note that the small XENIX for the IBM PC kernel supports one console screen, fewer internal buffers, and fewer maximum simultaneous processes than the large kernel. The smaller versions of the utilities function essentially the same as the larger versions.

Please consult the XENIX *Installation Guide* for the appropriate installation procedure. If you decide at some future time to upgrade to more main memory, refer to the XENIX *Installation Guide* to install the larger, full featured versions at that time. You can also follow the same procedure if you decide to reduce the amount of memory available and wish to install small version XENIX.

4.7 Shared Data and Semaphores

XENIX supports shared data and semaphores. Those who purchased the XENIX Development System can consult the chapter on "Using System Resources" in the XENIX *Programmer's Reference* for more information.

4.8 2.3 Binaries

The system now executes Microsoft version 2.3 8086 binaries (for example, Altos 586 or Intel 86/330 binaries).

4.9 Floppy Formatting Utility

XENIX for the IBM PC provides a floppy formatting utility called **format**(C). The floppy format is compatible with DOS 2.0. This utility can be run while XENIX is operating multi-user and performing other functions. Consult the **format**(C) manual page in the XENIX *Reference* for usage.

4.10 8087 Support

Your IBM PC may include the 8087 math co-processor, which is supported by XENIX for the IBM PC. Please note that switch # 2 on the main switch box on the system board must be off in order to enable 8087 interrupts. Some 8087 exceptions have been masked. Refer to the manual page for **8087**(M). Note that the **8087**(M) manual page incorrectly states that underflow exceptions will cause an interrupt. Underflow has been masked, and will not create an exception. A new manual page is included with these notes. Please insert it into your XENIX *Reference*.

4.11 Contents Listings

These notes include a list of the files contained on each floppy in the XENIX Operating System of Release 1.1.

It sometimes becomes necessary to reinstall a file from an Operating System distribution floppy because of inadvertently removing a file due to a hardware malfunction or operator error. If you need to **reinstall** a file from an Operating System distribution floppy, check Floppy #9 first. Any file listed on Floppy #9 takes precedence over the same file on any other floppy.

The installation of Floppy #8 (containing **uucp** related files) is optional. The installation of Floppy #9 is NOT optional. Refer to the XENIX *Installation Guide* for the proper installation procedure.

5. Hardware Notes

This section contains notes relating to hardware issues.

In general, your hardware configuration must have the original settings and boards before you boot XENIX for the IBM PC. If you have added any boards, make sure that all switches are set as recommended in the manufacturer's hardware manual for that board. These guidelines must be followed, to ensure proper system performance.

5.1 Parallel and Serial Printer Setup

One and only one parallel printer can be used on the XENIX System (because there is one interrupt vector available). Refer to the XENIX *Operations Guide*, chapter on "Using Peripheral Devices" for information on connecting and using serial and parallel printers.

5.2 Floppy Light After Shutdown

The floppy disk access light may stay on after a system shutdown. This is not harmful and floppy disks can be removed from the disk drive without risk.

5.3 Serial Lines

XENIX for the IBM PC supports modem control on up to two serial ports. The following device names refer to the serial ports with and without modem control.

/dev/tty11	uses main serial adaptor without modem control.
/dev/tty12	uses alternate serial adaptor without modem control.
/dev/tty13	uses main serial adaptor with modem control.
/dev/tty14	uses alternate serial adaptor with modem control.

6. uucp(C)—Common Problems

This section refers to problems you may have with **uucp**(C) and **cu**(C). The **uucp** programs and utilities are on Floppy #8 of the Release 1.1 set, and its installation is optional. Also refer to the chapter "Building a Micnet Network" in the XENIX *Operations Guide* and the chapter on "Building a UUCP System" in the XENIX *User's Guide*

6.1 Modem Usage under XENIX

Refer to the XENIX *Operations Guide*, Chapter on "Using Peripheral Devices" for information on modem settings, modem control, aliasing alphabetic characters and dialing with your computer.

7. Software Notes

This section explains some software issues of note.

7.1 lpr(C)

DO NOT USE the **lpr**(C) command unless you have a line printer attached to your computer. Sending a file to a non-existent line printer produces an unkillable **lpd** process.

If you do send a file to a non-existent printer, restore the system to normal by typing the following commands:

```
cd /usr/spool/lpd
rm *
```

This removes the text, control and lock files waiting for the non-existent printer. The lpd process is still running, however. To remove it you must **shutdown** the system, then **reboot**.

7.2 vsh(C)

DO NOT USE the **vsh Print** command unless you have a line printer attached to your computer. The **Print** command sends the designated file to the line printer and starts an unkillable **lpd** process. The previous (**lpr**(C)) section explains this situation.

The Microsoft Visual Shell, **vsh**(C), does not, at present, support the use of "special characters" when specifying filenames. The use of these special characters (*, [ ], and ?) is explained in the chapter "Basic Concepts" in the XENIX *User's Guide*.

7.3 3.0 Login

Under XENIX 3.0, only the super-user may execute **login**(C) from a shell. Hence non-super-users must log out or use another screen in order to log in as another user.

Furthermore, there has been a change in **login**'s functionality. The new XENIX 3.0 **login** nests, (i.e., the current user is not logged out). When the new user (super-user) logs out, the previous user is still running. See the **login**(C) manual page for more information.

7.4 mkuser(C)

The **mkuser** program has been enhanced. The utility has a different order than documented in the XENIX *Operations Guide* chapter on "Preparing XENIX for Users."

After you enter the new user's login name the following prompt appears:

```
Do you want to use the default group (y/n)?
```

If you type "y," the user is assigned to the group "group." If you type "n," you may then enter one of the other groups. The group may be a group already in */etc/group* or you can specify a new group which will be created and added to */etc/group*.

Next, the program asks for the password, as documented. The next step is to enter the user's shell. You will see the following:

```
ENTER shell type (1, 2, or 3) and press ENTER:
```

If you asked for instructions when you started **mkuser**, you will be told what the shells are, otherwise this is all you will see. Type 1 (for **sh**(C)), 2 (for **vsh**(C)) or 3 (for **csh**(C)).

Finally, you will be asked to enter a comment, as documented.

7.5 Time Zone Changes

The time zone in this release is initially set to Pacific Standard/Daylight Time (PST/PDT). You will be prompted during installation for your time zone.

Each **csh** user will need to modify their *.login* file with the appropriate **TZ** setting. For example the line:

```
setenv TZ EST5EDT
```

sets **TZ** to Eastern Standard/Daylight Time.

Refer to the XENIX *Installation Guide* for more on **TZ**.

7.6 printenv

The XENIX 2.3 **printenv** command has been replaced in XENIX 3.0 by the **env**(C) command. The **printenv** shipped is simply a link to the 3.0 command **env**(C). See the **env**(C) manual page for the enhanced **env** functionality.

7.7 Terminal Type

During XENIX installation your terminal type will be set depending on whether you have a color card or not. This is done so that you may take advantage of the color feature when using application packages (such as the **Lyrix** word processor). Refer to the XENIX *Operations Guide* chapter on "Using Peripheral Devices" for instructions on changing terminal types.

8. Documentation Errata

This section relates errors found in the documentation.

8.1 Machine(M)

The manual page **machine**(M) was left out of the XENIX *Reference*. It is included with these *Release Notes*. Please insert it into your manual.

8.2 Mount(C)

The syntax given for **mount**(C) is incorrect. It should be as follows:

```
/etc/mount [[ -r] special-device directory]
```

A new **mount**(C) manual page is included with these *Release Notes*. Please insert it into your XENIX *Reference*.

8.3 Building a Micnet Network

Chapter 9 of the XENIX *Operations Guide* on page 9–12 shows the example:

cat /usr/spool/micnet/*machine–name*/LOG

This example should read:

cat /usr/spool/micnet/remote/*machine–name*/LOG

8.4 Adding a Second Hard Disk

The "Adding a Second Hard Disk" section in the "Using Peripheral Devices" chapter of the XENIX *Operations Guide* contains is missing a command line. Step 2 of the procedure entails making device nodes corresponding to the second drive. The command lines to do so should be the following:

```
#  /etc/mknod  /dev/hd1   b  3  16
#  /etc/mknod  /dev/hd1ds  b  3  29
#  /etc/mknod  /dev/hd1bb  b  3  30
#  /etc/mknod  /dev/hd1p1  b  3  25
#  /etc/mknod  /dev/hd1p2  b  3  26
#  /etc/mknod  /dev/hd1p3  b  3  27
#  /etc/mknod  /dev/hd1p4  b  3  28
#  /etc/mknod  /dev/hd1param  c  4  16
```

floppy #5

/etc/default/restor
/etc/devnm
/etc/fixperm
/etc/inir
/etc/mknod
/etc/mnttab
/etc/mount
/etc/passwd
/etc/profile
/etc/rmuser
/etc/setmnt
/etc/sulogin
/etc/systemid
/etc/ttys
/etc/umount
/etc/utmp
/lib/cvtdate
/usr/adm/owtmp
/usr/adm/sulog
/usr/bin/acctcom
/usr/bin/deassign
 linked to /usr/bin/assign
/usr/bin/atrm
/usr/bin/bdiff
/usr/bin/calendar
/etc/default/su
/etc/dmesg
/etc/group
/etc/lpopen
/etc/mkuser
/etc/motd
/etc/netutil
/etc/base.perms
/etc/rc
/etc/secondtime
/etc/shutdown
/etc/sysadmin
/etc/termcap
/etc/ttytype
/etc/update
/etc/wall
/usr/adm/messages
/usr/adm/pacct
/usr/adm/wtmp
/usr/bin/assign
/usr/bin/at
/usr/bin/atq
/usr/bin/bc
/usr/bin/bfs
/usr/bin/cmchk

floppy #6

/usr/bin/finger
/usr/bin/lpr
/usr/bin/more
/usr/bin/pcat
/usr/bin/random
/usr/bin/rcp
/usr/bin/units
/usr/demo/.profile
/usr/cdemo/.login
/usr/lib/atrun
/usr/lib/cronlog
/usr/lib/diff3prog
/usr/lib/ex2.13preserve
/usr/lib/ex2.13strings
/usr/lib/lpd
/usr/lib/mail/aliashash
/usr/lib/mail/exec.mn
/usr/lib/mail/faliases
/usr/bin/logname
/usr/bin/mail
/usr/bin/pack
/usr/bin/unpack
 linked to ./usr/bin/pcat
/usr/bin/rmail
/usr/bin/what
/usr/cdemo/.cshrc
/usr/vdemo/.profile
/usr/lib/calprog
/usr/lib/crontab
/usr/lib/diffh
/usr/lib/ex2.13recover
/usr/lib/lib.bc
/usr/lib/mail/aliases.hash
/usr/lib/mail/daemon.mn
/usr/lib/mail/execmail

floppy #7

/usr/lib/mail/mail.local
/usr/lib/mail/mailhelp.cmd
/usr/lib/mail/mailhelp.set
/usr/lib/mail/maliases
/usr/lib/mkuser.help
/usr/lib/mkuser.prof
/usr/lib/tabset/ambas
/usr/lib/tabset/diablo
/usr/lib/tabset/stdcrt
/usr/lib/tabset/vt100
/usr/lib/unittab
/usr/bin/setcolor
/usr/bin/doscat
/usr/bin/dosls
linkedto./usr/bin/dosdir
/usr/bin/VSHELL.HPT
/usr/bin/menu.def
/usr/spool/at/lasttimedone
/usr/spool/mail/demo
/usr/spool/mail/vdemo
/etc/default/msdos
/etc/masterboot
/usr/lib/mail/mail.mn
/usr/lib/mail/mailhelp.esc
/usr/lib/mail/mailrc
/usr/lib/makekey
/usr/lib/mkuser.mail
/usr/lib/more.help
/usr/lib/tabset/beehive
/usr/lib/tabset/std
/usr/lib/tabset/teleray
/usr/lib/tabset/xerox1720
/usr/bin/remote
linkedto./usr/lib/mail/mail.mn
/usr/bin/dosdir
/usr/bin/format
/usr/bin/VSHELL.HPP
/usr/bin/vsh
/usr/pub/ascii
/usr/spool/at/past/xyz
/usr/spool/mail/cdemo
/usr/spool/mail/root
/etc/badblkutil
/once/init.base

floppy #8

/etc/uucp.perms
/usr/bin/uulog
/usr/bin/uusend
/usr/lib/uucp/L-devices
/usr/lib/uucp/L.sys
/usr/lib/uucp/USERFILE
/usr/lib/uucp/uuclean
/once/init.uucp
/usr/bin/uucp
/usr/bin/uux
/usr/bin/uunow
/usr/lib/uucp/L-dialcodes
/usr/lib/uucp/L.cmds
/usr/lib/uucp/uucico
/usr/lib/uucp/uuxqt

floppy #9

/bin/pstat
/etc/base.perms
/etc/termcap
/etc/lpopen
/etc/ttytype
/usr/bin/doscat
/usr/bin/dosls
linkedto/usr/bin/dosdir
/usr/bin/dosrmdir
linkedto/usr/bin/dosrm
/once/1.1.perms
/once/ttytype
/bin/csh
/etc/soft.perms
/etc/rc
/etc/profile
/etc/default/msdos
/usr/bin/dosdir
/usr/bin/dosmkdir
/usr/bin/dosrm
/usr/bin/vsh
/usr/bin/VSHELL.HPT
/once/testcolor
/etc/default/mkuser

/etc/mkuser
/usr/lib/mkuser/mkuser.mail
/usr/lib/mkuser/mkuser.login
/etc/rmuser
/usr/adm/msgbuf
/usr/lib/mkuser/mkuser.help
/usr/lib/mkuser/mkuser.prof
/usr/lib/mkuser/mkuser.cshrc
/etc/tz
/once/init.1.1