FORTUNE SYSTEMS CORPORATION

Introduction to the Fortune Operating System

(Basic Information for UNIX Programmers)

Release 1.2.4

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Belmont, CA 94002

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How to Use This Guide

This document contains a brief introduction to the Fortune Operating System and lists the commands in release 1.2.4 of the system.

The Fortune Operating System is based on the powerful and flexible UNIX operating system developed by Bell Laboratories of Western Electric Corporation. Since it is a multiuser, multi-processing operating system, the UNIX system efficiently uses computer resources. The system has been implemented on a number of different machine environments in recent years and is popular among business and scientific users. Two good books, which describe the development and use of the UNIX system, are recommended in Appendix C.

There are two versions of the Fortune Operating System; single user version and a multiuser version. They are sold as separately priced products. Buyers of multiuser systems must purchase 512 Kb of memory.

The basis of the Fortune Operating System is UNIX Version 7.0, several utilities from the University of California Berkeley 4.1 UNIX, and a small group of utilities from UNIX System 3.

Fortune Systems has made extensive enhancements to the UNIX system while developing the Fortune Operating System.

Improvements have been made to the performance of this type of operating system on a microprocessor-based machine.

The Fortune Operating System can run in a flexible disk environment.

The file system was modified for additional reliability in the event of power failure.

A unique menu shell was developed that does not require the user to know UNIX command syntax to use Fortune Systems application software.

Yet the Bourne shell is still available for knowledgeable UNIX developers to communicate directly with the system.

The commands provided in release 1.2.4 are listed in Appendix A. Terminal control codes provided are listed in Appendix B. Available character sets are illustrated in Appendix C. Cabling information is provided in Appendix D.

Extensive documentation about the UNIX commands can be obtained from Western Electric Corporation or the University of California at Berkeley. Appendix E contains the mailing addresses. If you want to join a User's group to keep up-to-date on the UNIX operating system, see Appendix F.

Fortune Systems provides complete documentation for the UNIX-based Fortune Operating System. Meet Your Fortune System, a binder that comes with your basic units explains the set-up and use of the Fortune 32:16. Understand Your Fortune System is packaged with Meet Your Fortune System, and provides information concerning system management and the facilities of the menu shell.

Fortune Systems plans to provide The Fortune Operating System Guide which is written for the novice user who must learn the UNIX command syntax to take advantage of the operating system features. The Development and Conversion Tools package will include a special set of utilities, commands, and development tools for the advanced user to fully utilize the system. Complete documentation for all the system commands and features will be provided in the Programmers Tools package. Contact your Fortune dealer for specific information about these products which will be offered in the future.

Appendix A: Summary of Commands

Name	Description
basename	strips filename suffixes basename string [suffix]
cat	concatenates one or more files and writes it to standard output cat [-u] [-s] file...
cd	changes directory cd [directory]
chgrp	changes group ownership of a file to another group chgrp group file...
chmod	changes the read, write, and execute permissions on one or more files chmod mode file...
chown	changes the ownership of files to a specific owner chown owner file...
cmp	compares two files cmp [-L] [-s] file1 file2
cp	copies one file to another or several files to a directory cp file1 [file2...] target
	cp -B multi-volume copy. Backs up files from a hard disk to one or more flexible disks

Name	Description
	cp -R restore. Restores files copied with cp -B from flexible disk(s) back to the hard disk
date	prints or sets the date and time date [mmddhhmm [yy]] [+ format]
dd	converts and copies all or part of a file dd [option = value]
df	prints disk statistics (amount of free space) df [-t] [-f] [file systems]
diff	defines the changes that must be made in two files in order to make them look exactly alike diff [-efbh] file1 file2
du	prints disk usage in blocks (1024 characters per block) du [-ars] [names]
echo	displays on the screen, commands written in a shell file as they are executed echo [arg] ...
ed	accesses a standard text editor ed [-] [-x] [file]
expr	evaluates simple arithmetic expressions expr arguments
find	searches for files recursively find path-name-list expression
format	a menu-oriented disk formatter

Name	Description
fsck	checks file system integrity /etc/fsck [-y] [-n] [-sX] [-SX] [-t file] [file-system]
fstab	lists a table of file systems, used by fsck
getty	initiates the login session
init	controls system initialization
kill	terminates a process immediately with no warnings kill [-signo] processid
lf	is the same as ls -F
ll	is the same as ls -l
login	verifies login to the system login
lpq	prints a list of the print jobs waiting in the print queue
lpr	spools a file to the line printer lpr [option...] [name...]
lprm	removes a print job from the print queue
lr	is the same as ls -R
ls	lists the contents of a directory, all immediate filenames and subdirector names ls [-logtasdrucif] names

Name	Description
menu	accesses the global menu
mkconf	creates a configuration blocks for floppy and rigid disks
mkdevs	makes special device files
mkdir	makes directories mkdir directory name
mkfs	makes a file system /etc/mkfs special blocks [:inodes] [gap blocks] /etc/mkfs special proto [gap blocks]
mknod	makes individual special files /etc/mknod name [c] [b] major minor /etc/mknod name p
more	a filter that allows examination of continuous text, one screenful at a time
mount	mounts a file system, to make UNIX aware of that file system /etc/mount [special directory [-r]]
mtab	lists a table of mounted devices
mv	renames files or directories
newgrp	changes the login group name
passwd	changes or installs a password associated with the login name passwd [name]

Name	Description
pr	produces a printed listing of one or more files pr [options] [files]
pwd	prints the current working directory pwd
pstat	prints system facts /etc/pstat
rc	restarts command file, power-up executables
rdconf	reads the configuration block from each device and displays it
reboot	brings the computer down and brings it up again
rm	deletes one or more files from a directory rm [-fri] file...
rmdir	deletes directories rmdir dir...
sh	accesses the standard shell command interpreter sh [-ceiknrstuvs] [args]
shutdown	initiate shutdown procedure /etc/shutdown
sleep	delays execution of command for a designated time sleep time
sort	sorts or merges a file sort [-cmubdfinrtx] [+ pos1] [-pos2]]... [-o output] [names]

Name	Description
stty	sets terminal characteristics stty [-a] [-g] [options]
sync	forces synchronization, flushes buffers and updates the file system on disk sync
tee	copies the standard input to a file and standard output
termcap	lists a file that contains terminal capabilities
test	evaluates an expression, condition command test expr [expr]
true	always returns a status quo of one
tty	prints the pathname of the user's terminal tty [-s]
ttype	changes the default characteristics of the terminal ttype [-i] ttyname [add] [band = n] [type = s] [{enable, disable}]
umount	dismounts the specified file system if it is mounted /etc/umount special
update	performs a sync every 30 seconds update
wall	broadcasts a message to all users /etc/wall
what	prints the name and version number of a command

Name	Description
who	lists who is currently on the system who
write	sends a message to another user write user [tty]

A5 DC

Appendix B: Terminal Control Codes

Two sets of control codes are included for programming the Fortune 32:16 terminals. Table B-1 shows the standard videotex PLP controls. Table B-2 shows Fortune System's extensions.

Table B-1

Videotex PLP Standard Control Codes

NAME	FUNCTION	HEX CODE	KEY CODE
Bel	Sounds keyboard bell	07	^G
BS	Back space cursor	08	Back space key
HT	Tab cursor one character to right	09	^I
LF	Line feed cursor down one row	0A	^J
VT	Vertical tab, cursor up one row	0B	^K
FF	Form feed, clears screen	0C	^L
CR	Carriage Return, cursor to line start	00	CR
SO	Lock in G1 set (shift out)	0E	^N
SI	Lock in G0 set (shift in)	0F	^0

NAME	FUNCTION	HEX CODE	KEY CODE
SS2	G2 character set for one character	19	^Y
ESC	Involves further commands	1B	^[
SS3	G3 character set for one character	1D	^]
RS	Moves cursor to upper left corner	1E	^ ^
US	Reset, and move cursor (@+)	1F	^_ 'row' 'col'
REPEAT	Repeats previous character 'N' - 3f times	1B 47 'N'	Esc F 'N'
REPEAT TO EOL	Repeats previous character to the end of line	1B 48	Esc G
Rev Vid	Turns on reverse video attributes	1B 48	Esc H
Norm Vid	Turns off reverse video attributes	1B 49	Esc I
Blink Start	Turns on blink attributes	1B 4E	Esc N
Blink Stop	Turns off blink attributes	1B 5E	Esc ^
Underline Start	Turns on underline attributes	1B 59	Esc Y

NAME	FUNCTION	HEX CODE	KEY CODE
Underline Stop	Turns off underline attributes	1B 5A	Esc Z
Flash Cursor	Enables flashing block cursor	1B 5B	Esc [
Steady Cursor	Cursor enabled with no blink	1B 5C	Esc \
Cursor Off	Cursor not visible	1B 5D	Esc]

Table B-2 depicts Fortune Systems extended controls. Fortune screen locations for row and column are specified as 'space +' coding. This means that a space or a hex 20 is,the first row or column. A hex 21 or ! is the next position.

TABLE B-2

FORTUNE SYSTEMS EXTENDED CONTROLS

FUNCTION	HEX CODE	KEY CODE
Selects G0 set to be loaded with 'N'	1B 28 'N'	Esc ('N'
Selects G1 set to be loaded with 'N'	1B 29 'N'	Esc) 'N'
Selects G2 set to be loaded with 'N'	1B 2A 'N'	Esc * 'N'
Selects G3 set to be loaded with 'N'	1B 2B 'N'	Esc + 'N'

Character sets to be loaded:

'N' = B (42 Hex) loads ASCII set

'N' = (7D Hex) loads Mosaics set

'N' = (7C Hex) loads Supplementary Graphics set

'N' = F (46 Hex) loads Fortune Graphics set

6:00

FUNCTION	HEX CODE	KEY CODE
locks in G2 set	1B 6E	Esc n
locks in G3 set	1B 6F	Esc o
Set attribute on figure 0	1C 47 xx	^ G
Add attribute	1C 48 xx	^ H
Subtract attribute	1C 49 xx	^ I
Complement attribute	1C 4A xx	^ J
Set area attribute On	1C 67 'row 1' 'col 1' 'row 2' 'col 2'	^\g X1Y1X2Y2
Add area attribute	1C 68 'row 1' 'col 2' 'row 1' 'col 2'	^\h X1Y1X2Y2
Subtract area attribute	1C 69 'row 1' 'col 2' 'row 1' 'col 2'	^\i X1Y1X2Y2
Complement area attribute	1C 6A 'row 1' 'col 2' 'row 1' 'col 2'	^\j X1Y1X2Y2
Normal	00	^@
Overstrike	01	^A
Blink	02	^B
Ninth Column	40	@
Reverse Video	04	^D
Underline (high)	08	back space
Underline (low)	10	^P
Double underline	18	^x
Highlight	20	space bar

FUNCTION	HEX CODE	KEY CODE
Move cursor to location (space +)	1C 43	^\C 'row' 'col'
Move cursor right one position	1A	^\Z
Clear to end of screen	1C 59	^\Y
Clear to end of line	1C 5A	^Z
Insert current line	1C 67	^\g
Insert line (next 80 characters)	1C 45	^\E
Delete line (next 80 characters)	1C 52	^\R
Insert character	1C 51	^\Q
Delete character	1C 57	^\W
Delete current line	1C 72	^\r

Appendix C: Fortune Systems Character Sets

Four character sets are available for programming the Fortune 32:16 terminals. In addition to the standard ASCII character set, you can also load the supplementary graphics set, the Fortune graphics set, and the mosaic graphics set. Each character set is illustrated in the following tables.

Table C-1
ASCII Alphanumeric Character Set

	2	3	4	5	6	7
0	SPACE	0	@	P	`	p
1	!	1	A	Q	a	q
2	"	2	B	R	b	r
3	#	3	C	S	c	s
4	$	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	'	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
10	*	:	J	Z	j	z
11	+	;	K	[	k	{
12	,	<	L	\	l	|
13	-	=	M	]	m	}
14	.	>	N	^	n	~
15	/	?	O	_	o	■

Table C-2
Supplementary Graphics Characters

ROW / COL	2	3	4	5	6	7
0	SPACE	°	→	—	Ω	K
1	¡	±	`	¹	Æ	≈
2	¢	²	´	®	Ð	ð
3	£	³	^	©	ª	ı
4	$	×	~	™	º	Ħ
5	¥	µ	¯	₫		ĸ
6	#	¶	˘		IJ	ij
7	§	·	˙		Ŀ	ŀ
8	¤	÷	¨		Ł	ł
9	'	¸	˝		Ø	ø
10	"	¸	°		Œ	œ
11	<<	>>	˛		º	ß
12	←	¼		⅛	Þ	þ
13	↑	½	ˇ	⅜	ŧ	ŧ
14	→	¾	L	⅝	Ŧ	ŋ
15	↓	¿	˅	⅞	ʼn	■

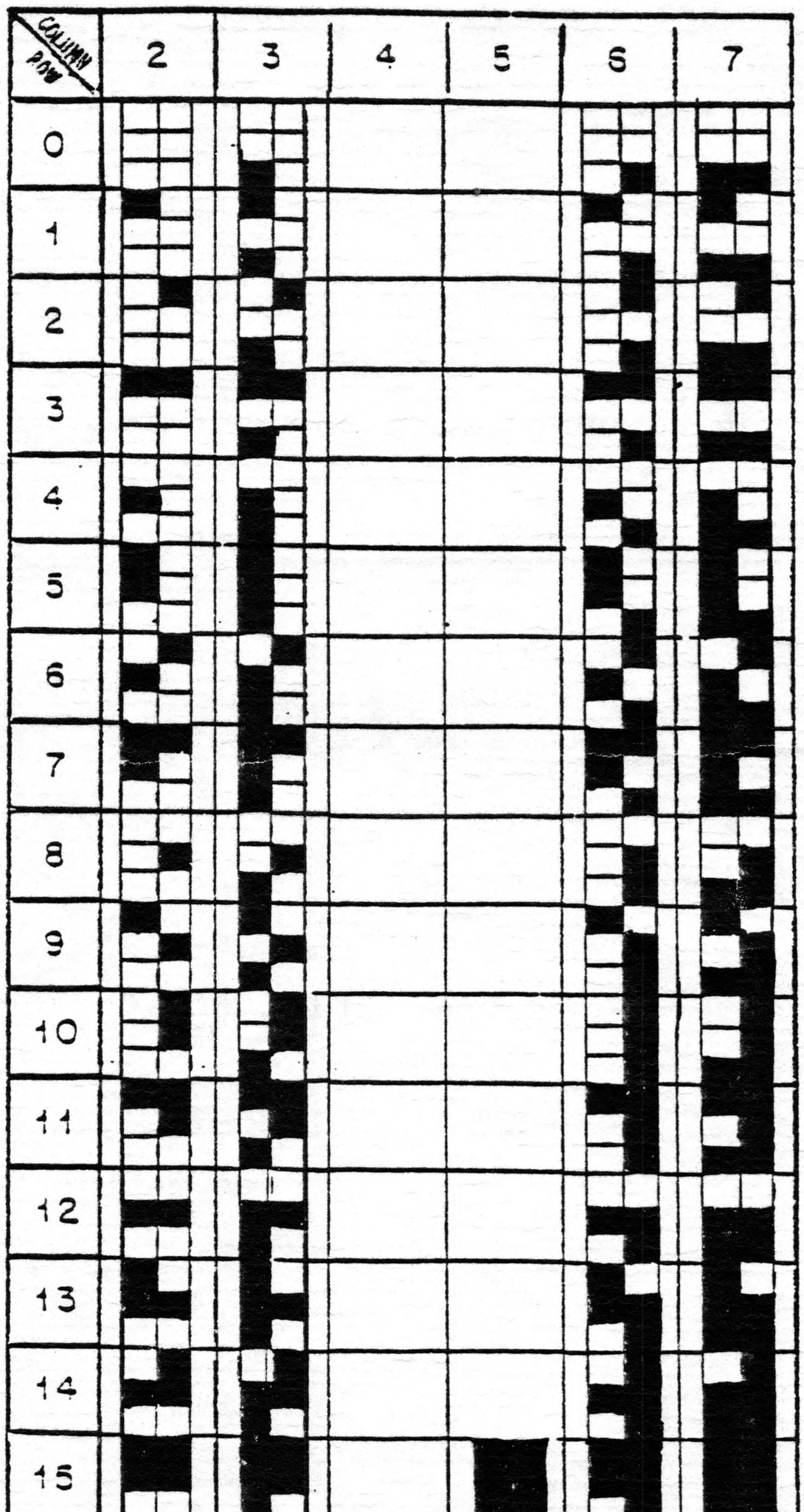
Table C-3

Fortune Systems Graphics Character Set

col / row	2	3	4	5	6	7
0	┌	↑	\	ψ		
1	├	↓	┌	ü		
2	└	↕	◣	ù		
3	┬	▶	ß	└		
4	┼	◀	ê	◣		
5	┴	◆	ì	/		
6	─	┴	ö	┐		
7	┌	¥	à	/		
8	┐	▮	É			
9	┤	!!	è			
10	┘	┘	é			
11	)	⌴	ä			
12	)	¢	ï			
13	|	·	Ö			
14	£	←	Ö			
15	└	→	ò			

Table C-4

Mosaic Character Set



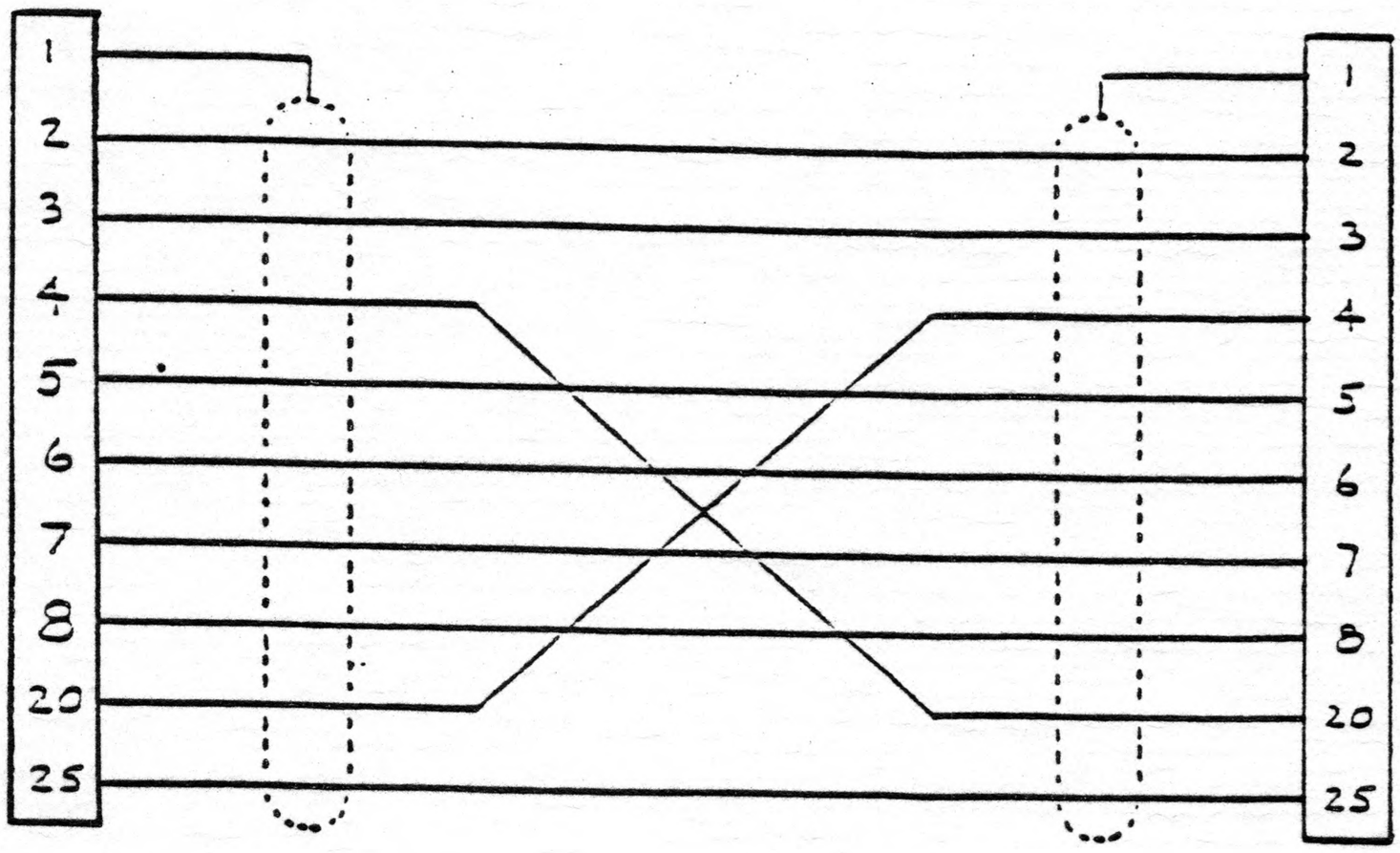
Appendix D: RS-232-C Interface Cabling Information

Table D-1 describes the use of each RS-232-C cable in the Fortune System. Figures D-1 through D-3 provide wiring diagrams for Fortune-supplied cables. Table D-2 defines the signal interface at the serial input/output connector and at each connector of a COMM A controller.

TABLE D-1

Cable Connections for the Fortune System

From	To	With	Notes
SIO connector or any connector on a COMM A controller.	Letter Quality Printer	1000664-01	10-foot, M/M
		1000664-02	20-foot, M/M
		1000664-03	50-foot, M/M
	Dot Matrix Printer	1000664-04	10-foot, M/F
		1000664-05	20-foot, M/F
		1000664-06	50-foot, M/F
	ASCII Terminal	1000633-01	10-foot, M/M
		1000633-08	20-foot, M/M
		1000633-09	50-foot, M/M
	Modem	1000633-10	10-foot, M/M
		1000633-11	20-foot, M/M
		1000633-12	50-foot, M/M
	Any (passive extension cable)	1000633-02	10-foot, M/F
		1000633-03	20-foot, M/F
		1000633-04	50-foot, M/F



Notes: 1. Cable for letter quality printer has male connectors at each end.

2. Cable for dot matrix printer has one male connector and one female connector.

Figure D-1. Printer cable wiring (Part Nos. 1000664-01 through -06)

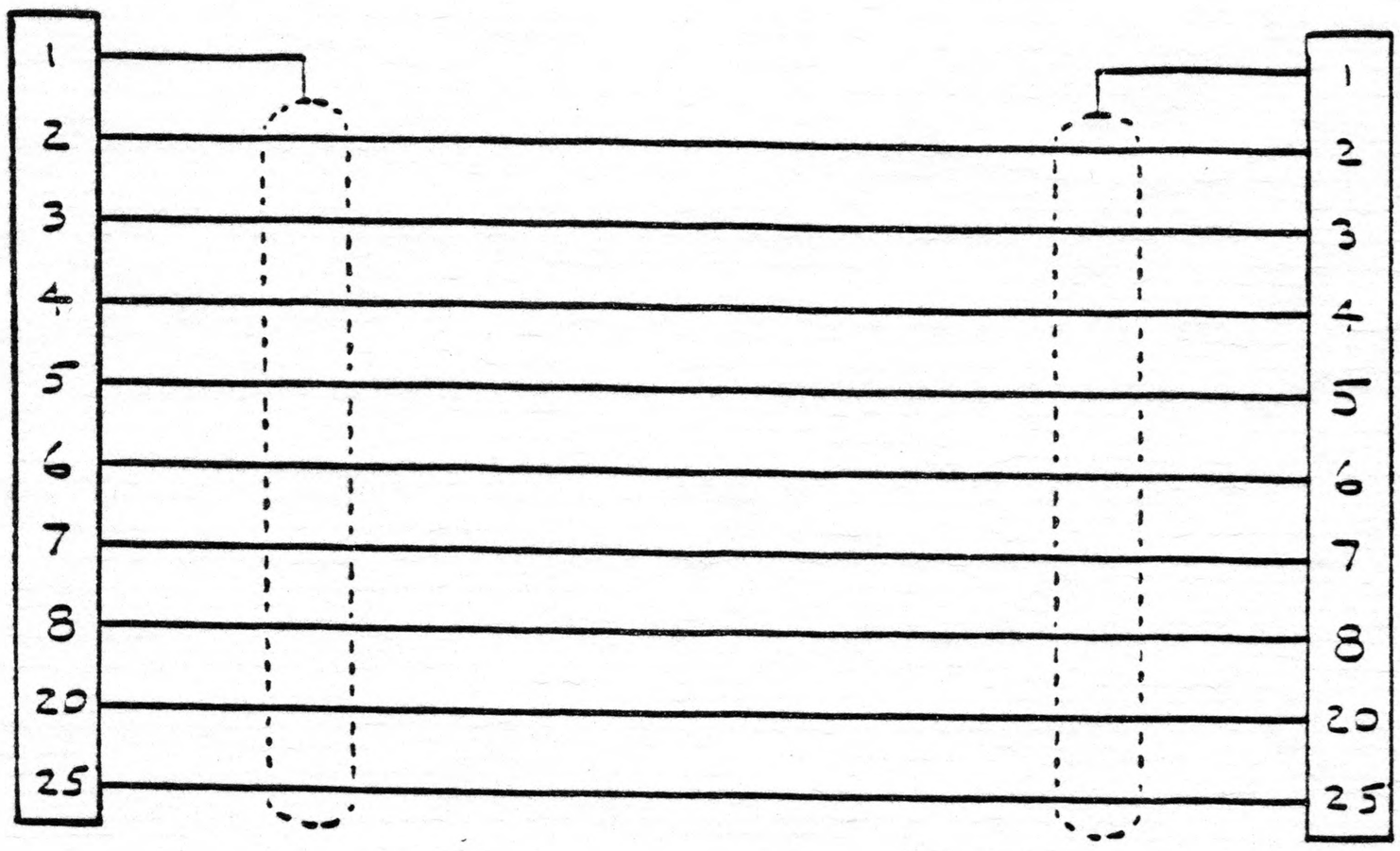
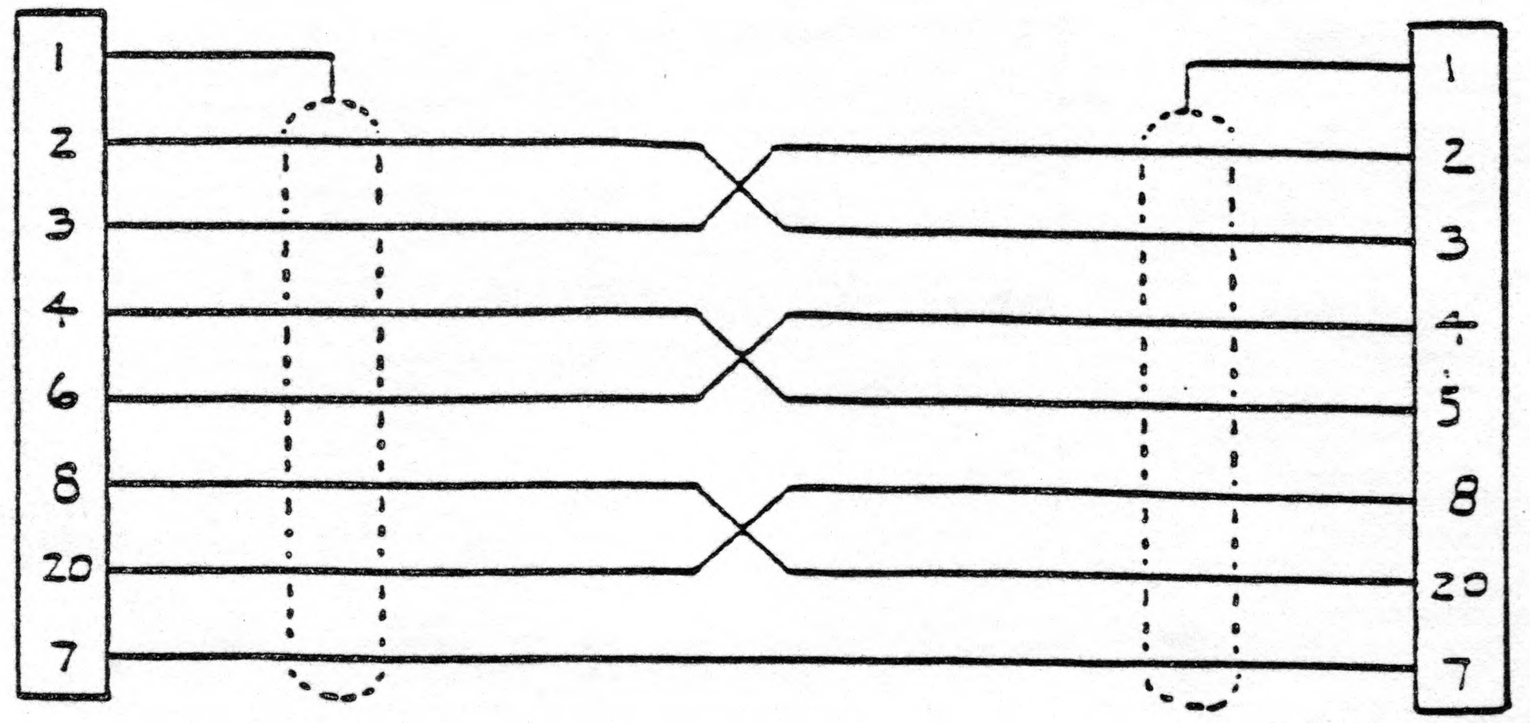


Figure D-2. Cable wiring for CPU to ASCII Terminal or ASCII Terminal to modem (Part Nos. 1000633-01, -02, -03, -04, -08, -09)



Note: Connect host end to CPU; connect modem end to modem.

Figure D-3. Cable wiring for CPU to modem (Part Nos. 1000663-10, -11, -12)

TABLE D-2.
SIO Signal Interface

Pin No.	Circuit (RS-232-C)	Function	Direction
1	AA	Frame ground	-
2	BA	Transmitted data	to DCE
3	BB	Received data	from DCE
4	CA	Request to send	to DCE
5	CB	Clear to send	from DCE
6	CC	Data set ready	from DCE
7	AB	Signal ground	-
8	CF	Data carrier detected	from DCE
9	-	+12 volts	-
10	-	-12 volts	-
20	CD	Data terminal ready	to DCE
25	-	Busy	from DTE

Appendix E: UNIX Publications

A User Guide to the UNIX System
by Rebecca Thomas and Jean Yates
Osborne/McGraw-Hill
630 Bancroft Way, Berkeley, CA 94710
(800) 227-2895

Using the UNIX System
by Richard Gauthier
Reston Publishing Co.
Reston, Virginia

University of California at Berkeley
Department of Computing Services
215 Evans Hall
Berkeley, CA 94720

The Department of Computer Services offers a complete set of UNIX documents. Since FOS is currently based on Berkeley UNIX, a set of Berkeley documents would be advisable.

Western Electric Company
Bell Systems Software
P.O. Box 25000
Greensboro, North Carolina 27420
(919) 697-6530

Western Electric handles all sales of UNIX and UNIX documentation for Bell Laboratories.

Appendix F: UNIX User Groups

Usenix Association
Box 8, the Rockefeller University
12330 York Avenue
New York, New York 10021
(212) 360-1182

/usr/group
P.O. Box 8570
Stanford, CA 94305
(408) 988-1755

NOTE: 16
PROD: Keyboard
DATE: 83-10-08
FROM: JDR FUCK OFF
SUBJ: Codes generated by special keys

The codes for each of the special keys are listed below. Keys on the keypad are designated by PAD to distinguish them from those of the main keyboard.

KEY	CHARS	DEC EQUIV	SHIFT CHARS	DEC EQUIV
PAD ,	^A , ^J	1 44 10	^A < ^J	1 60 10
PAD -	^A - ^J	1 45 10	^A _ ^J	1 95 10
PAD .	^A . ^J	1 46 10	^A > ^J	1 62 10
PAD 0	^A 0 ^J	1 48 10	^A) ^J	1 41 10
PAD 1	^A 1 ^J	1 49 10	^A ! ^J	1 33 10
PAD 2	^A 2 ^J	1 50 10	^A @ ^J	1 64 10
PAD 3	^A 3 ^J	1 51 10	^A # ^J	1 35 10
PAD 4	^A 4 ^J	1 52 10	^A $ ^J	1 36 10
PAD 5	^A 5 ^J	1 53 10	^A % ^J	1 37 10
PAD 6	^A 6 ^J	1 54 10	^A ^ ^J	1 94 10
PAD 7	^A 7 ^J	1 55 10	^A & ^J	1 38 10
PAD 8	^A 8 ^J	1 56 10	^A * ^J	1 42 10
PAD 9	^A 9 ^J	1 57 10	^A (^J	1 40 10
PAD DEC TAB	^A ; ^J	1 59 10	^A : ^J	1 58 10
HELP	^A @ ^J	1 64 10	^A ? ^J	1 63 10
F1	^A a ^J	1 97 10	^A A ^J	1 65 10
F2	^A b ^J	1 98 10	^A B ^J	1 66 10
F3	^A c ^J	1 99 10	^A C ^J	1 67 10
F4	^A d ^J	1 100 10	^A D ^J	1 68 10
F5	^A e ^J	1 101 10	^A E ^J	1 69 10
F6	^A f ^J	1 102 10	^A F ^J	1 70 10
F7	^A g ^J	1 103 10	^A G ^J	1 71 10
F8	^A h ^J	1 104 10	^A H ^J	1 72 10
F9	^A i ^J	1 105 10	^A I ^J	1 73 10
F10	^A j ^J	1 106 10	^A J ^J	1 74 10
F11	^A k ^J	1 107 10	^A K ^J	1 75 10
F12	^A l ^J	1 108 10	^A L ^J	1 76 10
F13	^A m ^J	1 109 10	^A M ^J	1 77 10
F14	^A n ^J	1 110 10	^A N ^J	1 78 10
F15	^A o ^J	1 111 10	^A O ^J	1 79 10
F16	^A p ^J	1 112 10	^A P ^J	1 80 10
EXECUTE	^A q ^J	1 113 10	^A Q ^J	1 81 10
INSERT	^A r ^J	1 114 10	^A R ^J	1 82 10
PREV SCRN	^A s ^J	1 115 10	^A S ^J	1 83 10
DELETE	^A t ^J	1 116 10	^A T ^J	1 84 10
NEXT SCRN	^A u ^J	1 117 10	^A U ^J	1 85 10
PAD RETURN	^A v ^J	1 118 10	^A V ^J	1 86 10
LEFT ARROW	^A w ^J	1 119 10	^A W ^J	1 87 10
UP ARROW	^A x ^J	1 120 10	^A X ^J	1 88 10
DOWN ARROW	^A y ^J	1 121 10	^A Y ^J	1 89 10
RIGHT ARROW	^A z ^J	1 122 10	^A Z ^J	1 90 10
LF/GL=RETURN	^J	10		
CAN/DEL	^?			

~~This last one remains to be determined. Does it begin with 94 63? Shifting makes no difference.~~

127 decimal

NOTE: 9
PROD: Unix V 1.2.4
DATE: 83-10-03
FROM: Fortune, Don Rubinson
SUBJ: Multi-floppy backup and restore

Some files and groups of files are too large to fit on one floppy disk. The cp function has options for splitting them among several floppies for backup, and for restoring files thus backed up. To do this, one should format plenty of disks, then log in as root.

Backup

To back up one long file with the pathname /u/steve/bigfile, enter:

```
cp -BUot /dev/fd02 790 150 /u/steve/bigfile
```

Note that the 0 in fd02 is a zero, not the letter.

To back all the files in directory /u/steve, enter:

```
cp -BUroustV /dev/fd02 790 150 /u/steve
```

The program will compute the number of floppies you will need and prompt you to put them in as needed. You should label the floppies Vol 1, Vol 2, ..., since they will have to be restored in the same order. All files will have the same pathnames on the floppy that they do on the main filesystem on the hard disk.

Restore

Restoration is the inverse of backing up. It means copying the files from the floppy disk back to the hard disk. For one large file, the command is:

```
cp -Rot /dev/fd02 /u/steve/bigfile /u/steve
```

For all the files in the /u/steve directory which had been previously backed up, it would be:

```
cp -RroustV /dev/fd02 /u/steve /u
```

The program will prompt you to enter the floppy disks in order. If you put the wrong disk in, it will complain.

In the commands, the -o option preserves the ownership of the files and directories, which would otherwise be given to root. The -t option preserves the original create/modify date/times of the files. The -u option unlinks linked files. The -s option includes special files. The -V option outputs the actions taken by cp as they occur. The -r option makes the command apply to a directory and to all its files and subdirectories and their files and subdirectories. If it were not used, one could add /* to the directories shown, but the full pathnames would not be preserved in the destination.

NOTE: 11
PROD: BAS General Ledger
DATE: 83-10-04
FROM: Fortune, Jim Dyson
SUBJ: Purging transactions

After closing a period, entry of a transaction with a prior period date results in a message "... contains prior period transactions ..." and prevents closing the current period. If the question "Remove GL transactions for period xx" was answered Yes during setup, it should be possible to solve this problem by going into the closing period record, changing field 7 to the period in which the out-of-period transaction belonged, reclose that period, update the general ledger, and then reclose each subsequent period and re-update the general ledger for each subsequent period.

Update 1.1 (June 15, 1983) requires that the user answer Yes to the above question. Data cannot be accumulated for each period of the year, because there is no way to purge it after 12 months. If the answer was No, the user must go back, change it to No, go back to the beginning period for each company, set the closing period record, reclose that period, update the general ledger, then repeat until all periods are closed and the general ledger updated for each.

This means that each period of each company should get a separate floppy disk for archiving the data (and perhaps programs).

NOTE: 12
PROD: BAS GL
DATE: 83-10-05
FROM: JDR
SUBJ: Clarification of Tech Tip 107.0

When six-digit account numbers are used, and the user gets the message "ACCOUNT NUMBER MAY NOT CONTAIN LEADING SPACES ..." when in fact it has none, the corrective action is specified in Tech Tip 107.0. What that Tech Tip does not say is that the bug is caused by Update 1.1. If the bug is fixed on the master and not on the update diskette, and the update diskette is subsequently reinstalled, the bug will be reintroduced. The solution is to fix the update diskette.

Other bugs may be caused by the update diskette. The solution is to fix all the bugs on the installed programs, then back up the programs, and use that backup as the last step in reinstalling that application.

NOTE: 1?
PROD: Fortune B/W Terminals
DATE: 83-10-24
FROM: JDR
SUBJ: Attribute codes

The Fortune document "Introduction to the Fortune Operating System", Release 1.2.4, is misleading and incomplete concerning attribute codes. On page 13 of that document, codes are listed with the implication that the attribute command sequences are to be followed by the codes shown to produce the desired results. Actually, the codes produce anomalous results. To get the desired results, the codes shown must be incremented by decimal 64 (40 hex).

The attributes Overstrike (OS), Blink (BL), Reverse Video (RV), Underline High (UH), Underline Low (UL), and Highlight (HL) correspond to bits in a 7-bit attribute code. If the bit is set to 1, the attribute is turned on. If reset to 0, it is turned off. This can be illustrated as follows:

Code		HL	UL	UH	RV	BL	OS	Result
70	1	0	0	0	1	1	0	Blinking reverse video
88	1	1	1	0	0	0	0	Steady double underline
100	1	1	0	0	1	0	0	Highlighted steady reverse video

However, there is one combination that does not give the expected result: it produces no change:

79,95	1	x	x	1	1	1	1	where x means bit can be 0 or 1

Thus, setting an attribute ON is a bitwise clear-and-add (CLA), an ADD is a bitwise AND, a SUBTRACT is a bitwise XOR, and a COMPLEMENT is a bitwise NEGATE.

Two ways are provided for changing screen attributes. The first is to change the attribute at just one position. The second is to change the attribute, beginning at one position, and continuing rightward and downward until a second position is reached. If the top row and left column are designated as row and column 0, then the decimal number that represents row (column) n is 32+n (decimal). Thus to turn on reverse video from column 18 through column 27 on row 3, the C statement would be:

```
printf("%c%c%c%c%c%c%c", 28, 103, 32+3, 32+18, 32+3, 32+27, 68);
```

To add the attribute, change 103 to 104; to subtract it, to 105; and to complement it, to 106.

NOTE: 14
PROD: BAS GL
DATE: 83-11-02
FROM: Fortune, Jim Dyson
SUBJ: Cost of goods account

At least one account must be set up for "Cost of Goods", even if no entries are to be made to it. If not provided in setting up the GL, the first account under "Income" will show the total of the other accounts under that section.

In account record, tell GL which account is the "Cost of Goods". You might have a format like this:

	T	1	2	3
Income	H			
Rent	D	A		
Sales	D	A		
Total Income	T	A		
Cost of Goods	H			
Total CoG	T		A	
Expenses	H			
Elec	D			A
Repairs	D			A
Total Expenses	T			A
Net Profit	T	A	A	A

The manual does not make clear what is happening here. The "flags" represented by the numbered columns are temporary variables. Putting an "A" in the column tells the income statement module to add the value of the transactions under that account to the previous value of that flag. A "D" under type tells it to print out the total of transactions for that account, and a "T" the total of all of the flags with "A" in them up to that point.

NOTE: 15
PROD: BAS GL
DATE: 83-10-06
FROM: Fortune, Jim Dyson
SUBJ: Correcting out-of-balance conditions

This is a supplement to Tech Tip 75.1.

(1) To delete unwanted entries from the GL Transaction File, from any BAS selector screen, enter:

797 <RET>

(2) For the file number or name, enter:

165 <RET> (or CGLTR)

(3) Select option 3, Delete.

(4) Use the F7 key for next record. Delete anything with "x" in field 9. Check period number.

(5) When finished, press F4 three times to get back to the BAS selector screen.

Update 83-11-02:

If successive runs of journal report yield different numbers of transactions, with no change having been made in the interim, see if journal activity report matches detail report. Go into CGLTR as above and add, using option 1, or delete records as required to correct the condition.

NOTE: 6
PROD: Unix
DATE: 83-07-12
FROM: jdr
SUBJ: Various floppy disk operations

To copy files from a floppy disk into a directory called **temp:**

```
# mkdir temp<ret>
# mount /dev/fd02 /f<ret>
# cp -rostV /f/* /temp<ret>
# umount /dev/fd02<ret>
```

To format a blank disk:

```
# /etc/format -c /etc/disk/bootflop.conf /dev/fd00<ret>
# dd if=/sa/boot of=/dev/fd00 bs=1k seek=10<ret>
# /etc/mkfs /dev/fd02 740 1 10<ret>
```

To copy files from a directory called **temp** onto a floppy disk, insert formatted disk, then:

```
# mount /dev/fd02 /f<ret>
# cp -rostV /temp/* /f<ret>
# umount /dev/fd02<ret>
```

To print a floppy disk directory:

```
# mount /dev/fd02 /f<ret>
# ls -lR /f<ret>          [> /dev/lp to send to line printer]
# umount /dev/fd02<ret>
```

Alternatively, can replace ls line with ll /f<ret>

To check the integrity of the floppy disk link:

```
# fsck /dev/fd02<ret>
```

To remove the directory temp and its files:

```
# rm -r temp<ret>
# sync<ret>
```

To make a backup of a non-copy-protected disk, do the above sequence, except that umount followed by mount can be omitted if disk not changed, as it would not be after the backup disk is formatted.

NOTE: 1
PROD: For:Word
DATE: 83-05-09
FROM: Fortune, Jack van Breen
SUBJ: Fix to loss of first character from Help screen

DESC: For:Word Help screen loses some first characters.

PROC:

Log in as "root".

In response to "#" prompt, type in the following:

```
ed /usr/help/wpedhelp
21156
66s /$// <ret>
235s/$,// <ret>
245s/,// <ret>
482s/,// <ret>
w <ret>
21154
q <ret>
```

NOTE: 2
PROD: Unix
DATE: 83-05-09
FROM: Fortune, Jack van Breen
SUBJ: Sending output to the system printer

To send output to line printer, end command line with either

```
> /dev/lp   or  > /dev/tty01
```

depending on whether lp or tty01 is activated by the Change Device option S239.

To list all files on the disk, login as root and type (for tty01 active):

```
ls -lR / > /dev/tty01
```

To list files below a certain point in the directory system, replace / with the path to that point.

Make sure enough paper is available to the printer!

In a C program, include the following to output to printer:

```
if((fd = open("/dev/tty01", 1)) != -1)
write(fd, "...", <arg>);
```

NOTE: 8
PROD: Unix V 1.2.4
DATE: 83-07-26
FROM: Fortune, Jeff McGiver
SUBJ: Change Device problem

SYMP: When try to execute a Change Device option (Menu S2-39), get message:

    ttytype file busy: try again later

and device is not changed.

EXPL: Menu S2-39 executes files **/etc/ttys** and **/etc/ttytype**, which create temporary files **/tmp/typetmp** and /tmp/tylock. If completed successfully, these temporary files will be removed. If operation not successful, having these temporary files still in **/tmp** prevents further device changes, and gives the above error message.

PROC: Log in as root, execute **rm -r /tmp/typetmp /tmp/tylock**. Then try Change Device option again.

cc.maint

```
#*****************************************************
#
#       SCCS File Origin: Fortune Library Source
#
#       What String: @(#)cc.maint     2.2
#*****************************************************/

case $1 in
refresh)
        /m/menu/bin/install -l user << \EOF
/m/menu/control/:product:cc:`: 'C' compiler:cc:
/m/menu/control/:global:S3:`: Languages::
/m/menu/control/:s3:2:`: C:cat /usr/lib/lan.help; exit 1:
EOF
        ;;
install)
        echo "Copy phase of 'C' compiler installation in progress . . . ."
        if cp -orT /f/* /
        then
                /m/maint/ckrite
                mv /m/maint/newprod /m/maint/cc.maint
                echo "Menu update phase of 'C' compiler installation in progress . . . ."
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:product:cc:`: 'C' compiler:cc:
/m/menu/control/:global:S3:`: Languages::
/m/menu/control/:s3:2:`: C:cat /usr/lib/lan.help; exit 1:
EOF
                echo "'C' compiler installation successfully completed."
        else
                echo "Error encountered during copy phase! Installation terminated."
        fi
;;
delete)
        until
                echo -n "Do you want to delete 'C' compiler ?(y/n) :"
                read answer
                test X$answer = Xy || test X$answer = Xn
        do
                echo "Answer 'y'es or 'n'o"
        done
        if test X$answer = Xy
        then
                echo "File removal phase of 'C' compiler deletion in progress . . . ."
                rm /usr/bin/cc /usr/lib/ccom /usr/lib/lan.help > /dev/null 2>&1
                echo "Menu update phase of 'C' compiler deletion in progress . . . ."
                /m/menu/bin/install -d -l user << \EOF
/m/menu/control/:product:cc::::
EOF
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:s3:2:_: C:/m/menu/bin/not_owned.mac:
EOF
                echo "'C' compiler deletion sucessfully completed."
        fi
;;
backup)
        until
                echo -n "Do you want to backup 'C' compiler ?(y/n) :"
                read answer
```

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cc.maint

```
        test X$answer = Xy || test X$answer = Xn
do
        echo "Answer 'y'es or 'n'o"
done
if test X$answer = Xy
then
        /m/menu/bin/setvol 1 "'C' compiler "
        echo "copy phase of 'C' compiler backup in progress . . . ."
        cp /m/maint/cc.maint /f/cc.maint
                if cp -opT /usr/bin/cc /usr/lib/ccom  /usr/lib/lan.help /f
                then
                        echo "'C' compiler backup sucessfully completed."
                else
                        echo "Error encountered during copy. Backup terminated."
                        rm /f/__vol*
                fi
        fi
;;
esac
```

.install

/usr/lib/ccom

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fp. maint

```
EEEDIRS="/f/u /f/u/training /f/usr /f/usr/bin /f/usr/lib"
BINFILS="/usr/bin/eeefp.scn /usr/bin/eeefp.mnu /usr/bin/eeemf /usr/bin/eeemm /usr/bin/footno
LIBFILS="/usr/lib/fwcon.scn /usr/lib/lbl.scn /usr/lib/mf.scn /usr/lib/mm.scn /usr/lib/.eee /
MNTFILS="/m/maint/fp.maint"
TRNFILS="/u/training/mmletter* /u/training/mmlist* /u/training/mailschem /u/training/mmrpt /
INSTP="/usr/bin/fp"

case $1 in
install)
echo "Copy phase of For:Pack installation in progress  . . . "
/m/maint/ckrite
mv /m/maint/newprod /m/maint/fp.maint
if (cp -rouT /f/* /)
then
                if test -r /usr/bin/mmsh.tmp
                then
                rm /usr/bin/mmsh.tmp
                fi
                if test -r /m/maint/RDS.maint
                then
                .
                else
                /m/menu/bin/install -d -l user >/dev/null 2>&1 << \EOF
/m/menu/control/:product:E4::::
EOF
                /m/menu/bin/install -l user >/dev/null 2>&1 << \EOF
/m/menu/control/:global:E4:_::/m/menu/bin/not_owned.mac:
EOF
                fi

                echo "Menu update phase of For:Pack installation in progress . . . ."
                                /m/menu/bin/install -l user << \EOF
/m/menu/control/:global:E5:`: WP Utilities:fp:
/m/menu/control/:product:E5:`: WP Utilities:fp:
EOF
                chmod 777 /u/training
                echo "For:Pack installation successfully completed."
else
                echo "Error in copy phase. Installation aborted."
fi
;;
delete)
        until
                echo -n "Do you want to delete For:Pack?(y/n) :"
                read answer
                test X$answer = Xy || test X$answer = Xn
        do
                echo "Answer 'y'es or 'n'o"
        done
        if test X$answer = Xy
        then
                echo "File removal phase of For:Pack deletion in progress . . . ."
                rm -f $MNTFILS $BINFILS $LIBFILS $TRNFILS  > /dev/null 2>&1
                echo "Menu update phase of For:Pack deletion in progress . . . ."
```

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fp.maint

```
                /m/menu/bin/install -d -l user << \EOF
/m/menu/control/:product:E5::::
EOF
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:global:E5:_::/m/menu/bin/not_owned.mac:
EOF
                echo "For:Pack deletion sucessfully completed."
        fi
;;
backup)
                /m/menu/bin/setvol 1 "ENVISIONEERING
                                      For:Pack Utilities
                                           ver 2.05"
echo "copy phase of For:Pack backup in progress . . . ."
cp $MNTFILS /f/ >/dev/null 2>&1
cp -psor $LIBFILS $TRNFILS $BINFILS /f >/dev/null 2>&1
echo "For:Pack backup completed."
;;
refresh)
                                      /m/menu/bin/install -l user << \EOF
/m/menu/control/:global:E5:`: WP Utilities:fp:
/m/menu/control/:product:E5:`: WP Utilities:fp:
EOF
;;
esac
```

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RDS. maint

```
case $1 in
install)
        echo "Copy phase (volume 1) of INFORMIX installation in progress . . . ."
        if cp -sor /f/* /
        then
          /m/menu/bin/getvol 2
          echo "Copy phase (volume 2) of INFORMIX installation in progress . . . ."
          if cp -sor /f/* /
          then
                mv /m/maint/newprod /m/maint/RDS.maint > /dev/null 2>&1
                echo "Menu update phase of INFORMIX installation in progress . . . ."
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:global:E4:`: INFORMIX:informix:
EOF
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:product:RDS:`: INFORMIX:RDS:
EOF
                echo "INFORMIX installation successfully completed."
                exit 1
          fi
        fi
        echo "Error encountered during copy phase! Installation terminated."
;;
delete)
        until
                echo -n "Do you want to delete INFORMIX?(y/n) :"
                read answer
                test X$answer = Xy || test X$answer = Xn
        do
                echo "Answer 'y'es or 'n'o"
        done
        if test X$answer = Xy
        then
                echo "File removal phase of INFORMIX deletion in progress . . . ."
                rm /usr/bin/informix /usr/bin/dbbuild /usr/bin/dbstatus \
                /usr/bin/enter1 /usr/bin/enter2 /usr/bin/informer \
                /usr/bin/bcheck /usr/bin/perform /usr/bin/formbuild \
                /usr/bin/aceprep /usr/bin/acego\
                /usr/lib/libace.a /usr/include/ace.h\
                /usr/lib/libdb.a /usr/include/dbio.h \
                /m/maint/RDS.maint > /dev/null 2>&1
                echo "Menu update phase of INFORMIX deletion in progress . . . ."
                /m/menu/bin/install -d -l user << \EOF
/m/menu/control/:product:RDS::::
EOF
                /m/menu/bin/install -l user << \EOF
/m/menu/control/:global:E4:_: :/m/menu/bin/not_owned.mac:
EOF
                echo "INFORMIX deletion sucessfully completed."
        fi
;;
backup)
        until
                echo -n "Do you want to backup INFORMIX?(y/n) :"
                read answer
                test X$answer = Xy || test X$answer = Xn
        do
                echo "Answer 'y'es or 'n'o"
        done
        if test X$answer = Xy
```

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RDS. Maint

```
        then
                /m/menu/bin/setvol 1 "INFORMIX database management system"
                echo "Copy phase (volume 1) of INFORMIX backup in progress . . . ."
                cp -sout /m/maint/RDS.maint /f
                if cp -sprount /usr/bin/informix /usr/bin/dbbuild \
                /usr/bin/dbstatus /usr/bin/enter1 /usr/bin/enter2 \
                /usr/bin/informer /usr/bin/bcheck /usr/bin/perform \
                /usr/bin/formbuild /usr/lib/libdb.a /usr/include/dbio.h /f
                then
                        /m/menu/bin/setvol 2 "INFORMIX database management system"
                        echo "Copy phase (volume 2) of INFORMIX backup in progress^[N . . .
                        if cp -sprount /usr/bin/aceprep /usr/bin/acego \
                        /usr/lib/libace.a /usr/include/ace.h /f
                        then
                                echo "INFORMIX backup sucessfully completed."
                                exit 1
                        fi
                fi
                echo "Error encountered during copy. Backup terminated."
                        rm /f/__vol*
        fi
;;
esac
```

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```
# dnd.maint - Install, Delete of the DENT:AID Demonstration System
mode=$1
set °who am i°
case $1 in
  manager) ;;

    echo -n '
You must logon as "manager" to '$mode' the DENT:AID Demonstration System.
Press <RETURN> to continue '
    read ans
    exit ;;
esac
case $mode in

install)
  for v in 1 2 3
  do
    cd /f
    echo 'Copy phase of the DENT:AID Demonstration System in progress . . .'
    case $v in
      1)
        cp -opr DNSYS /b
        cd /
        /etc/umount /dev/fd02
        echo "Remove flexible disk volume $v.²G"
        /m/menu/bin/getvol 2 ;;
      2)
        cp -opr DNSYS /b
        cd /
        /etc/umount /dev/fd02
        echo "Remove flexible disk volume $v.²G"
        /m/menu/bin/getvol 3 ;;
      3)
        cp -opr DNSYS DNUSR /b
        cp -nopr ipls/dn* /b
        cp -opr usr /
        mv /m/maint/newprod /m/maint/dnsys.maint
    esac
  done
  echo 'Copy phase completed.'
  echo "Menu update phase of the DENT:AID Demonstration System ±
in progress . . ."
  /m/menu/bin/install -l user << ±EOF
/m/menu/control/:global:B5:°: DENT±:AID:DNBASIC:
EOF
  /m/menu/bin/install -l user << ±EOF
/m/menu/control/:product:B5:°: DENT±:AID:dnsys:
EOF
  echo 'Menu update phase completed.' ;;

delete)
  while
    echo -n 'Do you want to delete the DENT:AID Demonstration System(y/n): '
  do
    read ans
    case $ans in
      [yY])
        echo "File removal phase of the DENT:AID Demonstration System ±
in progress . . ."
        cd /b
        rm -r DNSYS DNUSR ipls/dn*
        rm /usr/bin/DNBASIC /m/maint/dnsys.maint
        echo 'File removal phase completed.'
        echo "Menu update phase of the DENT:AID Demonstration System ±
```

```
    ı/control/:product:B5::::

      /m/menu/bin/install -l user << ±EOF
      /control/:global:B5:_:          :/m/menu/bin/not_owned.mac:

        echo 'Menu update phase completed.'
        break ;;
      [nN])
        break ;;
      *)
        echo 'Please enter "y" or "n"';;
    esac
  done ;;

backup)
  echo 'The Backup function is not implemented for the
DENT:AID Demonstration System.' ;;
esac
```

```
ress . . ."
  /m/menu/bin/install -d -l user << ±EOF
```

```
while
        echo -n 'What kind of printer do you have? '
        read type
do
        case $type in
                '') ;;
                *) set $type; type=$1$2$3;;
        esac
        case $type in
                NEC3500R|NEC3510|NEC7710|3500R|3510|7710) break;;
                DIABLO|DIABLO630|630) break;;
                QUME945|9/45) break;;
                PRISM80|IDS80 ) break;;
                PRISM132|IDS132) break;;
                PLAIN1|PLAIN2) break;;
                FT) break;;
                diablo630) type=DIABLO630; break;;
                diablo) type=DIABLO; break;;
                nec3500r) type=NEC3500R; break;;
                3500r) type=3500R; break;;
                nec3510) type=NEC3510; break;;
                nec7710) type=NEC7710; break;;
                qume945) type=QUME945; break;;
                prism80) type=PRISM80; break;;
                prism132) type=PRISM132; break;;
                ids80) type=PRISM80; break;;
                ids132) type=IDS132; break;;
                *) echo '
Supported printers:
        DIABLO630 630
        NEC3500R 3500R NEC3510 3510 NEC7710 7710
        QUME945 9/45
        PRISM80 IDS80
        PRISM132 IDS132
';;
        esac
done

while
        echo -n 'Which printer number do you want to use? '
        read printer
do
        case $printer in
                [1-9]|[1-9][0-9]|[1-9][0-9][0-9]) break;;
                *) echo '
Supported printer numbers are 1 through 999.
';;
        esac
done

while
        echo -n 'To which port is the printer attached? '
        read prport
do
```

```
do
        read brport
        echo -n "Do which port is the printer attached? "
while
done
        esac
        ;;
supported printers are 1 through 999.
                *) echo "
                [1-9][1-9][0-9]|[1-9][0-9][0-9]) break;;
        case $brtrue in
do
        read brtrue
        echo -n "Which printer number do you want to use? "
while
done
        esac
        ;;

        FRISM135 IDS135
        FRISM80 IDS80
        COMET$2 3\$2
        NEC3200K 3200K NEC3210 321O NEC2210 221O
        DIABLO630 630
supported printers:
                *) echo "
                IDS135) fType=IDS135; break;;
                IDS80) fType=FRISM80; break;;
                brtrue135) fType=FRISM135; break;;
                brtrue80) fType=FRISM80; break;;
                comet$2) fType=COMET$2; break;;
                nec3210) fType=NEC3210; break;;
                nec3210) fType=NEC3210; break;;
                3200) fType=3200K; break;;
                nec3200) fType=NEC3200K; break;;
                diablo) fType=DIABLO; break;;
                diablo630) fType=DIABLO630; break;;
                "") break;;
                PRINT|PRINT5) break;;
                FRISM135|IDS135) break;;
                FRISM80|IDS80 ) break;;
                COMET$2|3\$2) break;;
                DIABLO|DIABLO630|630) break;;
                NEC3200K|NEC3210|NEC2210|3200K|321O|221O) break;;
case $fType in
esac
                *) set $fType; fType=$1$2$3;;
                ,,) ;;
case $fType in
do
        read fType
        echo -n "Must Kind of printer do you use now? "
while
```

```
case $prport in
        lp|LP)  prport=lp
                if test -f /dev/$prport
                then
                        break
                else
                        cp -l /dev/tty01 /dev/lp
                        break
                fi
                ;;

        [1-9])  prport=tty0$prport;;
  [1-9][0-9])   prport=tty$prport;;
          *)    prport=no; echo '
The valid ports are 1 through 5 and lp
Ports 2 through 5 are valid only if you have a Comm A board
'
        esac
        if test Xno != X$prport
        then
        if test -f /dev/$prport
        then
                break
        else
                echo "
Port /dev/$prport is not configured
"
        fi
        fi
done

while
        echo -n 'At what baud rate does the printer operate? '
        read baud
do
        case $baud in
                50|75|110|150|200|300|600|1200|1800|2400|4800|9600|19200) break;;
                *) echo '
Supported baud rates are: 50, 75, 110, 150, 200, 300, 600, 1200,
                          1800, 2400, 4800, 9600 and 19200
';;
        esac
done


dtinit -b $baud -c P -m $printer -n $prport -s null -t $type -x ' '
lpdun -p $printer -b off -c 256

echo Thanks
```

```
BCN 1,9,1,19,,0
PTN 1,20000
DEV D0,1,8000,,,,,/b/BUTIL
DEV D1,1,8000,,1,,,/b/BWORK
DEV T1,7,3216,,,,,tty
DEV LP,4,3500,,,,,lp
DEV P2,4,3500,,,,,lp
DEV P3,4,3500,,,,,lp
DEV P4,4,3500,,,,,lp
DEV P5,4,3500,,,,,lp
DEV P6,4,3500,,,,,lp
IPL 1,2,T1,**PSD
END
```

NO PARTITION ALWAYS 1

NO. DEVICES CALCULATED

TASKS ALWAYS 1

NO. OPEN FILE TABLE SLOTS
10 + (NO. OF DEV RECORDS
ALWAYS 0

PGM TO BE RUN IF PGM EXCEPTION

SIZE IN BYTES OF USR AREA FOR PGMS PATH
PARTITION NO = 1 ALWAYS (MUST BE EVEN)

DEVICE TYPE 1 = DISK
4 = PRINTER
7 = TERMINAL

ALWAYS, MODEL 8000 (BAUD ?)

SUB DIRECTORY FLAG

type = unknown
lp

PGM TO RUN WHEN TASK IS STARTED

TERMINAL TO ASSOC. W/ TASK

MIN. NO. PAGES TO RESERVE FOR PGM

PARAMETERS FOR STARTING TASK

PARTION TO START IN ALWAYS 1

89

45

tty

TYPE UNKNOWN

ORIGINAL CNFIG.

46

R

ERR2 - DRMON STRATION OUT

ROBO STRATEGY/ORIENTER

/m/ f05.1 H100

```
BCNF 1,5,1,15,NOESC,0
PTN 1,20000
DEV D0,1,8000,,,,,/b/BUTIL
DEV D1,1,8000,,1,,,/b/DNSYS
DEV D2,1,8000,,,,,/b/DNUSR
DEV T1,7,3216,,,,,tty
DEV LP,4,3500,,,,,lp
IPL 1,2,T1,DNS00
END
```

```
BCNF 1,11,1,21,,0
PTN 1,20000
DEV D0,1,8000,,,,,/b/BUTIL
DEV D1,1,8000,,1,,,/b/BWORK
DEV D2,1,8000,,1,,,/b/DNSYS
DEV D3,1,8000,,,,,/b/DNUSR
DEV T0,7,3216,,,,,tty
DEV LP,4,3500,,,,,lp
DEV P2,4,3500,,,,,lp
DEV P3,4,3500,,,,,lp
DEV P4,4,3500,,,,,lp
DEV P5,4,3500,,,,,lp
DEV P6,4,3500,,,,,lp
IPL 1,2,T0,**PSD
END
```

FORTUNE SYSTEMS CORPORATION

Dear Fortune Systems Customer:

Fortune Systems Corporation's operating system, FOR:PRO Release 1.7, is in this package. This new release of the operating system incorporates major performance improvements and functional enhancements (see **ENHANCEMENTS RELATIVE TO EARLIER FORTUNE OPERATING SYSTEMS** and **PERFORMANCE** below). It also includes new documentation.

FOR:PRO is an enhanced version of UNIX™, designed especially for the business world. FOR:PRO is an implementation of Bell Labs' System III and Version 7 which includes Berkeley 2.8 and 4.1 BSD enhancements. Additional proprietary features have been implemented by Fortune to provide functions which are specifically needed in a commercial environment.

The FOR:PRO operating system is accompanied by the new **Introduction to FOR:PRO,** a two-part user's guide for users who want to take advantage of the speed and flexibility of working directly with the standard UNIX command interface (the Bourne shell). The first section is a tutorial guide. The tutorial starts by assuming a minimal amount of experience with computers and introduces the user to commands used by the Fortune user friendly menu. The tutorial then moves on to more advanced concepts. These chapters are designed to meet the needs of users who are familiar with computers, but not with UNIX. The second part of the guide is a reference manual. It contains reference information on all the commands and files that are part of the FOR:PRO operating system.

FOR:PRO cannot be installed as a new application on your current operating system. You must follow the installation procedure that is explained in detail in the enclosed **FOR:PRO Installation Instructions.** Be sure to read this documentation before starting to install FOR:PRO on your Fortune 32:16.

Also included with FOR:PRO is an **Upgrade diskette.** This diskette contains menus that are used for backing up and restoring your current data and applications, and for ensuring that all Fortune applications work correctly in conjunction with FOR:PRO Release 1.7. A detailed step-by-step procedure for easy use of the upgrade disk is included in **FOR:PRO Installation Instructions.**

It is also important that you read the enclosed **Switch Settings for Printers Used with the Fortune 32:16** and the **Comm A Controller** pamphlet if you have a printer attached to your system or if you have a communications controller board (Comm A) installed.

FEATURES

FOR:PRO is the operating system for the Fortune 32:16 family of computers. Fortune 32:16 PS systems include single-user FOR:PRO in

---

UNIX is a trademark of Bell Laboratories

the base configuration. Multiuser FOR:PRO is available as an optional package. Fortune 32:16 XP systems include multiuser FOR:PRO in the base configuration.

The important features of FOR:PRO can be placed in three general categories: UNIX operating system functions that are especially valuable to the end user or developer of commercial software; unique features of FOR:PRO relative to standard UNIX; and improvements that have been made since previous versions of the Fortune Operating Systems.

These functions are explained in more detail in the following paragraphs along with an explanation of the major benefits associated with them.

Standard UNIX Features

Easy customization of the user interface

Hierarchical directories

Multi-Tasking capability

"Message of the day" and mail

Over 170 UNIX commands

Unique FOR:PRO Features

Automatic configuration

Menu-Driven user friendly human interface

High speed console (50 x faster than 9600 baud terminal)

Enhanced terminal driver*

Development tools for Multilingual applications*

Full timezone support*

Enhancements Relative to Earlier Fortune Operating Systems

Faster floating point

Multiple printer support

Multiple communications controllers

Option card support for single user systems

---

* These features are also new.

Full "termcap" support

Larger character set option (APL and international)

Improved system status information

Standard Unix Features

Easy Customization of the Human Interface. The UNIX concept of an operating system shell provides the level of control required by any given user. An operating system shell can be both a command interpreter and a programming language. As a command interpreter the shell accepts commands from the user and interprets them as requests to execute other programs. As a programming language, it allows the user to easily tie together programs, redirecting input and output to and from files or other programs. Conditional execution and loops are also possible. These facilities allow complete customization of each user's interface without modifying the operating system itself.

> **Benefit:** FOR:PRO takes advantage of this concept and offers the easy to use FOR:PRO menu shell as well as the standard Bourne shell and the Berkeley C shell.* Developers and experienced end users can take advantage of the faster, more direct control and increased flexibility provided by the Bourne and C shells while the computer novice can use the menu shell to make the system work within minutes.

Hierarchical Directories. The tree structure of the UNIX file system provides a root directory under which all other directories and files are located. A particular subdirectory, "/u" is provided for userfiles; under "/u" users have their own directory for storing files and subdirectories. Other directories under the root directory are used for system files and commands. Files and directories can be "owned" by the system or by a user and be protected from unauthorized access.

> **Benefit:** The power and convenience of FOR:PRO's directories with ownership of files lets you set up an "electronic filing system" that is a direct analogy of a file cabinet with index tabs, file folders and locking drawers. Less sophisticated file systems are like a single file drawer with no lock and no folders. Imagine trying to find a particular document in such a file.

Multi-Tasking Capability. Multi-tasking is the ability to perform multiple tasks (run multiple programs) concurrently. Background execution of programs can be specified through the direct command interface (Bourne Shell). Certain programs, for instance the print spooler, run as a background task automatically.

---

* Available on the Fortune Systems Development Utilities

Benefit: The ability to run batch processes such as printing and compiling dramatically increases the productivity of the users.

"Message of the Day" and Mail. "Message of the Day" lets a message automatically display at a terminal when a user signs onto the system. An electronic mail utility for sending messages between users on the same machine is also available.*

Benefit: These two utilities help reduce paper clutter while improving communications between group members. Phone messages, daily reminders, while-you-were-out notes can all be handled electronically.

Over 170 UNIX Commands. UNIX utilities handle a variety of functions from file handling to text processing to source code control for program development. Over 170 utilities are available with FOR:PRO and the Fortune Systems Development Utilities.

Benefit: The availability of a wide variety of mature, field tested utilities often means that a developer finds the system utility he needs without writing a new one. In combination with the programming capability of the UNIX shells, many complex functions can be generated without compiling any code. A number of convenient functions are keyboard accessible: two calculator programs, a calendar generator, and code encryption for additional document security, to name a few.

Unique FOR:PRO Features

Automatic Configuration. The ability to configure the operating system dynamically is offered in this feature. No special knowledge or tools are required to add new hardware. New peripherals, option cards, and memory are simply plugged into the system, and all of their features are available easily to you.

Benefit: The Fortune 32:16 can be expanded easily with a minimum amount of installation time and complexity. The time consuming process of relinking the operating system is not required every time a system is expanded, and a new release of the operating system is not required everytime a new hardware option is introduced.

Menu-Driven User Friendly Human Interface. The FOR:PRO menu shell is a menu-driven, easy-to-learn, easy-to-use interface specifically designed for the computer novice and occasional user. No commands need to be memorized, and typing is minimized. Logically organized menus present selections in end user terms.

---

* Available on the Fortune Systems Development Utilities

Help is always available by pressing the Help key for further information about the function currently being used.

> **Benefit:** Using the menu shell, the computer novice or non-UNIX developer can make the system work within minutes and quickly feel comfortable with all the most commonly used functions.

High Speed Console. The operating system has been specially tuned to allow the console display and keyboard to operate at 500K baud -- approximately 50 times the speed of standard RS232 terminals.

> **Benefit:** High speed screen updates are a "must" in a menu driven, highly interactive environment.

Enhanced Terminal Driver. The asynchronous communications driver has been optimized for more efficiency. New options have been added to the terminal definition facility. The driver is capable of full speed output at 19,200 baud. These features are unique among UNIX systems.

> **Benefit:** The fastest possible response time is provided to all terminals attached to the system. Flow control and new terminal definition options widen the variety of terminals that can be supported.

Development Tools for Multi-Lingual Applications. A new LANGUAGE variable together with a new program, printstring, allows applications to handle multiple language strings.

> **Benefit:** Developers can create applications with multilingual status and error messages for international distribution. Users can dynamically select which language to be used by international applications.

Full Time Zone Support. International time zones are supported by the date format and can be specified by the user.

> **Benefit:** This facility helps make the Fortune 32:16 family of computers more user friendly all over the world wide.

FOR:PRO Enhancements Relative to Earlier Operating Systems

Faster Floating Point. The software emulation of IEEE floating point is 300% faster than in the previous operating system release (see performance section).

> **Benefit:** Higher performance through improved floating point code for users who use floating point routines.

Multiple Printer Support. A new version of the print spooler program is part of FOR:PRO. It supports multiple printers, reordering of print jobs, restarting of a print job on a specific page, and deleting of selected print jobs.

Benefit: Added function and convenience for the end user.

Multiple Asynchronous Communications Controllers (Comm A). With the new asynchronous communications driver in PROM on optional controller boards, multiple controllers can be installed. This increases the number of serial ports available to 13.

Benefit: Greater expandability and lower price per user.

Option Card Support for Single-User Systems. Single user FOR:PRO supports the option slots without the multiuser upgrade package. These options must have PROM resident drivers.

Benefit: The functionality of single-user systems can be expanded at low cost.

Full "termcap" Support. Non-Fortune terminals can be attached by selecting a "termcap" entry. There are over 190 terminal types supported.

Benefit: Flexibility and convenience.

Larger Character Set Option (APL and International). The standard domestic Fortune display and keyboard (console and FIS 1000) are capable of displaying 256 different characters. The international version uses a 512 character set so that accented and other special characters can be displayed. With FOR:PRO, Fortune 32:16 systems can be upgraded to use the international version or APL characters without changing or relinking the operating system.

Benefit: Domestic systems can easily be expanded in the field to support international software and APL.

Improved System Status Information. Now "ps" and "pstat" come with single-user FOR:PRO, and "vmstat" is available with multiuser FOR:PRO. These utilities give the user detailed status on what is happening on the system. Other system status and error recovery facilties have also been added.

Benefit: Added functionality.

PERFORMANCE

Although FOR:PRO Release 1.7 has several added features compared to Release 1.2.4, the most visible difference to the end user is the increased performance. Performance improvements are extensive and have reached throughout the operating system to maximize throughput and minimize response time. Some key areas of improvement are:

System call overhead reduced by 30%

Context switching overhead reduced by 30%

Disk throughput improved by 30%

Swapping overhead reduced by 35%

Floating Point improved by 300%

UCSF and Berkeley enhancements and code optimization

These changes have resulted in substantial performance gains. Performance varies with available memory, number of users, configuration, and the mix of applications being run; the figures below compare FOR:PRO Release 1.7 performance with the performance of Release 1.2.4. They are based on measurements made on a 32:16 System 20 with 1 megabyte of main memory. Five expert word processing operators accessing Fortune:Word through the menu shell generated the processing load --

Menu Shell Response	+100%
Terminal Output	+100%
Fortune:Word Data Entry/Text Replacement	+31%
Fortune:Word File Access	+40%

ENVIRONMENT

FOR:PRO runs on all Fortune 32:16 system configurations. Single-user FOR:PRO requires a minimum of 256K bytes of main memory and approximately 2.7M bytes of disk storage. With the multiuser FOR:PRO, a minimum of 512K bytes of main memory and around 1 megabyte of additional disk storage per additional user are required.

All Fortune Systems applications executing with Fortune Operating System 1.2.4 are supported by FOR:PRO Release 1.7. (Note that certain applications first have to go through an upgrade process as mentioned above.)

Recommended system configurations for different environments are shown on the next page.

Configuration Guide

User Type	Concurrent Users 1	2	3–4	5–6	7–9	10–13
Light User	512K RAM 5 MB	10MB	768K RAM 20MP	20–30MB	1Meg RAM 30–40MB	
Routine User	512K RAM 10MB	768K RAM 20MB	1Meg RAM 30–40 MB			
Heavy User	512K RAM 10–20MB	1Meg RAM 20–30MB	1Me RA 30–40			

Legend

MB = Winchester Disk (megabytes)

May not be acceptable

Not recommended on a single computer

FOR:PRO Installation Instructions

FORTUNE SYSTEMS
300 Harbor Boulevard
Belmont, CA 94002

Printed in the U.S.A.
1 2 3 4 5 6 7 8 9 0

Ordering FOR:PRO Installation Instructions

Order Number: 1002269-02 Rev. 01 October 1983
(Software Release 1.7)

Please do not order products from the address shown below. Consult an authorized Fortune Representative for copies of manuals and technical information.

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How to Use This Guide

This pamphlet explains how to upgrade your current system to FOR:PRO Release 1.7. It describes the upgrade process and the steps involved in each phase. The FOR:PRO 1.7 Upgrade disk is designed to upgrade a system running Fortune Operating System (FOS) Release 1.2.4 or some earlier release of FOS to a FOR:PRO Release 1.7 system. To find out what release of the operating system you have, follow these steps:

1. Log in as manager.

2. When you see the global menu, type this exactly

   ```
   !what /unix
   ```

   NOTE: You can use the Backspace key to correct any typing errors you make. Use CTRL-X (hold down the Ctrl key, then press the X key) to cancel an entire line that you've typed.

   After the line is correctly typed, press the Return key. You should see one of the following messages:

Single-user system

```
/unix
Fortune 32:16 Operating System Version 1.2.4
of Fri
Feb 11 17:19:26 PST 1983
```

Multiuser system

```
/unix
Fortune 32:16 Operating System Version 1.2.3
of Wed
Dec 22 20:23:27 PST 1982
```

3. Press the Return key to return to the global menu.

FOR 1.2.4 SYSTEMS

If you saw either of these messages, you are designated as a 1.2.4 system and you can follow the upgrade procedure exactly as

documented in this pamphlet. Pay special attention to the notes for 1.2.4 systems that appear throughout the text.

FOR NON-1.2.4 SYSTEMS

If you did <u>not</u> see either of these messages, then you are <u>not</u> running a 1.2.4 version of the operating system. You are running a non-1.2.4 system. Be aware that some of the procedures documented in this text do not apply to you. These areas are indicated throughout the text. Pay special attention to any notes or reference to non-1.2.4 systems.

> **NOTE:** Anything in the text not clearly designated as 1.2.4 or non-1.2.4 applies to ALL systems.

FOR ALL USERS

The topics in this pamphlet are organized in the order they are used. Please read this pamphlet carefully and follow all instructions exactly as documented. See Figure i for an overview of the upgrade process.

> **NOTE:** The information in this document regarding the cold boot procedure and the installation of the multiuser application supersedes any references to these topics in <u>Meet Your Fortune System</u>.

CONVENTIONS USED IN THIS GUIDE

Throughout this pamphlet, certain keys like the Return key and the Cancel key, appear in capital letters when they are part of a command line or an instruction. For example, after typing a line of text, you may be told to "press RETURN" or "press CANCEL."

Messages that appear on the screen are set off from the text with half screens. What you see in these examples often represents only part of what you may actually see on your screen at any given time.

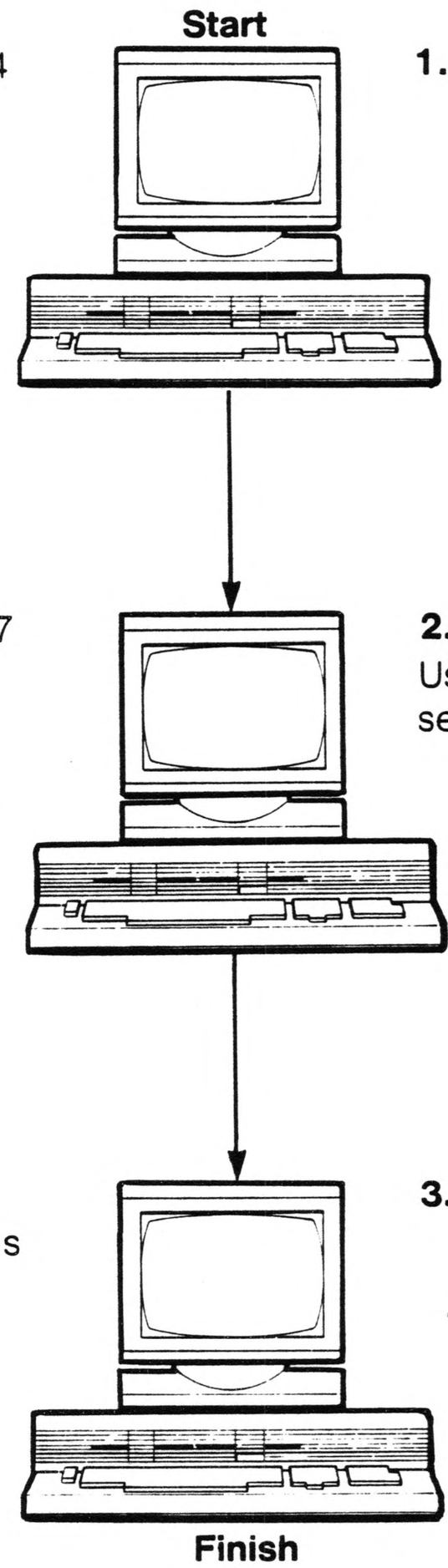


Figure i. Overview of the Upgrade Process

Contents

1 PREPARING FOR THE UPGRADE

In this Chapter, you will find an overview of the upgrade process, including a brief description of each phase involved. Read this Chapter very carefully before proceeding with the upgrade. It describes the items you need, facts you need to know, and steps you need to take in preparation for the upgrade.

PHASES IN THE UPGRADE PROCESS

Upgrading your system to FOR:PRO Release 1.7 involves the following phases:

1. PREPARATION--Getting ready for the upgrade
2. BACKUP--Backing up your entire system; for **1.2.4 systems only** (Chapter 2)
3. COLD BOOT--Loading the FOR:PRO 1.7 operating system (Chapter 3)
4. RESTORE--Restoring your user files, data and applications; for **1.2.4 systems only** (Chapter 4)
5. UPGRADING PRODUCT DISKS--Upgrading your master and backup product disks for Fortune:Word, Multiplan™, Development Utilities, and ITE (Chapter 5)
6. SOFTWARE INSTALLATION--Installing multiuser and other software applications as required (Chapter 6)
7. DEFINING DEVICES--Defining your peripheral device connections, terminals, printers, and communications lines (Chapter 7)

See Figure 1-1 for a step-by-step review of the upgrade process. **Some of the steps apply to 1.2.4 systems only.**

THINGS YOU NEED

You should have the following to complete the upgrade process:

- FOR:PRO 1.7 Upgrade disk
- Three FOR:PRO Single-User Operating System disks

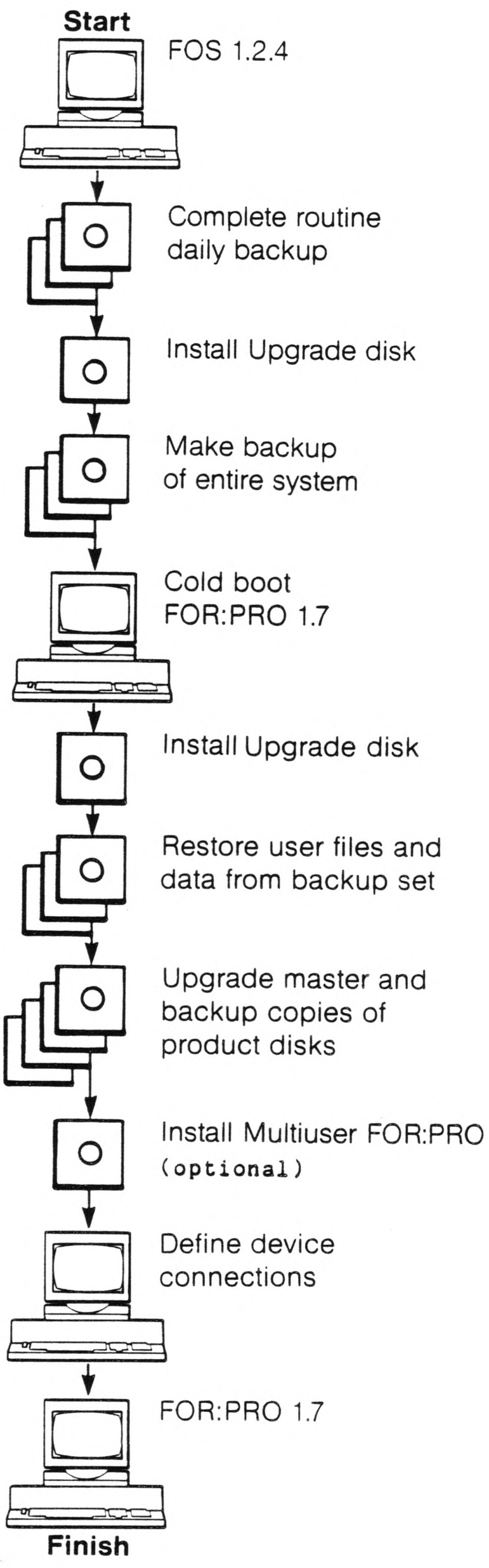


Figure 1-1. Steps in the Upgrade Process

- An ample supply of blank, formatted flexible disks. You can estimate how many disks you need by reading the following section, "Things You Need to Know."

- Enough time to complete the upgrade process without interruption (see below).

  NOTE: If you decide to use outdated cold boot disks (from previous versions of the operating system) for the system backup, you must reformat them before use.

THINGS YOU NEED TO KNOW

Here are several key points you should be aware of before beginning the upgrade process:

- The entire upgrade process will probably take several hours. Because the process is lengthy, it should be done without interruption. Plan to keep your system "off-limits" to all other users while you are performing the upgrade.

  The length of time the upgrade takes depends on: the amount of memory you have on your system, the size of your hard disk, and how much of the memory is currently in use. Table 1-1 gives an estimate of the time needed to perform a complete upgrade on a system that has at least 512K of memory:

Table 1-1. Estimated Time Required for Upgrade

System	Number of Hours
5MB	3 - 5
10MB	4 - 6
20MB	5 - 8

- The system backup process (documented in Chapter 2) requires a supply of formatted flexible disks that can be overwritten. Plan to use about three disks per 2 megabytes (MB) of data. The exact number of disks needed depends on the size of your hard disk, and how full it is (see Figure 1-2). Plan to format extra disks in case some of them are bad. On a 5MB or 10MB system, format at least two to three extra disks; on a 20MB system, you should format three to five extra disks over the number recommended in Figure 1-2.

NOTE: This does not apply to non-1.2.4 systems. You will not be using the **Backup Entire System** option.

- The restore process is generally much faster than the backup process. On a 512K system, the restore should take between five and ten minutes per disk. On a 256K system, the restore should take approximately 20-25 minutes per backup disk.

Notes On Software Applications

On 1.2.4 Systems Only, if any of the following applications are installed on your hard disk when you perform your system backup, they will automatically be upgraded after they are restored to the hard disk. This "hard disk upgrade" happens automatically during the restore operation. However, all master and backup copies of the following product disks must be upgraded before they can be reinstalled:

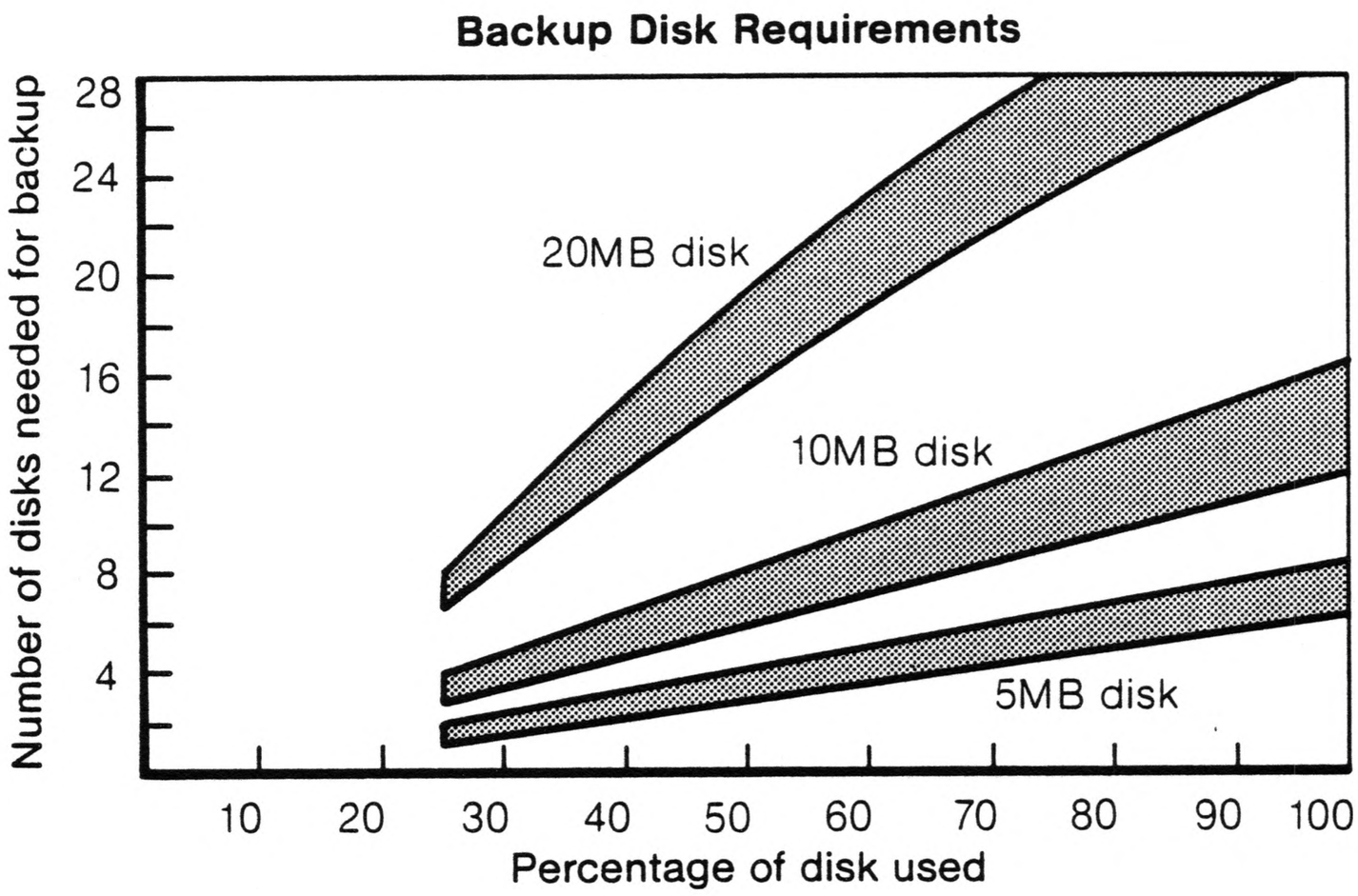
- Fortune:Word, Release 1.0
- Multiplan, Release 1.2
- Development Utilities, Release 1.0
- Interactive Terminal Emulator (ITE), Release 1.0

NOTE: Product disks for Extended Fortune:Word (formerly referred to as Fortune:Word Plus), and Fortune:Word Release 1.1 do NOT need to be upgraded. They can be installed as is on a system running FOR:PRO.

Obsolete Applications

The following products will not run on a FOR:PRO operating system and are no longer supported:

- All versions of FOR:WORD (use Fortune:Word instead)
- All Fortune:Word update disks (1.01, 1.02) are made obsolete by upgrading your master Fortune:Word disk using the FOR:PRO 1.7 Upgrade disk. Once you have upgraded your Fortune:Word product disk, you will no longer need the Fortune:Word update disks.
- Pre-FOR:PRO (1.7) cold boot sets
- Pre-FOR:PRO (1.7) multiuser software--use the FOR:PRO Multiuser disk (release 1.7 only)



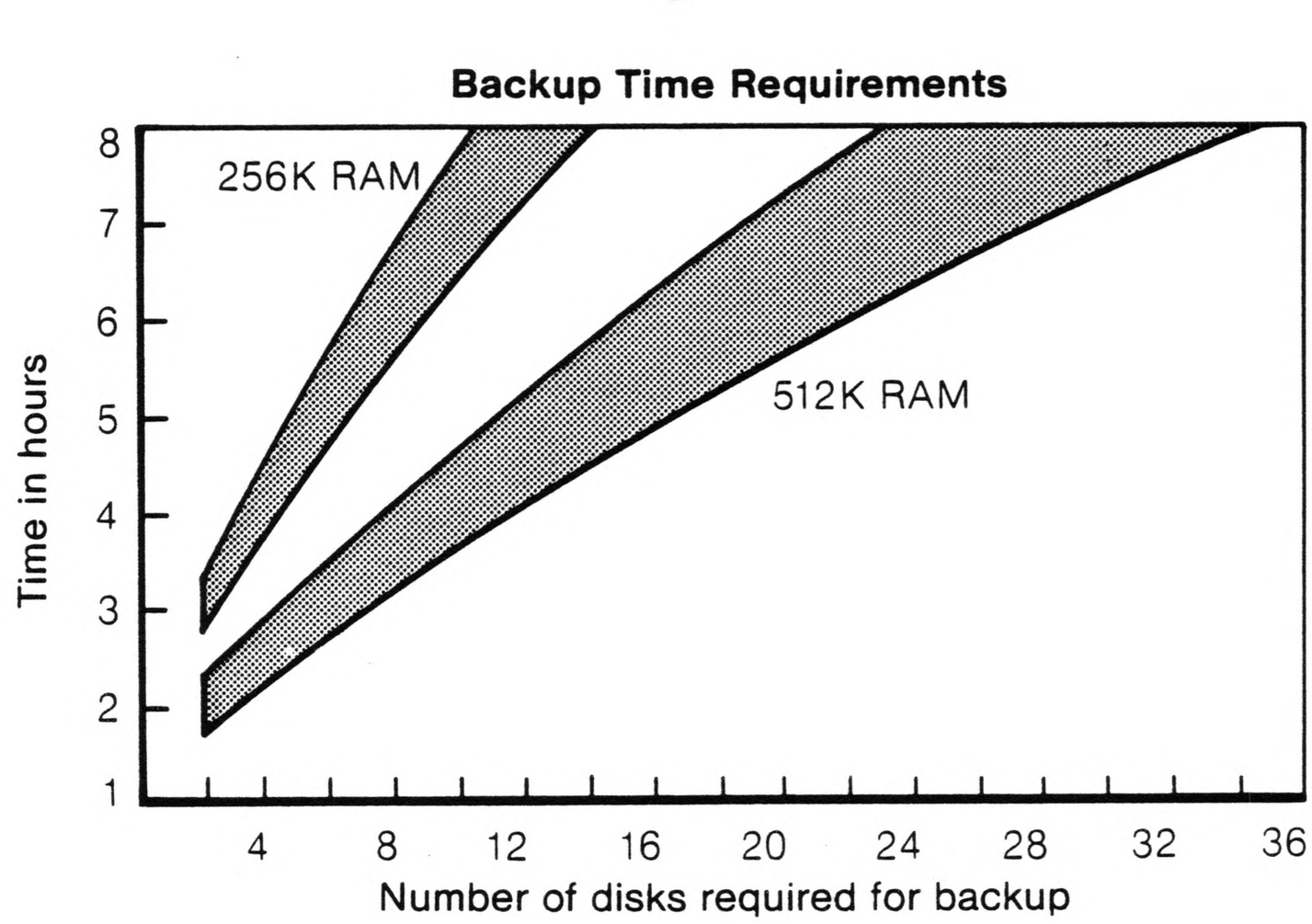


Figure 1-2. Disk and Time Requirements for Backup

File Space and System Performance

During the cold boot procedure, the hard disk is erased and reformatted. Space on the hard disk is then allocated to run user and system programs. This is referred to as "swap space." The remainder of space on the disk is reserved for system and user files and is referred to as "file space." The amount of space on the disk reserved for swap space depends on the number of people using the system at the same time and on the products or programs those users are running.

Since some large programs require more resources to operate, the system load is affected by the number of people running large programs simultaneously. System load has a direct impact on system performance.

The system load can be predicted by determining which products each user on the system is using simultaneously. You will need to do this before you begin the backup phase. This procedure is explained later in this chapter under the section "Determine Space Requirements."

THINGS YOU NEED TO DO

There are several important things you need to do in preparation for the upgrade:

1. Clean House
2. Perform Routine Daily Backups
3. Make Backup Copies of Your Applications
4. Determine Space Requirements

Clean House

Before doing the backup, it is a good idea to delete any documents, spreadsheets, programs, or other user-created files that you no longer need. Delete the items you don't want to keep at all. Archive (make backups of) the items you do want to save but only use occasionally -- then delete them from the hard disk. Removing items that you no longer use or rarely use and archiving them, is good practice, as it keeps disk usage down, and helps keep the system running efficiently.

Perform Routine Daily Backup

It is the user's responsibility to make backup copies of all critical user files and data. You should already be doing this on a regular basis. Be sure to perform your routine backups now. It is recommended that you make two backup copies of data you consider extremely important. Store the copies in separate locations.

For 1.2.4 Systems Only, a new version of the copy (cp) program is available on the FOR:PRO 1.7 Upgrade disk. You should install it on your system so you can make more reliable backups of your data. It is strongly recommended that you make more than one copy of important data and store the copies in separate locations. Do this before performing the system backup in Chapter 2.

Follow these steps to obtain the new copy (cp) program from the Upgrade disk (**For 1.2.4 Systems Only**):

1. Make sure all other users are logged off the system. Do not allow anyone but yourself to access the system until you have finished the backup.

2. Log in as manager. You must be manager to perform the backup, cold boot, and restoration phases of the FOR:PRO upgrade process.

3. On the global menu, select the **Product Maintenance** option. On the Product Maintenance menu, select the **Install** option.

4. Insert the FOR:PRO Upgrade disk and press RETURN when you are ready to proceed. During the installation process, you will see several messages including a description of the Upgrade disk. At some point you will see the message

```
Copying completed.  Please remove the disk.
Press <RETURN> to continue:
```

Remove the Upgrade disk and press RETURN. When you press RETURN, a new screen will appear.

> **NOTE:** If you receive an error message saying that there is not enough space on the hard disk, you will have to remove some files in order to make room for the Upgrade disk. (See Appendix B for details.)

5. The System Backup menu should now be displayed on your screen. You will see these selections:

```
1    Duplicate upgrade disk
2    Backup entire system
3    Restart backup
4    Recover original system from backup disks
5    Install new version of copy command
```

6. Choose **Option 5** to install the new copy command on your hard disk. When the process is finished, you are returned to the System Backup menu.

7. Press the Cancel key to return to the global menu. The Upgrade program is then removed from your system, but the new copy program remains on your hard disk.

   Use the backup method you normally use to make backup copies of all your critical files and data. **This applies to all systems.**

   a. Fortune:Word and Multiplan users--Use the Filing Menu functions to archive important documents.

   b. Business Accounting System/IDOL users--Be sure to run the "end of day" backup procedures for both data and programs.

Make Backup Copies of Your Applications

Use the **Backup** option on the Product Maintenance menu to back up all your installed applications if you have not already done so.

Determine Space Requirements

Because the new FOR:PRO operating system is larger than previous versions, you must do some planning to make sure you have enough space for the FOR:PRO operating system to run its programs and your tasks.

You must:

- Determine how much hard disk space you want the system to have for running its tasks. This is known as swap space.
- Determine how much space is currently used on your hard disk.

You will use the worksheet on the next page to determine these values.

Determine Swap Units Needed: To optimize swap space disk usage, you must determine the number of swap units needed on your system. This is based on how many users you have on the system at the same time, and on what products those users routinely use. When you reach the part of the cold boot procedure where the hard disk is reformatted, you will be asked to specify the number of swap units. The number you specify is used to calculate the amount of swap space on the hard disk.

Determine Space Used on Hard Disk: On the global menu select **S2 System Management.** Select **Option 33** to display the number of Kbytes on your disk that are currently used. This is the second number in the display shown on your screen. It is the number under the "used" caption. Write the "used" number down on the worksheet in Step A.

Now fill in the rest of the worksheet on the next page. You will need to refer to Table 1-2 to determine if you are running any of the products listed there. If you do have any of these products, you will have to set the process size to 256K during the cold boot procedure. Without these products, a smaller process size of 160K will suffice for most systems. This is explained in Chapter 3.

SWAP UNITS/DISK SPACE WORKSHEET

A. Use **Option 33** on the System Management menu to determine the number of Kbytes used on the hard disk. 17363

B. How many people typically use your system at the same time? 2

C. Do you have any of the products listed in Table 1-2 installed on your system? (circle one) yes/no

D. If you answer **yes** to C, how many of the users specified in Step B routinely use these products? 2

E. Subtract D from B to obtain the number of "other" users. 0

F. Determine the number of swap units for the users in D by looking at Table 1-3. 3

G. Add E and F together for the total swap units that are needed for your system. 3

H. Look at Table 1-4 to see how much user space you will have based on the number of swap units in G and on the size of your hard disk. 18245

I. Is the number in H greater than A? If yes, you're set. If not, reduce the number of swap units and/or delete anything you no longer need to use. (circle one) yes/no

Table 1-2. Products that Require 256K Process Size

Extended Fortune:Word*
C Language
CBASIC
COBOL
FORTRAN
PASCAL

*Only if using windowing, multicolumns or documents in excess of 100 pages

Use Table 1-3 to figure out the number of swap units needed by users routinely running compilers or Extended Fortune:Word with windowing, multicolumns, or with documents in excess of 100 pages.

Table 1-3. Swap Units for Users of Compilers or Extended Fortune:Word

Number of Users	Swap Units Needed
1	2
2	3
3	5
4	6
5	8
6	10
7	12
8	13
9	14
10	16
11	19
12	19
13	21

Table 1-4 shows the amount of space in Kbytes that will be dedicated to swap space and user space, based on the number of swap units you specify during the cold boot procedures.

Table 1-4. User Space Available on Hard Disk

		Space Remaining (User Space)		
Swap Units	Swap Space	5MB Disk	10MB Disk	20MB Disk
1	960	3515	8610	18870
2	1280	3200	8295	18555
3	1600	2885	7980	18245
4	1920	2575	7670	17930
5	2240	2260	7355	17615
6	2560	1945	7040	17300
7	2880	1630	6730	16990
8	3200	1320	6415	16675
9	3520	1005	6100	16360
10	3840	690	5785	16050
11	4160	375	5475	15735
12	4480	----	5160	15420
13	4800	----	4845	15105
14	5120	----	4535	14795
15	5440	----	4220	14480
16	5760	----	3905	14165
17	6080	----	3585	13850
18	6400	----	3280	13540
19	6720	----	2965	13225
20	7040	----	2650	12910
21	7360	----	2335	12600
22	7780	----	2020	12285
23	8100	----	1720	11970
24	8420	----	1395	11655

NOTE: If you need to delete items to reduce disk usage, be sure not to delete the **Cold Boot**, **S1 System Utilities**, or **S2 System Management** selections on the Product Maintenance menu.

For 1.2.4 Users Only

You can save a significant amount of time by backing up and then deleting all your applications prior to performing the system backup. This will reduce the number of disks you need to use for the backup and will save time. Before installing certain applications (listed on page 1-4) on your new FOR:PRO operating system, you will have to upgrade them.

For Non-1.2.4 Users Only

Skip Chapter 2 entirely. Go on to Chapter 3. When you are finished with the cold boot procedure, install all of your applications products, except for those which must be upgraded first. Follow the instructions in Chapter 5 to upgrade the Fortune:Word, Development Utilities, ITE, and Multiplan product disks. Install them after they have been upgraded. Then restore your user files and data using the methods you would normally use. BAS/IDOL users should use the "start-of-day" procedures to load their data and programs. Fortune:Word and Multiplan users should load their archived documents and spreadsheets using the Filing Menu functions.

2 BACKING UP YOUR SYSTEM

This Chapter is only for users of 1.2.4 systems. When you cold boot a new operating system, the hard disk is entirely erased and reformatted. That's why it is important to have reliable backup copies of all the files and applications you want to keep before you cold boot the new operating system.

You have already performed your routine backups. Now, following the instructions in this Chapter, you will use the FOR:PRO Upgrade disk to perform a complete system backup, thereby saving everything on your system. The advantage of using the **Backup** option of the Upgrade disk is that all files, data, and system information are saved automatically.

> **NOTE:** If you are experienced with UNIX and would like to perform your own selective system backup, see Chapter 8, "Alternate Backup for UNIX Users."

Before you start, make sure you have done all the preparatory work described in Chapter 1.

PROBLEMS?

If something goes wrong during the backup process, and you see an error message that is not described in the steps as you follow them, refer to Appendix B. It contains descriptions of the error messages relevant to the Upgrade disk and tells you what to do when you encounter them.

BACKUP STEPS

Follow these steps to back up your entire system prior to doing a cold boot:

1. Make sure everyone is logged off the system. It is a good idea to shut off all satellite workstations and printers prior to performing your system backup. Inform all other users that the system will be "off limits" until you complete the backup, cold boot, and restore phases of the upgrade.

2. Log in as manager. You must be manager in order to perform the backup and restoration phases of the FOR:PRO upgrade process.

3. On the global menu, select the **Product Maintenance** option. On the Product Maintenance menu, select the **Install** option.

4. Insert the FOR:PRO Upgrade disk and press RETURN when you are ready to proceed. During the installation process, you will see several messages including a description of the Upgrade disk. At some point you will see the message

```
Copying completed. Please remove the disk.
Press <RETURN> to continue:
```

When you press RETURN, a new screen will appear.

5. The System Backup menu should now be displayed on your screen. You will see these selections:

```
1  Duplicate upgrade disk
2  Backup entire system
3  Restart backup
4  Recover original system from backup disks
5  Install new version of copy command
```

Most users probably need only Options 1 and 2 on this menu. Options 3 and 4 are meant to be used only if you experience difficulties while backing up your system. See "Restart and Recover Options," at the end of this Chapter.

6. Choose **Option 1** to duplicate, or make a backup copy of the Upgrade disk. It is important to have a backup copy in case something happens to your master copy. A new screen will appear, telling you to insert a formatted disk which can be overwritten. You can use a blank (formatted) disk or one that contains information that you no longer need. You will be informed when the duplication is complete. Make sure you label the disk for ease of identification.

7. After returning to the System Backup menu, choose the **Backup Entire System** option. Make sure you have your formatted flexible disks ready, because you won't be able to format them once the backup process is under-way. On most systems, it will take about ten minutes for the system to figure out how many disks will be needed for the backup. You will see the message

```
Now determining the number of disks needed
for backup ...
```

Below this line you will begin to see numbers, starting with 1, as the system continues to figure out how many disks will be needed. The numbers continue to increment by 1 (for example, 1 2 3 4 ...) until the final count for your system is reached.

When the number has been determined, a message appears indicating the total number of disks needed.

> **NOTE:** Do not attempt to use an unformatted disk. If problems arise due to the use of an unformatted or damaged disk, and you are unable to proceed, push the Reset button, then log in as manager again, and use the **Restart** option to restart the backup. See "Restart and Recover Options" on the next page.

8. You will then be instructed to insert a new disk. The system will continue to tell you when to insert and when to remove each disk. It is very important to label your disks in sequential order. Suggestion: Number each disk <u>before</u> you insert it into the drive. Then when you remove it, add a check mark to confirm that it is completed.

   > **NOTE:** Make sure you remove each disk after you see the completion message to avoid accidentally overwriting it. It is good practice to put a write-protect tab over the write-protect notch on each completed backup disk.

9. The system continues to prompt you to insert a new disk until the backup process is finished. Upon successful completion of the process, the following message appears

```
System Backup successfully completed.
Press <RETURN> to return to the System Backup
Menu
```

Press the Return key to get back to the System Backup menu.

10. From the System Backup menu, return to the global menu by pressing the Cancel key. At this time, the copy of the upgrade program is removed from your system. (A message to that effect appears on your screen.)

11. You are now ready to load the new operating system.

RESTART AND RECOVER OPTIONS

This section describes how to use the **Restart backup** option and the **Recover** option. You don't need to read it unless you want to use the Restart or Recover options.

Restart Backup (Option 3)

You may need to use this option if you experience difficulties while using the **Backup entire system** option. However, the Restart backup option can only be used if you were able to create Volume 1 successfully before you experienced the error that terminated the back up. You must have at least one complete, successfully backed-up volume to make the Restart backup process worthwhile.

> **NOTE:** Do not create, alter, or delete any files on the system after terminating the backup and before resuming it with the **Restart** option.

Upon restarting the backup, you will be asked to specify the volume number with which you would like to resume the back up. Specify the number of the last volume that was successfully completed before you cancelled out of the backup procedure.

For example, if you experienced an error while backing up Volume 7, or if you cancelled in the middle of Volume 7, specify Volume 6 as the restart volume. After a new copy of Volume 6 has been made, discard it. You can reuse (overwrite) it because its purpose is only to resynchronize the Restart backup process. Your original copy of Volume 6 is fine and should be saved.

You cannot, however, specify Volume 1. Do not specify an out-of-range or impossible volume number. If you do, the process fails and you are returned to the System Backup menu.

After specifying the volume number at which to restart, you are asked to insert Volume 1 of the back up so the system can read the index information from it. You will then be prompted to insert a formatted disk which becomes the volume number you indicated previously. In the above example, it would be Volume 6. Remember to discard this volume. You can reuse the disk as the next volume in the series if you like. The backup process then resumes.

NOTE: If during the Restart backup operation, you experience the same error that previously terminated the back up, you should make a note of the error message (it will probably be preceded by cp:) and report it to your Fortune Systems Representative.

Important Instructions for Users with Large Files

If you used the **Restart backup** option, and you use BAS (Business Accounting System) or large data bases on your system, you may have files that are big enough to span more than one flexible disk. You will have to back up these large files separately after the system backup is completed. To determine if you have large files, do the following:

1. Log in as manager.

2. From the global menu, very carefully type the following:

   ```
   !find / -size +1400 -print
   ```

   then press RETURN.

3. If you do not see any filenames displayed on your screen, you do not have any large files to be concerned about. You can ignore the rest of this section.

4. If you do see filenames displayed on your screen, type the following line. Be very careful to type it exactly as shown, and do not press the Return key until you have typed in the entire line:

   ```
   !cp -Botx /dev/fd02 790 `find / -size +1400
   -print`
   ```

   Then press RETURN.

The ` character is on the gray key that contains the ~ character (on the left side of your keyboard). You don't need to use SHIFT or CTRL, just press the key.

You are then prompted to insert a formatted flexible disk. Remember to label it when you are told to remove it. Follow the instructions on the screen to enter and remove the disks needed to backup your large files. When the process is finished, you are returned to the global menu.

You will need to restore these files after you cold boot your system. This procedure is explained in Chapter 4, under the section, "Restoring Large Files."

Recover Original System from Backup Disks (Option 4)

In the unlikely event that you want to return your system to its pre-1.7 state, you can use this option to restore the backup set made using Option 2 on this menu. You can only use backup sets created by using Option 2. This assumes the following:

1. You successfully completed a system backup using the **Backup Entire System** option on the System Backup menu.

2. You tried to cold boot your system to FOR:PRO 1.7 and something went wrong.

3. You then cold booted your system using the pre-1.7 cold boot set.

Should you choose to use this option, you are asked to insert the backup disks you made using Option 2, beginning with Volume 1. The recovery process is straightforward, and requires you to simply insert and remove the disks into the backup set as instructed.

3 THE COLD BOOT PROCEDURE

This Chapter applies to all systems. The cold boot procedure will remove all files on the hard disk. This includes all system files, all software applications, and all user-created files and programs.

NOTE: The cold boot procedure described here supersedes the one described in Meet Your Fortune System. **Follow the procedure documented here.**

PREPARING TO COLD BOOT

If you have one or more peripheral devices attached to your system, make a note of the ports to which these devices are connected. You will need the port numbers when redefining these devices towards the end of the upgrade procedure. To obtain a list of your devices, select **Option 39** in the System Management menu screen. On the first menu screen, choose the **Table** option. You will see a list of ports along with information about the devices attached to them. Write down the following:

- Port number for each device (tty01, tty02, etc.)
- Name/type of each device
- Baud rate at which the device operates

Refer to this information when redefining your devices after the cold boot.

When preparing to do a cold boot, perform the following preliminary steps to expedite the procedure:

1. Notify all users on your system to log off.

2. Turn off all printers.

3. Shut down the system.

4. While the system is off, look at the System Configuration decal (if you have one) on the back of the CPU. The size and type of hard disk in your system should be listed in the area labeled DEVICE/LEFT. You will be queried for this information during the cold boot procedure.

5. Remove the write-protect tab from the Single-User FOR:PRO disk, Volume 1 of 3.

COLD BOOT PROCEDURE STEPS

Follow these steps to perform a cold boot procedure:

1. Turn the Fortune system off.

2. Insert the disk labeled Volume 1 of 3 in the flexible disk drive. (Make sure you remove the write-protect tab first.)

3. Hold down the Cancel/Del key and turn the power on.

4. When the maintenance screen is displayed, make the following temporary changes:

Press Function Key	**Change**	**To**
F4	Change boot device	Floppy, drive #0
F7	Set boot file name	fd02/sa/reconf <RETURN>

For changes to the **F4** line, press the F4 function key, then use the Spacebar to change the entry to "Floppy, Drive #0." For changes to the **F7** line, press the F7 function key, then type **fd02/sa/reconf** and press RETURN. (When typing **fd02**, use the number **0** (zero), not the letter O.)

5. When the changes have been made, press EXECUTE. Wait for the Fortune Systems Configuration menu to be displayed.

   Use the Return key to move the cursor through the entries on the Configuration menu. To make changes, use the Spacebar or type the information, as noted.

   NOTE: Certain numeric items on this menu appear with overstrike symbols. This does not indicate a problem.

6. If you are not using the international cold boot set or Business BASIC, go on to Step 7.

   If you are using the International Single-User FOR:PRO set, move the cursor to the **Language** field. If the language named is not the primary language you want

for your system, press the Spacebar until the correct language (French, German, or English) is displayed, then press RETURN.

If you plan to use Business BASIC, move the cursor to the **TTY01** field. If the port speed is not correct for your printer, press the Spacebar until the correct port speed is displayed, then press RETURN.

7. Move the cursor to the **Timezone** field. Press the Spacebar until the correct timezone is displayed, then press RETURN. Make sure the **Daylight savings** field is appropriately set.

8. Move the cursor to the **Floating Point** field. Change the answer to YES. **This is very important.** Make sure you have set this field to YES.

9. If you use Extended Fortune:Word (with windowing, multicolumns or documents in excess of 100 pages), or if you use programming languages such as Pascal, FORTRAN, or C, the **Max process size** field must be set to 256K. Otherwise, leave the value as it is.

10. Move the cursor to the **Set params auto?** field. If the entry is not YES, press the Spacebar until the entry is YES, then press RETURN.

11. Move the cursor to the **Appx. # users** field. Enter the number of terminals connected to your system.

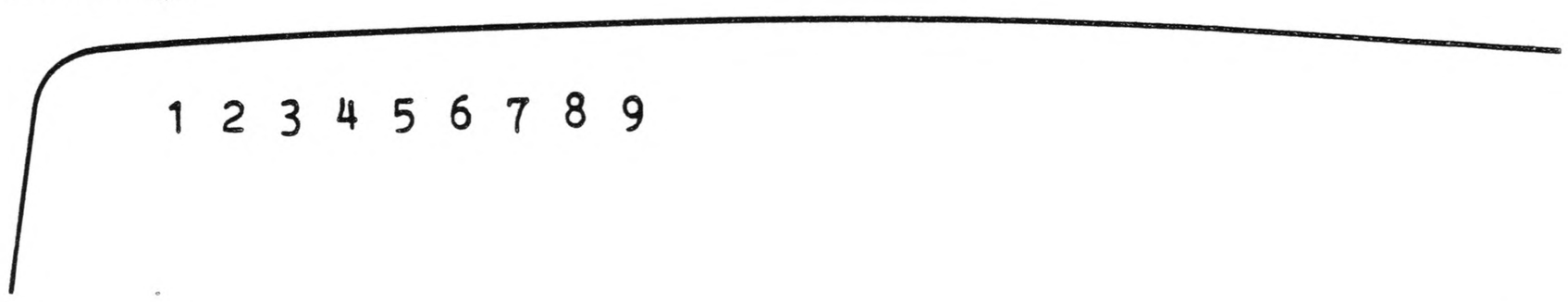
12. If you made no changes to the Configuration menu, go on to Step 13. If any value on the Configuration menu has been changed, make sure that all values are correct, then press the F1 function key to store the changes. Note that the message on the screen indicating the number of EAROM changes is then incremented by one. (The EAROM contains information about your particular system configuration.)

13. Use the Return key to move the cursor through entries on the Configuration menu and make the following temporary changes:

Entry	Is	Should be	Comment
Root device	hd02	fd02	Type **fd02** and press RETURN.
Swap device	hd01	fd01	Type **fd01** and press RETURN.

14. When the entries shown in Step 13 are correct, press the F3 function key, and wait for the **boot:** prompt to appear.

15. When the **boot:** prompt appears, type **fd02/unix**, and press RETURN. You'll hear the flexible disk drive, then the system will display the normal power-up message



16. When the disk selection screen appears, press the F1 function key to indicate that you want to erase the hard disk. (Other selections on the menu are not implemented and should not be used).

17. When the disk configuration screen appears, it displays a code that should match the code written in the DEVICE/LEFT field of the system configuration label on the back of the CPU. Write down the code displayed.

    IMPORTANT: <u>You must answer **no** to the question that appears on the screen</u>. Answer **no** by pressing the F2 function key.

    By answering **no**, you tell the system to reformat your hard disk. It then checks the surface of the disk, marking faulty regions on it. All tracks of the disk are now organized in the proper format.

    NOTE: If you have one of the very early Fortune systems, you can find your disk code by looking at this table.

DISK CONVERSION TABLE

Was	Disk Code Now
10MB Seagate 412	A10
5MB Seagate 406	A5
5MB Seagate 506	Z5

18. You'll next see a screen with several codes. Find the code that matches the code you wrote down in Step 17. Type the number that appears next to that code on the screen and press RETURN. The system will go through a long procedure during which it reformats the disk. You'll see the screen message

```
Clearing hard disk.  Please wait.
```

During the surface test, you will see the message

```
Testing hard disk.  Please wait.
```

After the procedure is complete, you'll see the same screen you saw in Step 17. Answer **yes** to the question by pressing the F1 function key.

19. In the screen on the next page, you will be asked to specify the number of swap units needed for your system. The number of swap units determines the amount of disk space reserved for the system to hold both user and system tasks. You determined this number in Chapter 1. First, a message will appear, indicating the number of swap units presently configured for your system. You will then have a chance to adjust this number, depending on your needs.

```
Your system is currently configured for # swap unit(s).

The hard disk will now be configured for optimal system performance.  Please press the function  key that corresponds to the number of swap units you will need or press <EXECUTE> to retain the present configuration:


          <F1> for 1 swap unit
          <F2> for 2-3 swap units
          <F3> for 4-6 swap units
          <F4> for more than 6 swap units
```

Press the function key that corresponds to the number of swap units you previously determined in Chapter 1.

> **NOTE:** By pressing the F2 function key, you get three swap units. The F3 function key gives you six swap units. To specify two, four, five or greater than six swap units, press the F4 function key. You will then be asked to indicate the number of swap units you need.

If you want to configure the disk with the current number of swap units as displayed at the top of the screen, press EXECUTE.

After you make your selection, the system will display a message like the one shown below. You will see numbers in place of the letters nnnn and xx:

```
Your disk now has nnnn Kbytes of swap space
(xx% of disk space) and nnnn Kbytes of file
space (xx% of disk space).

The swap space percentage indicated above
should be between 5% and 30% for optimal
system performance.  If it is, answer y(es).
By answering n(o), you can change the number
of swap units, which will adjust the swap
space percentage.

Ok to proceed with this swap space configu-
ration (y/n)?
```

If you reply **y**, the cold boot process continues and your disk will be configured as indicated. If you reply **n**, the initial prompt at Step 19 is repeated.

If the answer you supply causes this swap space to exceed the amount of disk space available, you will receive a warning like

```
Your disk cannot be configured for 200 swap units
```

From this point, you must allow the system to continue until a screen message displays the next step. Do not press any keys or try to remove a disk unless the system stops or displays a message that requires action of you.

20. In response to the following prompt

```
You must power the system off and on again
(or reset)
```

set the power switch off for a few seconds, then on again, or press the Reset switch. **DO NOT REMOVE THE FLEXIBLE DISK.**

21. As the procedure continues, the screen will fill with messages. First you will see the normal power-up sequence. Then when the message

```
Finished with floppy #1.  Remove it and insert
floppy #2.
```

appears, you can replace disk 1 with disk 2 while other messages are being displayed.

22. When the prompt

```
Is floppy #1 replaced with #2 yet (y or n)?
```

appears, make sure that flexible disk 1 has been replaced by disk 2, then respond by typing **y** and pressing the Return key.

23. The screen will fill with messages during the sequence. When the message

> **Finished with floppy #2. Remove it and insert floppy #3.**

appears, you can replace disk 2 with disk 3 while other messages are being displayed.

24. When the prompt

> **Is floppy #2 replaced with #3 yet (y or n)?**

appears, make sure that you have removed disk 2 and replaced it with disk 3, then respond by typing **y** and pressing the Return key.

25. The procedure continues to the normal power-up sequence from this point. After the power-up sequence is complete, the date and time screen is displayed. Follow normal procedures for the power-up sequence as documented in Meet Your Fortune System.

This is the end of the cold boot procedure.

Copying the Single-User FOR:PRO

After performing a cold boot procedure, make a backup of the three Single-User FOR:PRO disks. You should make this backup on high-quality flexible disks that have never been used.

NOTE: During this procedure, the Fortune system formats each flexible disk inserted. It is not necessary to format the flexible disk before you use this procedure. Try to use new disks for maximum reliability.

Follow these steps to back up your disks:

1. If you are not now logged in as manager, return to the login screen and log in as manager. If the manager account has a password on your system, you'll need the password to continue.

2. Select Product Maintenance on the global menu.

3. When the product maintenance screen appears, select the **backup** option and press RETURN.

4. All available software is now listed on the screen. Select Cold Boot, by typing letters or by using the arrow keys. When the Cold Boot selection is highlighted, press RETURN.

5. The screen describes the procedure, and ends with the prompt

```
Do you wish to proceed (y or n)?
```

Type **y** and press RETURN.

6. The screen prompt is

```
Insert flexible disk #1, press <RETURN>:
```

Insert a disk and press RETURN.

7. You will then see the message

```
Formatting flexible disk . . .
```

This is followed by a series of messages describing the copy process.

8. The system then begins a long procedure that may last about 10 to 15 minutes. During the procedure, you'll see several messages, including the message

```
Copying files . . . .
```

This message will appear on the screen for several minutes. Soon you'll see the prompt

```
Copy complete, remove flexible disk and label it
"Cold boot disk #1"
```

This is followed by the prompt

```
Insert flexible disk #2, press <RETURN>:
```

9. The system begins a second procedure. During the procedure, you'll see the same messages on the screen, including

```
Copying files . . . . .
```

Soon you'll see the prompt

```
Copy complete, remove flexible disk and label it
"Cold boot disk #2"
```

After you remove disk 2, put a write-protect tab on it.

You will then see

```
Insert flexible disk #3, press <RETURN>:
```

10. The system begins a third procedure. During the procedure, you'll again see messages on the screen, including the message "Copying files ...". Soon you'll see the prompt

```
Copy complete, remove flexible disk and label it
"Cold boot disk #3"
```

11. When the procedure is complete, the Product Maintenance menu is displayed. Remove flexible disk 3, and put a write protect tab on it. Place the copies of the cold boot set in a safe place. They can be used again when you have to perform the cold boot procedure. Return to the global menu by pressing RETURN.

NOTE: For non-1.2.4 users, skip Chapter 4 entirely. Restore your applications and data from the backups you made earlier. Go to Chapter 5 for instructions on upgrading product disks that must be upgraded before being installed on a FOR:PRO system.

4 RESTORING YOUR SYSTEM

This chapter is for 1.2.4 systems only. After successfully loading the FOR:PRO operating system, you are ready to restore your user files and data from the backup set you made earlier. During the restore phase, the system scans your backup disks, copying only those files that are not on the hard disk.

THE RESTORE PROCEDURE

Follow these steps to restore your important system information and user files, and to upgrade product disks:

1. Log in as manager. Using the Product Maintenance menu, once again install the Upgrade disk.

2. After the Upgrade disk has been copied to your system, remove the disk from the drive, and press RETURN as instructed. You should then see the System Restore menu and the following selections:

```
1  Duplicate upgrade disk
2  Restore and upgrade system
3  Upgrade product disks (master or backup copies)
```

3. Select Option 2, **Restore and upgrade system** to restore all the user and important system files from the system backup you made in Chapter 2.

4. The system prompts you to insert the backup disks in sequential order. As information is restored from each volume, you see the message

```
Restoring from volume nn...
```

where "nn" is the volume number of the disk being restored when the message appears on your screen. You then see the message:

```
This volume restored.  Please remove the disk.
```

You should now remove the disk and insert the next volume as requested. Upon successful completion of the restore process, you will see the message:

```
System restore successfully completed.
```

Make sure you remove the last volume of your backup set at this time.

5. When the process is finished, certain products that you have restored from your backup are automatically made compatible with the FOR:PRO operating system. During this part of the restore process, you see a series of messages describing what the system is doing. The messages you see will depend on what products you have on your system. For details, see the section called "Automatic Upgrade of Products on the Hard Disk," below. At the beginning of the process, you'll see the message

```
Now commencing upgrade of installed system
products.
```

Then you see a series of messages describing the upgrade of certain installed products. Upon completion of this process, you see the message

```
System restore and upgrade successfully completed.
Press <RETURN> to return to the System Restore
menu.
```

6. You are returned to the System Restore menu when the restoration process is complete. If you have master or backup product disks for Fortune:Word, Multiplan, Development Utilities, or ITE, now is a good time to upgrade them. Go on to Step 7 for instructions. If you want to upgrade these product disks some other time, or if you don't have these products, skip to Step 10.

7. To upgrade master and backup copies of product disks, choose **Option** 3 on the System Restore menu. The Upgrade Product Disks menu will then appear on your screen. You will see the following selections:

```
1  Fortune:Word
2  Multiplan
3  Development Utilities
4  Interactive Terminal Emulator

Enter selection number and press <RETURN>:
```

8. Choose the option number that corresponds to the product disk you want to upgrade. For example, to upgrade a Fortune:Word disk, choose **Option 1.** The system will tell you what to do next.

   You will see messages indicating that the upgrade for that product is in progress. When the process is finished, you will see a message indicating a successful completion. Mark the label of each disk after it is upgraded so you know it has already been upgraded. You must upgrade all master and backup copies of these products.

9. When a particular product disk upgrade finishes, you are told to press RETURN to get back to the Upgrade Product Disks menu. To exit from the Upgrade Product Disks menu, press CANCEL.

10. From the System Restore menu, return to the global menu by pressing CANCEL. The upgrade program is then removed from the system. Press RETURN to get back to the global menu.

    NOTE: You cannot install any of the four products that must be upgraded until you upgrade them. See also the "Obsolete Products" section in Chapter 5.

Automatic Upgrade of Products on the Hard Disk

This section explains in more detail what happens in Step 5 of the above procedure. During the last part of the restore and upgrade process, certain products on your hard disk are upgraded to be compatible with FOR:PRO. These are:

- Development Utilities
- Fortune:Word
- Multiplan
- ITE

The system upgrades each of these items in the order listed. If the item does not appear on your hard disk, for example, Multiplan, you see a message like this

```
Multiplan is not on your system.
```

NOTE: If you removed all of your applications prior to the system backup, you will see a series of messages similar to the above. You can skip the remainder of this section.

The paragraphs that follow describe what happens to each of these products during the "automatic" upgrade.

NOTE: If you had the Multiuser operating system on your system when you backed it up, those files are deleted, and a message appears reminding you that you must install the new FOR:PRO Multiuser software.

Development Utilities: If you had Development Utilities installed on your system prior to backup, this set will be upgraded on your hard disk. You will see messages indicating that this product is being upgraded. Certain commands formerly available only on the Development Utilities set are now available on the FOR:PRO single-user operating system.

Fortune:Word: If you had Fortune:Word on your hard disk when you backed up your system, it will be upgraded automatically and you will see the messages

```
Fortune:Word being upgraded...
Fortune:Word successfully upgraded.
```

Multiplan: If you had Multiplan on your hard disk when you backed up your system, you will see the message

```
Multiplan being upgraded...
```

You are then asked a series of questions about printing with Multiplan:

```
Which printer would you like to use (1 - 999)?
What pitch would you like (10, 12, or 15)?
How many lines per inch would you like (6, 8, or 10)?
What is the page length of your paper (in lines)?
Would you like draft print mode, if available y or n ?
Do you want header pages for each print job y or n ?
```

If you have only one printer on your system, answer "1" to the first question. If you have multiple printers on your system, decide which one you will print your Multiplan spread sheets on, then supply its logical printer number as your answer. (In Chapter 7, "Defining Device Connections," the concept of logical printer numbers is explained.) The questions shown above are also asked when you install an upgraded version of a Multiplan product disk. For more information on printer characteristics, see Chapter 2 (pages 2-17) of the Introduction to FOR:PRO.

After you answer these questions, you will see the message

```
Multiplan successfully upgraded.
```

Interactive Terminal Emulator: If you had ITE installed on your hard disk prior to backup, it will be upgraded. You will see messages indicating when the product is being upgraded and when the upgrade is completed.

Restoring Large Files

If you used the **Restart backup** option during your system backup in Chapter 2, and you followed the instructions there to back up very large files, you will need to restore these files at this time. Follow these instructions:

1. Log in as manager.
2. Type the following line very carefully:

```
!cp -Rort /dev/fd02 /. /
```

Then press RETURN.

3. You will be prompted to insert the first volume of the "large file" backup set you made earlier. Follow the instructions you see on your screen.

4. When finished, you will be returned to the global menu.

5 Upgrading Product Disks

This chapter applies to all systems. It describes how to use the Upgrade disk to upgrade master and backup product disks. It also lists the products that are incompatible on a FOR:PRO 1.7 operating system.

To upgrade product disks at any time <u>after</u> you have cold booted your system with FOR:PRO, follow this procedure:

1. Log in as manager and install the FOR:PRO 1.7 Upgrade disk using the **Product Maintenance** option on the global menu.

2. You will receive a message when the upgrade program has been copied to your system. Remove the disk as instructed and press RETURN to bring up the System Restore Menu. You will see the following selections:

```
1    Duplicate upgrade disk
2    Restore and upgrade system
3    Upgrade product disks (master or backup
     copies)
```

3. On the System Restore menu, choose **Option 3** to upgrade master and backup product disks.

4. From the Upgrade Product Disks menu, choose the option that corresponds to the product you want to upgrade. Then follow the instructions as they appear on the screen. If you accidentally insert the wrong disk, the system tells you. Also, if you try to upgrade a disk that has already been upgraded, you receive a message telling you so.

5. After the product disk has been upgraded, you are instructed to press RETURN to get back to the Upgrade Product Disks menu. You can continue upgrading product disks by again selecting the appropriate option number.

6. When you have finished upgrading product disks, press CANCEL to return to the System Restore menu. Return to the global menu by pressing CANCEL again. You will see a message telling you that the upgrade program is being removed from your system.

NOTE: Do not attempt to upgrade any product that does not appear on the Upgrade Product Disks menu.

OBSOLETE PRODUCTS

The following products are obsolete and cannot be installed on a system running FOR:PRO:

Product	Status
FOR:WORD	Cannot be installed on the FOR:PRO system. Use Fortune:Word instead.
Fortune:Word updates	Upgrading the master (or backup) Fortune:Word disk makes the update disks obsolete.
Pre-1.7 Multiuser	Must use new FOR:PRO Multiuser instead.
Pre-1.7 cold boot sets	Cannot be used on a system running FOR:PRO.
The "Technical Support Update Diskette" of April 21, 1983	New cp on FOR:PRO fixes the situation this update disk used to correct.

NOTE: When installing an upgraded version of the Multiplan product disk, you are asked a series of questions regarding the printer settings you want. See Chapter 4, "Automatic Upgrade of Products on the Hard Disk."

6 INSTALLING MULTIUSER

Follow these steps to install the Multiuser FOR:PRO operating system:

1. Log in as manager.

2. Select the **Install** option on the **Product Maintenance** menus and install the FOR:PRO Multiuser disk labeled Volume 1 of 1. Previous versions of multiuser software are <u>not</u> supported on FOR:PRO.

3. Make a backup of Multiuser FOR:PRO by using the **Backup** option on the Product Maintenance menu.

CHANGING THE CONFIGURATION MENU

It is not necessary to cold boot your system every time you want to change an item on the Configuration menu. If you decide to install multiuser and you didn't set the appx # users field to greater than 1 during the cold boot you could change it. For example, if you forgot to set the timezone field properly, or need to increase the max process size for some reason, you can simply change the value set in the EAROM. The EAROM contains all the information that appears on the Configuration menu screen. You've already seen it during the cold boot process.

Here's how to change the values that appear on the Configuration menu screen:

1. Login as manager.

2. From the global menu type:

   !uconf <RETURN>

3. You then see the Fortune System Configuration menu shown on the previous page. (What you see may look a bit different from the screen shown earlier.) Press RETURN until you come to the field you want to change.

4. Make the change or changes as required. (For example, change the **Appx # users** field.)

5. When finished, press the F1 function key to store the change(s) you just made.

6. Press the F3 function key to exit from the Configuration menu.

7. Press the Return key to get back to the global menu.

8. Shut down the system using normal shutdown procedures.

```
                Fortune Systems Configuration Menu


 Power up action = BOOT          Daylight savings = YES
     Boot device = hd              Line frequency = 60
    Boot drive # = 00                    Language = ENGLISH
  Boot Program # = 00             Floating point? = YES
       Boot file = hd02/unix           Hex number = FFFF
   Flex drive #1 = TANDON         Number buffers = 050
   Flex drive #2 = TANDON          Number inodes = 040
   Flex drive #3 = TANDON            Number files = 040
   Flex drive #4 = TANDON            Number texts = 010
     Root device = hd02             Number clists = 015
     Swap device = hd01        Number processes = 015
TTY00 port speed = 2400        Max process size = 256
TTY01 port speed = 9600        Set params auto? = YES
Console location = CRT            Appx. # users = 1
        Timezone = GMT - 12

                    EAROM has been changed x times

F1 STORE SCREEN DATA IN EAROM     F2 READ CURRENT EAROM SETTING
F3 CONTINUE WITH SYSTEM STARTUP   F4 RESTART WITH SCREEN DATA
```

7 DEFINING DEVICE CONNECTIONS

After connecting any peripheral devices, like printers or terminals, you must tell the operating system about them. It is necessary to define all peripheral devices like terminals, modems, printers, and other computers that you may have attached to your Fortune system. If you do not tell the system what type of devices you have, they will not function. Note that if for any reason you must cold boot your system again or if you reinstall your Single-User FOR:PRO, your device connections will be lost and will have to be redefined.

> **NOTE:** If you are defining any terminals, you must shutdown and start up the system in order to allow your changes to take place. The proper device files are then created and all devices should work properly. You do not need to shutdown the system if you are only defining printers. However, if a device does not appear to work after defining it, try shutting down and then starting up the system.

If you have never connected peripheral devices to your system, or if you have a new Comm A controller with driver PROMs, you should read the next section. Otherwise, go on to the section, "Device Connection Steps" later in this Chapter.

ABOUT PORTS

Every Fortune system has at least one port called the SIO (serial input/output), which is in the center of the CPU as you face the back of the Fortune system. Additional ports are obtained by inserting a Comm A controller in the available slots on the CPU backplane. Figure 7-1 represents a back view of the Fortune system. It shows the slots that are available for a Comm A or ICC (Comm B) controller.

Comm A Controllers

In addition to the two-port Comm A controllers, there are two types of four-port Comm A controllers: those with driver PROMs and those without. If you have a Comm A controller, read the pamphlet that accompanies it to find how and where it should be installed.

Comm A controllers without driver PROMs can only be installed in slot B, and require the Multiuser FOR:PRO for use. This type of

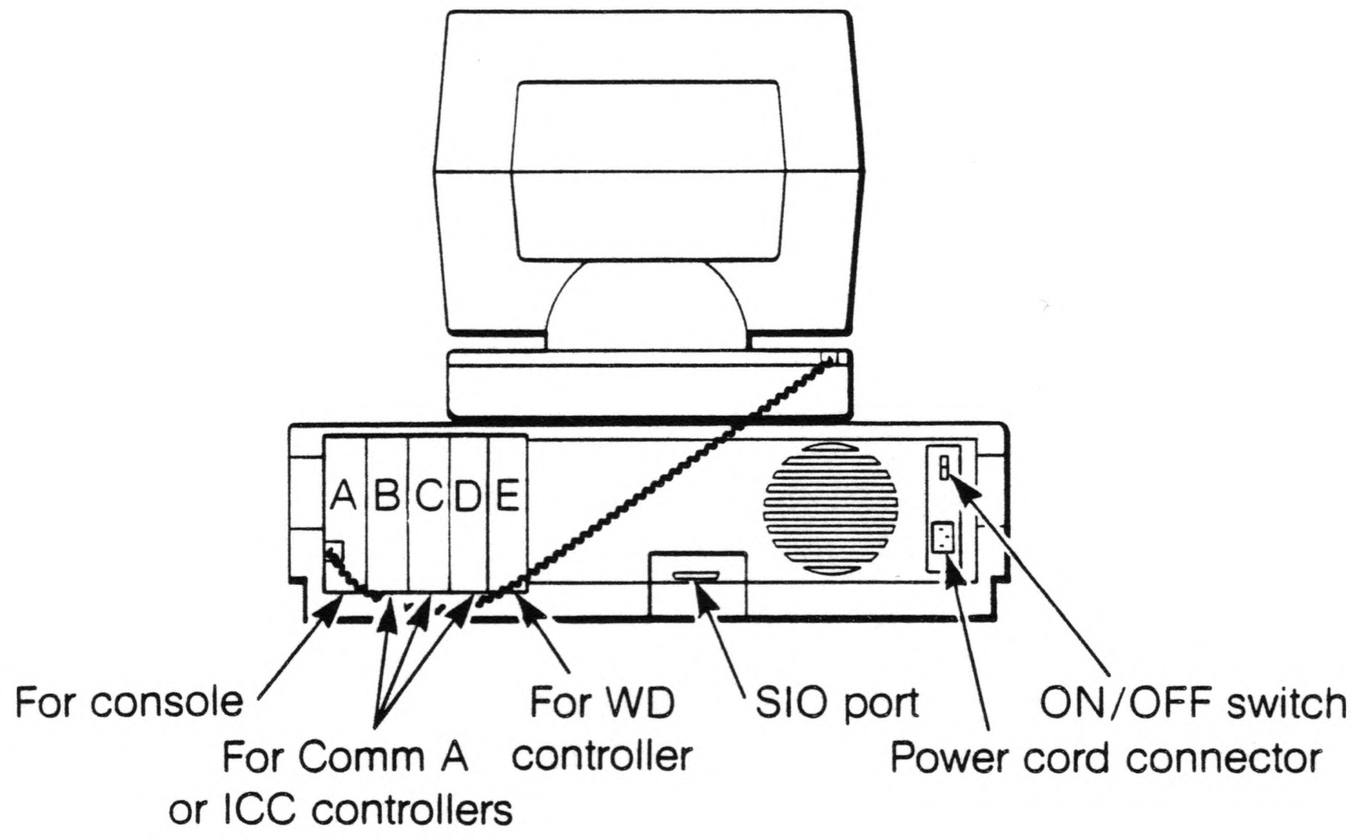


Figure 7-1. Back View of Fortune 32:16 CPU

Comm A controller can only support ports 2 through 5 (tty02-tty05), and no more than one can be installed on a single system.

Comm A controllers with driver PROMs can be installed in slots B, C, or D. They can be used on a single-user system to run printers or communications devices, but require the Multiuser FOR:PRO to support terminals. (Printers and certain communications devices do not require login access to the CPU; terminals do.)

How Ports are Numbered

Ports are numbered by each board, beginning with port 2. The numbers depend on how many controllers there are, how many ports the controller has, and where the first controller is located from left-to-right when facing the back of the Fortune system.

Regardless of their positions in the backplane, ports on the Comm A controller are numbered consecutively. On the first four-port Comm A that appears in the backplane, the port numbers are 2-5. The port numbers are 6-9 on the second Comm A.

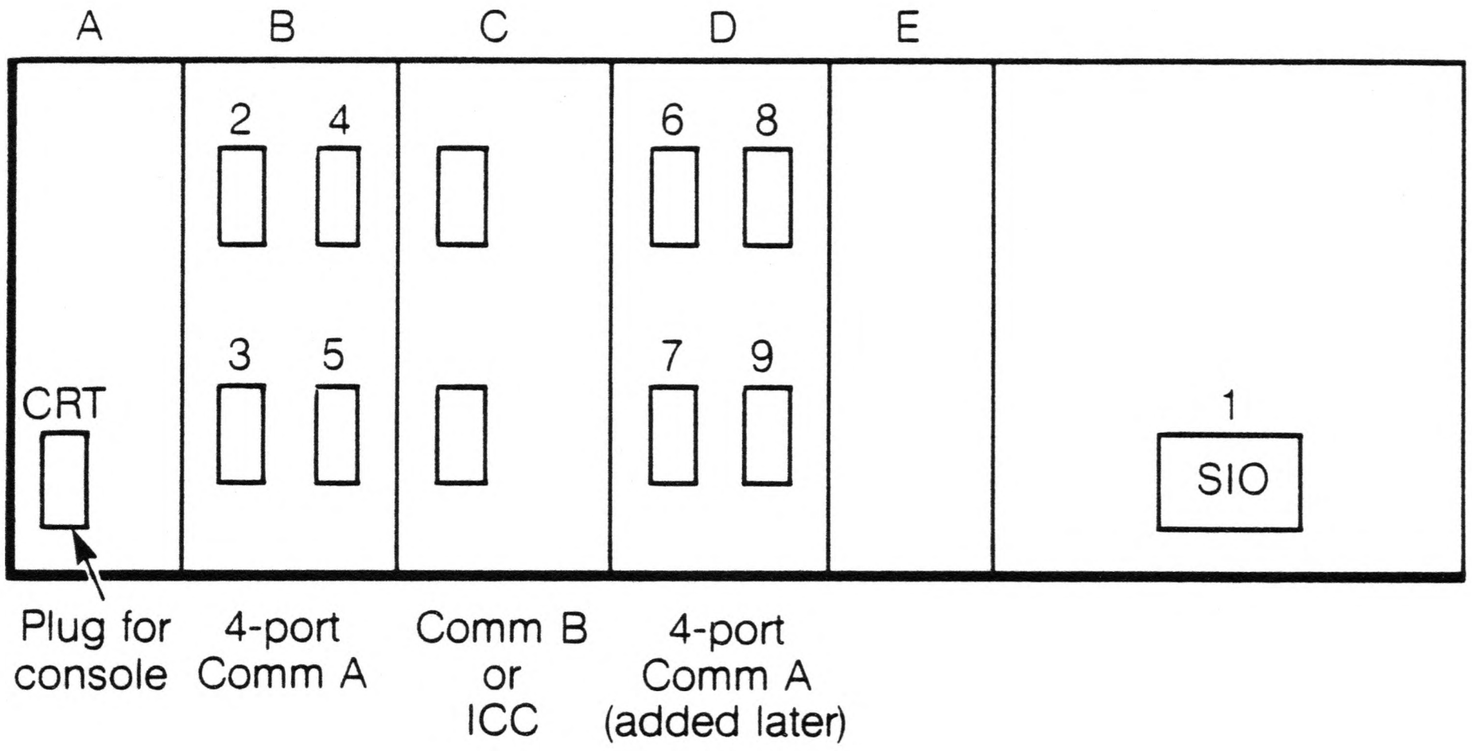


Figure 7-2. Backplane with two Comm A's and one Comm B

Suppose you install a four-port Comm A in slot B and an ICC (Comm B) in slot C. Then later you install another Comm A in slot D. Figure 7-2 shows you what the backplane would look like in this situation.

If you install a Comm A with driver PROMs in any slot other than B, the port numbers associated with that board depend on whether there is another Comm A in a previous slot.

For example, if there were no Comm A controller in slot B, the ports on the controller in slot D would be numbered

2	4
3	5

DEVICE CONNECTION STEPS

Use the notes you took prior to performing the cold boot to make redefining your device connections easier.

Make sure that you are logged in as manager. On the global menu, select **S2 System Management.** Then choose **S39 Define Device Connections.**

On the first Device Connection menu, you see a representation of the backplane of a Fortune system. (The maximum number of Comm A controllers supported per system is three.) The number of ports you have depends on the number of Comm A controllers installed on your system. Select the appropriate port number to which the device you are defining is connected. Read the Help screens associated with each menu as you go along.

The general steps for defining any type of device are:

1. Choose the port number to which the device is connected on the Define Device Connections menu.

2. Choose the first option on the Port Definition Selections menu. The Category of Device menu will be displayed.

3. Select the appropriate device category on the Category of Device menu. For example: printer, terminal, or host computer. When defining a printer or host computer, you are asked to define a logical device number.

4. Specify the type of device you have on the Type of "Device" screen where "Device" is printer, terminal or host computer. For example, when defining a printer, select the appropriate printer type.

5. Define the baud rate at which the device will operate.

6. Shut down the system.

When the definition sequence is complete, a new device table is displayed, showing you the changes that have just been made. If a change was made incorrectly, go back to the first or second menu and start again.

Remember, if you defined any terminals, they will not work until you shut down and start up the system. You should use the shutdown procedure for this. Try to define all your devices at the same time. Then you can shut down the system and start it up again to see if they all work.

Defining a Printer

Complete the following steps to define a printer:

1. Select the port to which the printer is connected on the first Device Connection screen.

2. On the Port Definition Selections menu, choose **Option 1** to define the device category.

3. Choose the **Printer** option on the Category of Device menu. You will then be asked to specify a logical device number for this printer. If you only have one printer, specify the number 1. Logical numbers allow you to have more than one printer per system. (The maximum number of printers supported per system is three.) When printing jobs on a system with multiple printers, you can direct a job to a particular printer by specifying the printer number. The default printer is always printer number 1.

4. Choose the type of printer that corresponds to your printer on the Type of Printer screen.

5. Specify what type of paper feed your printer has on the Feeder Type screen. If it does not have a sheet feeder, select the **No Feeder** option. (This screen is not displayed for printers without sheet feeder support.)

6. Select the appropriate baud rate for your printer on the Set Baud Rate screen. (See the Help screen associated with this screen for additional information.) Make sure that your printer's hardware switch settings for the baud rate match the baud rate you specify here. See the pamphlet, Switch Settings for Printers Used with the Fortune 32:16, which came with your system.

7. If you want to define a printer notification port (port to which audible signals indicating certain printer conditions are sent), return to the Port Definition Selections menu, and select Option 3, **Define Port For Printer Messages.** Another screen will be displayed, asking you to specify the port to which printer messages should be sent.

   If you define an illegal printer name/feeder type combination, a warning message will be displayed prior to the display of the device table. Make a note of the printer name listed in the table, then go back and redefine the printer specifying the proper name and feeder type.

Satellite Workstation (FIS)

To define a Satellite Workstation (FIS 1000), follow the same procedure as used for specifying Terminal as the device category at Step 3. Then do the following:

1. Choose the **Fortune Systems Equipment** option on the Type of Terminal or Guest Computer menu.

2. Define the proper baud rate (see Help screen for details).

> **NOTE:** All terminals defined as Fortune terminals (FT) will automatically be set in XON/XOFF mode. This means that when you stop output to the screen with CTRL-S, you can only resume output by typing CTRL-Q.

Host or Guest Computer

If you are using ITE (Interactive Terminal Emulator) or FFCP (Fortune-to-Fortune Copy), you have to define your communications links. If you do not have either of these asynchronous communications products, skip this and go on to the section, "Other Port Definition Options" on the enxt page.

There are two important concepts involved in asynchronous communication:

- Login access vs. no login access
- Guest computer vs. host computer

When you have two systems hooked up for communications purposes, (in order to use ITE or FFCP), one system must function as the **guest**, and the other as the **host.** The guest computer has login access to the host, so users on the guest system can log in to the host system, making use of that system's resources. The host system can "invite" a guest system to log in, however the host cannot log into the guest system.

The host system must be running Multiuser FOR:PRO, because it must accommodate users from the guest system just as it must accommodate its own "native" users.

Guest Computer

If you are defining a guest computer in a communications hookup, select the **Terminal or Guest Computer** device category. This assumes your system is functioning as the host. Since multiple devices of the same category are supported on a single system, you will be asked to specify a logical device number. Logical device numbers let you specify a particular device without having to remember which port the device is on.

If you have any Fortune equipment attached to this port, whether or not you have a modem, select the **Fortune Systems Equipment** option. Then specify the baud rate at which you want the line to operate. The baud rate you specify is checked by ITE when users on the guest system use ITE to connect to your system.

Host Computer

When the device connected to a particular port is functioning as a host in an ITE or FFCP connection, it should be defined as a **Host Computer.** Your system then functions as the guest. After you have specified the port number and device category, select the **Fortune 32:16** option on the Type of Host Computer menu. The baud rate at which the line is set is ignored by ITE and FFCP. When using ITE to connect to the host system, you must specify the baud rate set for this communication line on the host system.

Other Port Definition Options

You can modify any of the device connection settings by choosing the appropriate option on the Port Definition Selections menu. This menu also allows you to include a description of what the device is used for, and to specify or change the logical device number for a particular device on the device table. You can also enable or disable the use of a device; this is useful when a device needs to be disconnected for servicing. You can also delete all configuration information for a port when a device is removed and is not replaced.

Additional Details

In FOR:PRO all device table information is stored in the file **/etc/devtype.** (See Chapter 4 of Introduction to FOR:PRO, for more information on system files.) When you use the Device Connection menus, the program **dtinit** uses the device connection information to update the **devtype** file. The files **ttys** and **ttytype** are used by other programs on the system, but are recreated from the **devtype** file at system start-up time. Therefore, it is recommended that you do not modify **ttys** and **ttytype**; make your changes to the **devtype** file instead. (See the MAN pages for **devtype** and **dtinit** in Part 2 of the Introduction to FOR:PRO for further information.)

8 Alternate Backup for UNIX Users

An alternate backup is available for users who already have backup copies of their current cold boot set, plus backup copies of all their applications, and simply want to back up their user files and data. Use Option 5 "**Install New cp**" on the system backup menu to install the new cp program. Then use cp to back up any files you want to save.

> **NOTE:** For users of multivolume copy (cp -B) there is now a "restart backup" option in cp. It is documented in the 1.7 Additions and Changes letter under "Notes About Multivolume Copy."

Other Files to Save

If you choose this method to back up your system, you have to back up the following files in addition to your own:

- Any Business Accounting System (BAS) data files you may have (use the end-of-day procedure)
- /etc/passwd
  /etc/group
  /etc/motd (if there's anything in it you want)

When you cold boot your system to load FOR:PRO, new versions of the three files listed above are placed on the hard disk. You then have to log in as manager or root and copy your versions of these files from your backup disks to the hard disk.

Back up Your Products

If you choose the alternate backup route, make sure you have all your products backed up prior to doing a cold boot. After performing the cold boot procedure, use the Upgrade disk to upgrade the product disks that must be made compatible with the FOR:PRO operating system before they can be installed.

> **NOTE:** If you did not use the **Backup entire system** option on the Sytem Backup menu, you cannot use the **Restore and upgrade system** option on the System Restore menu to restore the files you have backed up. You must use cp to copy them back to where they belong.

You should also note that you have to use the new Define Device Connections menus to redefine any peripheral devices. On FOR:PRO systems, device information is now stored in **/etc/devtype.** See Chapter 7, "Defining Device Connections," for more information.

Appendix A: Product Maintenance Messages

The Product Maintenance portion of the global menus has been altered to make accommodations for incompatibility between certain existing products and FOR:PRO.

INCOMPATIBLE PRODUCTS

The Product Maintenance program now checks to see that any product disk or update to a product disk is compatible with FOR:PRO. If you insert a product that is not compatible with FOR:PRO, a message is displayed that indicates the product must be upgraded before it can be installed. In this case, insert the FOR:PRO Upgrade disk and use it to upgrade certain product disks before installing them on the FOR:PRO operating system.

ARE YOU LOGGED IN AS MANAGER?

The first thing the Product Maintenance program does is to check that you are logged in as manager or root. If you are not, you see the message

> Only the "Manager" account can perform Product Maintenance.
> Please log in as manager and try the operation again.

INSTALLATION INFORMATION MISSING

If a product disk has been damaged, an error message is displayed indicating that the proper installation information is missing from the disk. You should then check that the proper disk is inserted. If the disk is indeed the proper one, you should contact an authorized Fortune Systems Representative.

UNABLE TO COPY

If a bad disk is used to install a product or if there is not enough room for the product on the hard disk, a message is displayed, informing you of the condition. Use another backup copy of the product if one is available.

INTERNAL ITEMS MISSING

In rare cases, something crucial to product installation may be missing from the Internal Product Maintenance software. This is a very serious condition. When it occurs, a message indicating an internal error is generated. Report this to your Fortune Systems Representative as soon as possible.

SECURITY-RELATED ERROR MESSAGES

In addition to the above messages, you may also see messages related to the Fortune Security (protection) mechanism that is now in use.

PROBLEM	SOLUTION
Diskette does not seem to be a Fortune-manufactured product	
The flexible disk you are attempting to install is not compatible with the Fortune system and may not have been produced by Fortune Systems Corporation.	Contact your Fortune Systems Representative from whom the disk was purchased.
Diskette is not accessible or is possibly damaged	
The Fortune system cannot retrieve the information from the flexible disk, or the disk may be damaged.	Contact your Fortune Systems Representative.
Diskette previously installed on different machine	
This particular flexible disk has already been installed on another Fortune system and therefore cannot be installed on the system you're currently using.	You must purchase a copy of this application disk for each Fortune system on which it is installed.
Installation software cannot read machine identity	
There are some hardware problems on your Fortune system.	Contact your Fortune Systems Representative.

PROBLEM	SOLUTION
Remove write protect tab before installation	
The master disk must not have a write protect tab on it when you install it.	Remove the write protect tab and install again.

Appendix B: Upgrade Disk Messages

This Appendix describes the error messages that may be encountered while using the Upgrade disk. After each message is an explanation of the message, a description of what may have caused the error, and a possible course of action.

> Upgrade disk appears to be damaged and cannot be read.

Your copy of the Upgrade disk may have been damaged in shipment. Try to install the disk again. If you receive the same message, contact your Fortune Systems Representative to obtain another Upgrade disk.

> Not enough space on hard disk. % blocks must be freed up before upgrading.

FOR:PRO is slightly larger than previous releases of the Fortune operating system. Before the Upgrade disk is installed on your system, it checks to see that there is enough room both for it and FOR:PRO. If there is not enough space, the above message is displayed, indicating how many blocks you must free up before the Upgrade disk can be copied to your system.

IF YOU NEED MORE SPACE

To free more disk space, delete any user files you can do without. First, back them up to a flexible disk if you want to save them. Go through your Fortune:Word libraries and delete documents you don't need. Archive and then delete any Multiplan spreadsheets, and any other programs or data files you no longer use on a regular basis.

If you are familiar with UNIX, go through the /u directory and delete files you no longer need. Then check the / (root) directory to see if there are any user files that can be removed. Be careful not to delete any important system files!

WHAT NOT TO DELETE

If you are deleting items from command level instead of from the menu system, be careful not to delete any important system information in these directories: /, /etc, /bin, /usr, /tmp, /sa, and so on. See Chapter 4 of the Introduction to FOR:PRO for more information.

DETERMINING HOW MANY BLOCKS A FILE TAKES UP

Use Option 32 **Disk Usage**, on the System Management menu to determine how many blocks each file in a particular directory takes up. The numbers displayed in the far left portion of the screen indicate the number of blocks taken up by each file in the specified directory. If you are issuing commands at the Bourne or C shell levels, use the **du -a** command to display the size of each file in a directory in blocks.

> Could not mount disk. Please try again.

It is possible that you did not insert the disk properly. Remove it and try the process again.

> Duplication of Upgrade disk failed. Try again with another disk.

Something may be wrong with the disk you used during the Duplicate Upgrade Disk procedure. Try the procedure again using another disk.

> System backup failed. Use the "Restart backup" option or start over.

If a serious error occurs during the backup process, you will see this message in addition to other more specific messages from the copy (cp) program. As suggested, use the **Restart backup** option on the System Backup menu or begin the process again by selecting the **Backup** option. You can only use the **Restart** option if you managed to create at least Volume 1 before you experienced the error that terminated the backup.

```
Recover operation failed.  System not successfully
restored.
```

If you experience this error during the Recover original system from backup procedure, try the operation again from the beginning. If it fails again, write down all the error messages you see and contact your Fortune Systems Representative.

```
Installation of new copy command failed.
```

This message indicates that the new cp program was not successfully installed onto your system. Try the operation again. If it fails again, exit from the Upgrade disk, and return to the global menu or to command level. Mount the disk and try to copy the new cp program (and associated files) from the flexible disk to /bin. If this is not successful, obtain another copy of the Upgrade disk.

```
System restore failed.  Try the "Restore" option again.
```

If you experience this error, you should select the entire **Restore** option and try it again.

```
cp: Could not complete backup of this volume.  Retry!!
```

Something is wrong with the disk currently in the drive. Remove it and replace it with another. Try the backup of this volume again.

```
***hd error:ECC error in data field on drive
cp:read I/O error
cp:read error sizing file
```

While using the Upgrade disk to back up or restore your system, if messages similar to the preceding error messages are displayed, cancel out by pressing the Cancel/Del key. Then follow these suggestions:

- If you receive the error <u>while doing the backup</u>, use the **Restart backup** option to continue the backup. Specify the volume number just prior to the one being generated when the error occurred.

- If you receive the error <u>while doing the restore</u>, restart the restore and upgrade procedure at the beginning.

- If, after trying the procedure a second time, you are still receiving error messages, write them down and contact your Fortune Systems Representative.

FORTUNE SYSTEMS CORPORATION

ADDITIONS AND CHANGES
FOR:PRO Release 1.7

This document describes additions and changes that were made after the user documentation was published. They are noted here under the following categories:

- Documentation Corrections
- Software Exceptions
- System Configuration Guidelines
- MAN Page Updates

DOCUMENTATION CORRECTIONS

Introduction to FOR:PRO

1. **Page 1-22, Part 1:** The example in Step 4 at the bottom of the page should be followed by a period, as in

   (that's tawnic!).
   .

2. **Page 2-5 (and elsewhere in Part 1):** Braces are used to set off alternate arguments for the "mv" command. Braces indicate that one element of the vertically listed options is required.

3. **Page 2-22, Part 1:** Change the sentence, "In this case, you would type lpdun -n2 ..." to read "In this case, you would type lpdun -n 2 ...".

4. **Page 3-15, Part 1:** The second line of the shellscript reads, "echo Disk is Not Mounted." It should say, "... is Now Mounted."

5. **Page 4-2, Part 1:** The first sentence of the second paragraph reads: "In this list of entries, the first number you see indicates the number of i-nodes taken up by a file or directory." It should read as follows: "In this list of entries, the first number you see indicates the number of blocks in the file." The last sentence of that paragraph should read as follows: "There is only one i-node for each file on the system, except linked files which have the same i-node."

6. **Page 4-2, Part 1:** The first sentence of the fourth paragraph should read as follows: "An executable file is usually either a binary file or contains information that can be interpreted by the shell as command input."

7. **Page 4-3, Part 1:** The seventh paragraph, describing the "h" directory, is true only during the cold boot procedure. It is also a separate file system, but not the root file system for Fortune Systems with expansion cabinets.
8. **Page 1-55, Part 2:** The fifth line (after option v) add the h option: h prints the help commands on the screen.

The following paragraphs update the TTY(4) MAN pages in Part 2 of the Introduction to FOR:PRO.

Man page 2-16, paragraph "LCASE." Change the last sentence to, "In the Fortune 32:16, this bit (when set for the console), causes indeterminate behavior. It works properly for ASCII terminals connected by the Comm A ports."

Man page 2-19, Output flow control, second sentence. Change ^S to ^Q. Should read: "The start (t_startc) character, normally ^Q, will cause output to resume."

Man page 2-22 to 2-23. Do not attempt to transfer a file to a receiver who is in tandem cooked mode.

Man page 2-22, Input modem control signals. Replace parenthetical section (starting with "This bit" ... and ending with ... "system performance") to:

"This bit is set by default to prevent noise created by a device on one of the input modem control signals from degrading system performance. Specifically, some printers generate noise on pin 25. If the input modem control signals are needed, this bit must be turned off for the desired port. Unused signals should be free of noise if the port is configured for the monitoring of modem interrupts."

Man page 2-23, first paragraph, fifth sentence. Insert "the output DTR and RTS signals are dropped," after the last comma ("process group,").

Man page 2-23, first paragraph. At end add the following sentence:

"Automatic dropping of the output signals DTR and RTS is suppressed if either LNOHANG or LNODROPMDM are set."

Man page 2-23, insert the following paragraph after the third paragraph (beginning with "If a process ..."):

"Note that the driver state will be restored to its default condition when the outgoing device is closed. Any behavior desired to remain valid while respecting incoming carrier should be set as the default mode with TIOCSAVEMODES."

Man page 2-27, add to the first list on the page (the bits of the local mode word) the following entries:

LNOMDMINTS	0x800000	ignore modem status change and break interrupts
LNODROPMDM	0x1000000	don't automatically drop DTR and RTS when DCD drops

Man page 2-30, "SEE ALSO section, add the following reference:

"setpgrp(2)"

A new version of the STTY(1) MAN pages appears at the end of this pamphlet.

Comm A Controller Pamphlet

1. **Front Cover:** states that you must use a Comm A controller in a multiuser system to connect a FIS 1000. Actually, it is possible to create a two-user system by connecting a FIS 1000 to the existing SIO port. Also, the SIO port may be used with the Interactive Terminal Emulator and Fortune-to-Fortune Copy.

2. **Page 1:** states that the Fortune system has space for five controllers. That is correct for the FORTUNE 32:16 XP, but the FORTUNE 32:16 PS has space for three controllers (one available for Comm A).

3. **Page 1:** states that you must perform a cold boot to install multiuser software. This is not necessary if your system is set to the correct number of swap units. (See FOR:PRO Installation Instructions for details.)

4. **Page 3:** does not clearly show that location B is the second position from the left, as viewed from the rear of the CPU.

SOFTWARE EXCEPTIONS

NOTE: Whenever the Workaround requires powering down the system, you must use the Shutdown procedure.

Cold Boot Procedure

Situation: Loading failure

Symptom: Occasionally during the reboot phase of the installation of FOR:PRO Release 1.7, the cursor may be split and a **1b** appears, or the screen may fill up with arrows.

Workaround: This "barber pole" cursor can only be terminated by powering the system down and up to reboot.

Situation: Set params auto?

Symptom: If a system has one memory board (256KB), it may not function when the system parameters have not been set correctly. It is recommended that users answer yes to "Set params auto?" on the Configuration menu.

Workaround: Answer yes to "Set params auto?" on the Configuration menu.

Situation: System with large configuration may not respond during the cold boot procedure.

Symptom: When cold booting a system with a large configuration (i.e. Comm A, Comm B, PIO) from a flexible disk, the system does not complete the cold boot procedure as the mkdevs process runs out of free inodes.

Workaround: Cold boot with a smaller configuration, then reconfigure the system.

General System Considerations

Situation: Timezone EAROM

Symptom: The usage and meaning of the timezone bits in the EAROM have been changed.

Workaround: This means that you will see the wrong timezone and time displayed until it is changed. To change the displayed time, refer to the section titled, "Installing Multiuser" in the FOR:PRO Installation Instructions pamphlet, which describes the procedure to access the Configuration menu and to change an entry. FOR:PRO users are referred to the uconf(8) MAN page.

Situation: The Cancel/Delete key may kill background processes started from the same terminal.

Symptom: If you start a background process, such as a compile while this process is running, and you then press the Cancel/Delete key (even while in an application such as the menu system), the background process may be killed.

Workaround: Avoid pressing the Cancel/Delete key while you have a background process starting from the same terminal.

Note: The lpr print spooler is protected from this situation.

Attention Programmers: Use the set process group (stpgrp) system call to detach a background process from the terminal to avoid this problem.

Situation: System may not respond while doing a copy to a flexible disk. When the file system is full on the flexible disk, it cannot be unmounted and the process which is waiting for space cannot be killed.

Symptom: System does not respond.

Workaround: Power the system down and up to reboot.

Situation: The FOR:PRO command cat -n will not produce numbered output for files that begin with tabs or blanks.

Symptom: The output from the use of this command is not displayed with a flush left margin. Numbers are interspersed with lines of text.

Workaround: Remove blank lines and tabs at the beginning of lines.

Heavy Loads

Situation: Process slots

Symptom: It is possible that all the process slots have been used, causing the system to not respond.

Workaround: Power the system down and up to reboot.

Menu System

Situation: File moving

Symptom: The menu shell does not permit a user to move (mv), a file whose name begins with a minus sign (-), to another name.

Workaround: Use the FOR:PRO mv command. See the Introduction to FOR:PRO manual.

Situation: System may not respond if the down arrow key is pressed twice while in menu shell, S1, System Utilities, #10.

Symptom: If you select S1, 10, then press the down arrow 2 times; the system responds "segmentation violation---core dumped".

Workaround: Power the system down and up to reboot. Avoid this situation by using the RETURN key <CR> to make selections.

Printers

Situation: Printer does not respond

Symptom: NEC 3500R printer periodically does not respond.

Workaround: Use Fortune-supplied cables with this printer as the standard NEC printer cables don't work.

Situation: Print spooler does not respond

Symptom: Interrupting the print spooler and then shutting the system down will cause the print spooler to not respond.

Workaround: Another print job must be sent to the same spooler to recover.

Situation: Printer stops after running out of ribbon.

Symptom: While printing on a NEC 3500R, the printer stops when it runs out of ribbon. Upon replacement of ribbon and reset of the printer, the print job is not resumed at the point of suspension.

Workaround: Resubmit print job.

Situation: BASIC accesses the printer directly; word processing uses the spooler.

Symptom: If you are printing any Fortune application except Business BASIC, BAS, and IDOL, you are using lpr. If you request a print through BASIC, Business Accounting System (BAS), and IDOL, the print may be interleaved between lpr and BASIC print, because Business BASIC does not use lpr.

Workaround: 1) Don't print using BAS/IDOL/Business BASIC while you are using the printer. Wait until the first print is completed. 2) Specify a separate printer for Business BASIC.

Comm A

Situation: Removal of Comm A controllers

Symptom: The system (auto configuration) does not monitor the number of installed Comm A controllers. Comm A controllers can be removed from the system without it being reflected in /dev.

Workaround: The user must reconfigure after adding or removing Comm A controllers.

Notes About Multivolume Copy

If you are using the multivolume copy (cp -B) option and you cancel out of the process or if the process aborts, it is necessary to determine if a large file was in the process of being copied. If you choose to use the cp "restart" feature, make sure you specify the volume number on which the large file began or you can start the entire copy process over. To determine where to restart the copy, insert Volume 1 of the backup and read the __part__ file. This file serves as a table of contents for the entire backup. The __part__ file uses the following notations:

- The left-most number is the backup volume number.

- The next field contains one of the following letters:

  d = directory
  r = ordinary file
  b = block device
  c = character device
  * = beginning of a split file
  - = continutation of a split file

To identify where to restart the copy, select a volume that does not begin with a dash (-). To restart the copy, enter the following command line:

```
cp -BrostXC /dev/fd02 790 vol # /
where vol # = the volume number for the restart.
```

An example of the __part__ file is shown below.

If the copy process were terminated on volume number 6, it would be necessary to restart on volume number 5.

```
5 r /bin/su 000017
5 r /bin/tar 000027
5 r /bin/time 000011
5 r /bin/chlog 000011
5 r /etc/group 000001
5 r /bin/wp3 000001
5 * /bin/cu 000023 000000 000000
6
6 - /bin/cu 000000 000000 000023
6 r /bin/mount 000012
6 r /bin/umount 000011
6 * /etc/fsck 000028 000000 000020
7
7 - /etc/fsck 000020 000020 000008
```

Notes About Multiplan

For systems running earlier versions of Multiplan (1.2), there are some changes related to the printing of spreadsheets. In most cases, setting switches on printers to control pitch, lines/inch, draft mode, etc., are ignored. When you install Multiplan on a system running FOR:PRO, (or if you have Multiplan installed when you install FOR:PRO 1.7), the command "mpinit" is run as part of the installation/ upgrade. This command MUST be run by root or manager. "mpinit" sets the printer for printing from Multiplan (and ONLY Multiplan).

If, after you have installed or upgraded Multiplan, you want to change the settings for printing Multiplan spreadsheets, you must give the command "mpinit" from FOR:PRO. You MUST be logged in as root or manager for this command to work.

"mpinit" will prompt for the various possible settings. All questions MUST be answered; there are no defaults. Pressing the Cancel key will cancel the command.

Notes About the Flexible Disk Driver

Improper use of the flexible disk drive may cause your terminal or your system to not respond.

Either of these conditions may occur if you issue any command to access the flexible disk drive when you do not have a formatted flexible disk in the drive. These conditions may also occur if you open the door of the flexible disk drive while a flexible disk is in the drive and is in use. In this case the flexible disk drive will make a series of audible "beeps," indicating a violation. To avoid these problems follow these suggestions:

1. Commands that access the flexible disk drive include: all of the archiving features of both Fortune:Word and Multiplan, the Business Accounting System (BAS) end-of-day/start-of-day procedures, Order Processing, Sales Analysis, History Archiving, the backup (#30) selection of the Systems Utilities menu, all selections of the Product Maintenance menu, and various FOR:PRO commands including "mount" and "rdconf". Do not attempt to use any of these commands unless you are sure that a formatted flexible disk is properly inserted in the drive. If you're not sure that your flexible disk is formatted, either format the disk or have all other users of the system log off and perform these commands while logged in as root.

```
# sync <CR>
# rdconf /dev/fd02 <CR>
```

The system should display configuration information about the flexible disk. If it does, the flexible disk is formatted and can be used without problem. If the system responds with the message

```
rdconf: cannot read conf block of /dev/fd00
```

the flexible disk does not have a readable format at the beginning of the disk and will have to be formatted. Immediately shutdown your system to avoid possible damage. If the system does not respond with a message or a prompt(#) and the flexible disk drive light remains on, your terminal is probably hung. Insert a formatted flexible disk into the drive. Upon closing the door, the drive light should go out. Proceed to shutdown your system immediately. If the drive light remains on or you cannot shutdown, your system will not respond and powering down or resetting is necessary.

2. If there is a flexible disk in the drive, <u>do not</u> attempt to open the drive door unless you're sure the flexible disk is ready to be removed (unmounted). Before you remove your flexible disk from the drive, use the appropriate command from the application you are using, (i.e., Fortune:Word, Multiplan) to unmount the disk. These commands can be run without affecting the system, and can be run when you're not sure if a flexible disk is in the drive. The FOR:PRO counterpart to these commands is "umount /dev/fd02".

3. If it appears that your terminal will not respond, try the following before attempting to reset:

   a. Type **^Q** (depress the key labeled CTRL and **Q** simultaneously). This will inform FOR:PRO that your terminal is ready to receive data. If this restores the terminal, you probably inadvertently typed a **^S**.

   b. Type **^_** (depress the key labeled CTRL, the key labeled SHIFT, and the - key simultaneously). This will reset your terminal characteristics if they were accidentally changed.

   c. If the flexible disk light is on, insert a formatted flexible disk and close the door. If the terminal starts responding again, immediately shut down the system.

   d. If another terminal is functioning, log in as root. At the "#" prompt, type

      ```
      # sync
      ```

      Wait about 30 seconds, then reset your system. This will save as much as possible by writing everything to the hard disk.

SYSTEM CONFIGURATION GUIDELINES

A Fortune system can be expanded in a variety of ways. However, there are some limiting conditions for combining hardware and software. These limitations are summarized below.

	Fortune 32:16 PS	Fortune 32:16 XP
Maximum amount of memory	512KB	1024KB
Maximum number of printers	3	3
Maximum number of printers and FIS 1000s combined	5	13
Maximum number of Comm A's	1	3
Maximum number of ICC's (Comm B's)	1	1
PIO slot for Comm A controller:		
• with PROMs	Slot B	Slot B, C, or D
• without PROMs	Slot B	Slot B

If you are running any one of the following software products, your system must have at least 512KB of memory:

- Multiuser
- Extended Fortune:Word (formerly referred to as Fortune:Word Plus)
- Spelling Aids
- C, FORTRAN 77, or Pascal

A single-user system requires more than 256KB of memory to operate with a Comm A controller containing driver PROMs.

MAN PAGE UPDATES

The MAN pages that follow have been revised substantially for Release 1.7 and are intended to update Part 2 of the Introduction to FOR:PRO.

NAME

stty - set terminal options

SYNOPSIS

stty [-d ttyname] [option ...]

DESCRIPTION

Stty reports the characteristics of a tty, or, if option arguments are specified, it will change tty characteristics. If invoked with -d ttyname arguments, the tty is the one named in the argument, otherwise, stty assumes that the tty is on the standard output. (When a tty is named explicitly with a -d argument, the tty is accessed via calls to the devctl(2) system call, bypassing the normal opening and closing of the device which would have taken place on the standard output.)

Stty prints information to the standard error output. With no argument, it reports the speed of the terminal and the settings of the options which are different from their boot-time defaults. Other option arguments cause stty to print specific information:

all	All normally used option settings are reported.
everything	Everything stty knows about is printed.
speed	The speed of the tty is printed.
state	The state bits of the tty is printed.

What follows is a list of the arguments accepted by stty which affect the functioning of the tty line. With little or no accompanying explanation, the features of the function of the tty driver are listed, often with an indication that the feature is set or cleared. These features and their function in the tty driver and serial drivers are explained in great detail in the sio(4) and tty(4) manual sections.

Arguments that set speeds.

0	B0
50	B50
75	B75
110	B110
134	B134
134.5	B134

150	B150
200	B200
300	B300
600	B600
1200	B1200
1800	B1800
2400	B2400
4800	B4800
9600	B9600
19200	EXTA
exta	EXTA
extb	EXTB

Simple arguments that clear and set features.

For those arguments that do both a clear and a set, the clear is done first, then the set.

autoen	sets AUTOEN
-autoen	clears AUTOEN
bs0	clears BS1, sets BS0
bs1	clears BS1, sets BS1
cbreak	sets CBREAK
-cbreak	clears CBREAK
cooked	clears RAW
cr0	clears CR3, sets CR0
cr1	clears CR3, sets CR1
cr2	clears CR3, sets CR2
cr3	clears CR3, sets CR3
crtbs	clears LPRTERA, sets LCRTBS
-crtbs	clears LCRTBS
crterase	clears LPRTERA, sets LCRTERA
-crterase	clears LCRTERA
crtkill	clears LPRTERA, sets LCRTKIL
-crtkill	clears LCRTKIL
ctlecho	sets LCTLECH
-ctlecho	clears LCTLECH
decctlq	sets LDECCTQ
-decctlq	clears LDECCTQ
dtr	sets DTR_ON
-dtr	clears DTR_ON
echo	sets ECHO
-echo	clears ECHO
even	sets EVENP
-even	clears EVENP
exclude	sets XCLUDE
-exclude	clears XCLUDE
ff0	clears FF1, sets FF0
ff1	clears FF1, sets FF1
flusho	sets LFLUSHO

-flusho	clears LFLUSHO
hup	sets HUPCLS
hupcls	sets HUPCLS
-hupcls	clears HUPCLS
iwtcarr	sets IWTCARR
-iwtcarr	clears IWTCARR
lcase	sets LCASE
LCASE	sets LCASE
-lcase	clears LCASE
-LCASE	clears LCASE
litout	sets LLITOUT
-litout	clears LLITOUT
nl0	clears NL3, sets NL0
nl1	clears NL3, sets NL1
nl2	clears NL3, sets NL2
nl3	clears NL3, sets NL3
nomdmints	sets LNOMDMINTS
-nomdmints	clears LNOMDMINTS
nl	clears CRMOD
-nl	sets CRMOD
nodropmdm	sets LNODROPMDM
-nodropmdm	clears LNODROPMDM
noeotout	sets LNOEOTOUT
-noeotout	clears LNOEOTOUT
nohang	sets LNOHANG
-nohang	clears LNOHANG
noopendtr	sets LNOOPENDTR
-noopendtr	clears LNOOPENDTR
noopenrts	sets LNOOPENRTS
-noopenrts	clears LNOOPENRTS
odd	sets ODDP
-odd	clears ODDP
outflow	sets LOUTFLOW
-outflow	clears LOUTFLOW
owtcarr	sets OWTCARR
-owtcarr	clears OWTCARR
pageen	sets LPAGE_EN
-pageen	clears LPAGE_ON and LPAGE_EN
pageon	sets LPAGE_EN and LPAGE_ON
-pageon	clears LPAGE_ON
prterase	clears LCRTBS and LCRTKIL and LCRTERA, sets LPRTERA
-prterase	clears LPRTERA
raw	sets RAW
-raw	clears RAW
respectcarr	sets RESPECTCARR
-respectcarr	clears RESPECTCARR
retype	sets LRETYPE
-retype	clears LRETYPE
rts	sets RTS_ON
-rts	clears RTS_ON
tab0	clears XTABS, sets TAB0

tab1	clears XTABS, sets TAB1
tab2	clears XTABS, sets TAB2
tabs	clears XTABS
-tabs	sets XTABS
tandem	sets TANDEM
-tandem	clears TANDEM
teletex	sets LTELETEX
-teletex	clears LTELETEX
tilde	sets LTILDE
-tilde	clears LTILDE

Arguments for various terminal types.

These are handy names for setting delays if you have one of these terminals. For those arguments that do both a clear and a set, the clear is done first, then the set.

tn	clears ALLDELAY, sets CR1
tn300	clears ALLDELAY, sets CR1
tty33	clears ALLDELAY, sets CR1
33	clears ALLDELAY, sets CR1
tty37	clears ALLDELAY, sets FF1 and CR2 and TAB1 and NL1
37	clears ALLDELAY, sets FF1 and CR2 and TAB1 and NL1
vt05	clears ALLDELAY, sets NL2
05	clears ALLDELAY, sets NL2

Arguments that cause a one-time action.

Each of these arguments causes the invocation of the ioctl listed with it.

flushio	TIOCFLUSH
savemodes	TIOCSAVEMODES
ttstop	TIOCSTOP
-ttstop	TIOCSTART
waitcarrier	TIOCWAITCARR

Arguments that set special characters.

Each of these arguements is followed by another followed by another argument of argument of the character to which the function is assigned. For these arguments, you may also specify the character assignment as "u" or "undef", to set the value to be undefined. A value of "^x", a 2 character sequence is also interpreted a control character, with "^?" representing delete.

brk	t_brkc
eof	t_eofc
erase	sg_erase

flush	t_flushc
intr	t_intrc
kill	sg_kill
lnext	t_lnextc
nxhalf	t_halfc
nxline	t_linec
nxpage	t_pagec
quit	t_quitc
rprnt	t_rprntc
start	t_startc
stop	t_stopc
werase	t_werasc

Note: When you are in page mode, you can cause the next page to appear only if you strike the key you have set for t_pagec. Its default value is ^F. If you hit ^Q, the page mode is turned off and the screen will scroll to the end. If you are stopped in page mode and you hit cancel, the cancel will be seen by your program or the shell, but will not be echoed on the screen until you un-stop using ^F or ^Q (t_startc).

Arguments that do more complex things.

new	sets the line discipline to NTTYDISC.
newcrt	is the same as new crt.
crt	clears LPRTERA, sets LCRTBS and LCTLECH, and if the speed is greater or equal to 1200 baud, sets LCRTERA and LCRTKIL.
-crt	clears LCRTBS and LCTLECH and LCRTERA and LCRTKIL, sets LPRTERA.
pagelen	takes an additional argument to set the page length for page mode.
pgrp	takes an additional argument to set the process group for the tty.
old	sets the line discipline to OTTYDISC.
dec	is the equivalent of "new crt" plus it sets the erase character to ^?, the kill character to ^U, the interrupt character to ^C, and sets LDECCTQ.

SEE ALSO
ioctl(2), devctl(2), tset(1), sio(4), tty(4)

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Envisioneering, Inc.
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EnvisionScreen Menu Compiler/Handler. Here is a time-saving product capable of making your applications look more professional. If you do any developing at all, or if your company does any special consulting work along with sales of the Fortune, by all means get this product. With **EnvisionScreen** you can easily integrate any Fortune application you write into the Fortune menu system so that it can hardly be distinguished from a Fortune Systems product. Raw menus are easily created using the Fortune Word Processor. **EnvisionScreen**'s compiler then translates them into screen files that contain all highlighting information, reverse video information, all cursor information, and all the names of the appropriate programs or submenus to be called with each of the selections.

Steps involved in using **EnvisionScreen** are as follows:

1) Write your applications programs and decide how menus should be arranged .
2) Create raw menus with Fortune:Word or Fortune:Word Plus
3) Run **EnvisionScreen**'s compiler to produce actual working menu, with the following features:
   a) Selections can be highlighted in reverse video prior to execution
   b) Numeric Keypad can be used to make selections
   c) Cursor Keys move reverse video selection bar around in menu for "point and shoot" selection method
   d) "Prev Scrn" and "Next Scrn" keys work properly for menus
   e) Designer can arrange for a sub-program (such as a copyright message) to run when menu comes up or when it terminates, using "on_start" and "on_end" commands
   f) Permanently reversed or highlighted areas of the menu are easily designated
   g) Submenus can be tied to parent menus just as easily as programs can, using the "Submenu" command
   h) Any characters in either of the Fortune graphic sets can be made to appear in menus, for full graphic freedom. Can even be used to create graphic effects similar to those in the Fortune business program demonstration packages.
3) Install your application with its **EnvisionScreen** menu subsystem as a Fortune Global Menu selection, using the documentation and sample installation shellscript provided with **EnvisionScreen.**
4) **EnvisionScreen** run-time package occupies only about 30K, compared with Fortune's 70K or more.
5) Available June 30, 1983. Cost $500 to Fortune dealers and OEM's. Not intended as a retail product, but as a designer's tool.

A sample menu follows, in its raw word-processor form. As you can see from looking at it, it is very easy to set up. A page of program or submenu names corresponding to the menu selections, would be found in the actual raw menu. The compiler would compile this menu in a run time of about 5 seconds. The compiled menu comes up on the screen and runs substantially faster than the Fortune menus, due to the fact that it is compiled, whereas the Fortune menus are interpreted.

THE ADVOCATE
Law Office Information System
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MAIN MENU

CLIENT FUNCTIONS	TIME AND BILLING
11 Enter Client/Matter	21 Time Log: Enter/Examine
12 Client/Matter Query	22 Docket/Calendar Upkeep
13 Service Code Entry	23 Pro Forma Bill/Invoices
14 Archive Files	24 Post Payments
15	25 Aged Accounts
MANAGERIAL FUNCTIONS	**OFFICE TOOLS**
31 Managerial Reports	41 Word Processor
32 Day-End Upkeep	42 **For:Pack** WP Utilities
33 Data Backup Procedure	43 On-Line Research Service
34	44 Communications
35	45 Electronic Spread Sheet

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For:Pack Version 2.0——

Introduced in December of 1982, For:Pack provided what was initially intended to be a kind of "stop-gap" until the long-promised Fortune:Word Plus would be released by Fortune. Repeated delays in the release of Fortune's final word processor have led to the continuing and growing popularity of Envisioneering's For:Pack Utilities. For this reason, we have just completed an extensive reworking of all four utilities contained in For:Pack, so that now it looks and runs like a fully professional product.

Due to the enhancements, we now expect this product's popularity to continue even after the release of Fortune:Word Plus, last rumored to have been re-scheduled for September.

For:Pack Version 2.0 provides four important word processing utilities:

1. **Mail Merge Utility.** Easily, quickly, and cleanly merges mailing lists with form letters. Uses a simple approach to structuring both list and merge document. Includes single sheet feed pause control, background printing if continuous paper is used, full compatibility with **Informix** databases for extraction of mailing lists from a database, and all normal For:Word printing controls and special effects.
2. **Mailing Label Utility.** Generate formatted mailing labels from the same list used for the mail merge. Capabilities include: sorting on a single field; choice of output to screen, printer, or file; choice of how many labels across; choice of label height and width; and choice of three different formats for arrangement of name and address fields. Can do limited sort/select operations using word processor to manually edit temporary output list. Edited list can then be re-sorted on a different field, re-edited, etc.
3. **Fortune:Word to ASCII Conversion Utility.** Allows user to create files using Fortune's word processor and then strip the special For:Word codes out of the file so that the file can be used by a language processor or sent to another computer as a pure ASCII file. Usage is straightforward and simple. Text formatting and positioning codes are stripped, except newlines, which are passed through as carriage returns, and tabs, which are converted to four spaces.
4. **ASCII to Fortune:Word Conversion Utility.** This is the converse program to number 3, above. It allows user to use the Fortune word processor to edit standard ASCII files. Makes it possible to integrate the word processor with MultiPlan spreadsheets. Use MultiPlan to print a spreadsheet to a file, use For:Pack to convert the spreadsheet to Fortune:Word code, then use Fortune:Word to edit text into the spreadsheet before printing. Or create tables in MultiPlan, move tables into a Fortune:Word Document for easy editing, special printing effects, etc.

The new version of For:Pack is visually and functionally compatible with the Fortune Menu Systems. All menu selections can be made using either the normal numeric keys, or the numeric keypad, or the cursor arrow keys. Each selection appears in reverse video before the <EXECUTE> or <RETURN> keys are struck. Several internal improvements have been made to the programs and a number of features have been added to give the user more control.

The documentation for For:Pack has been completely rewritten. It now consists of a 22 page booklet, bound in its own cover, and three-hole punched to fit conveniently inside the Fortune Systems word processor manual. A number of examples are given in the way of explaining the use of the programs in For:Pack.

There will be several more modules added to For:Pack in the near future. These will include:

1. **For:Foot Floating Footnote Processor.**
2. **For:Scan Document and Directory Scanner.** (A research tool for locating files containing certain keywords and various complex combinations of keywords.)
3. **For:ms Processor.** (A quick-entry method for designing and filling out office forms of virtually any type.)
4. **For:Proof Proof Reading Aid.**

As always, Envisioneering provides full support for this and all the products we sell. Dealers who have purchased prior versions of For:Pack have been sent a field upgrade kit to bring all installations up to the current standard. For dealers ordering For:Pack for the first time, the list price is $295.00 with 50% margin. Minimum first order is for two copies. Shipments are UPS COD unless other arrangements have been made.

Contact Tom Murphy, Product Manager, to order.

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Informix Relational Database Management System. Here is a system that borders on being called "wonderful". We use it in-house and we feel it offers what no other system can offer to the applications developer, as well as to the individual end user who wants his own DBMS. In a matter of a few hours, you can put together database applications that would take days in most of the other popular relational systems. Your productivity as an applications developer or systems house can be very substantially increased.

The full **Informix** package includes several modules designed for fast, effortless production of databases, data input screens, and reports. It is a true multi-user package, written in 'C' for the UNIX environment, and fully compatible with the Fortune. The Package includes:

1) **Informix** database management kernel. This is the basic module which contains the **C-ISAM** algorithm that does the data storage and access functions on the hard disk. It also contains the following modules:
   a) **dbbuild**, the routine which compiles the actual database shema files and builds the database dictionary file. Schema files use English-like commands throughout and are easy to produce.
   b) **informer**, an interactive query language that performs select, project, and join operations--again, with simple English-like commands and all standard relational and Boolean operators. Data reported from the query can be sent to the screen, held in a temporary file, or sent to a permanent UNIX file (including device names, such as a printer). Queries can be saved if they are to be used again, and can be rerun later with an **execute** command.
   c) **enter2**, an interactive screen-oriented data entry program. **Enter2** includes a set of powerful **find** commands, allowing **finds** on partial field entries, relational entries, and approximate **finds** if no exact matches found. This is a one-file-at-a-time data entry system, similar to the **edit** command in **dBase II**. Far more sophisticated screens can be built using the **Performix** screen generator, described below.
   d) **dbstatus** is the manager's tool for manipulating the database itself. While **dbbuild** allows unrestricted restructuring of the database schema, **dbstatus** allows addition or deletion of indices (with or without duplicates allowed on indexed fields), starting and stopping audit trails for maximum data safety, **load**ing data from a regular ASCII file, printing the current schema, printing the current index and file status, renaming fields, and **unload**ing database files to UNIX files. A help command is included.
   e) **application language library**, allowing direct interfacing of **Informix** to five languages: **'C'**, **COBOL**, **BASIC**, **Pascal**, and **RPG**. This makes it possible to link non-database programs to the **Informix** system, as well as to produce very specialized applications the can be fully integrated to **Informix**.

   One of the most important characteristics about **Informix**, from a large applications standpoint, is that aside from its simplicity of implementation, it is FAST. A single record can be found in a database of up to one million records with a maximum of four disk accesses. We have checked the speed of **enter2** on one of our own applications, and we have found it to average about 500 milliseconds to **find** an 80-byte record on an indexed field in a database of over 57,000 records. On a Winchester based system with an operating system that runs at the speed of the Fortune's, we feel that is impressive.
2) **ACE Custom Report Writer.** A powerful, "non-procedural" (high-level) report writing language that can produce extremely sophisticated reports, very finely tuned with little effort. **Read** data from as many files in the database as you want. **Format** the data with virtually any arrangement you want, and **output** it to the screen, the printer, or any UNIX file.

   Features include:
   a) simple or compound sorts, on entire or partial fields in ascending or descending order
   b) prompts for interactive input from the terminal
   c) all arithmetic calculations
   d) user declared variables can be used freely
   e) parameters can be passed in when the report is run
   f) **if-then-else** statements, **let** statements, and **for** and **while** loops all available within all **format** sub-commands
   g) **First page header**, **page header**, and **page trailer** clauses
   h) Data grouping, using **before group of** and **after group of** clauses to print subtitles, messages, categories, group totals, group averages, etc.
   i) full formatting of numeric values with many different format options
   j) automatic aggregates of **count**, **percent**, **total** and **average** are available without programmer calculation
   k) date and time of run can be included in the report
   l) **skip to top of page** command
   m) full **C** interface library included.

3) **Performix Custom Screen Data Entry and Inquiry System.** This product puts the icing on the cake. In a matter of minutes (Really!), you can put together very complicated data entry screens that make user interaction with the database completely natural and comfortable. All data entries, updates and inquiries can be viewed the way you naturally picture the data.

a) Fields can be placed anywhere on the screen, with whatever labels you wish. Titles and separators can be placed wherever you wish.
b) Multiple screens can be linked together if more space is needed or if the logical division of the data fields warrants it.
c) Fields from multiple files can be on the screen simultaneously, joined by a common key.
d) Default values can be set for any fields, including the ability to set today's date as a default value, formatted in any of four ways.
e) Highlighting and reverse video can be set for entered data
f) Entered data can be automatically converted to upper or lower case
g) Fields can be displayed with protection from entry with a **no entry** attribute
h) Fields can be defined to have mandatory entry or so that data entered is subjected to range checking, table lookup, and/or operator verification by duplicate entry if extreme accuracy is necessary.
i) User defined help messages or comments can be made to appear when a field is prompted
j) Data inquiries of arbitrary complexity can be made by filling in the screen with what you want to see
k) Queries can be made with the full range of relational and Boolean operators
l) Successful queries create a "current list" of records meeting the criteria of the query, so that you can page singly through these records, having them displayed in your screen format for comfortable inspection.

We must admit, we initially had some doubts about this product -- it just seemed to have so many bells and whistles that we didn't know if it would do the jobs we needed done. But a couple of months' use have convinced us that this is one of the most powerful, easy to use, and PROFITABLE database programs we have seen. It is PROFITABLE for the following reason: we can bid a custom application job substantially lower, do the application much more quickly, do it much more attractively, and end up making much better margins than ever before. No kidding--try it!!

List price $1600.00. Dealer Margin 40% plus shipping.
Manual available separately -- $75.00 plus shipping.
Informix Demo Version (limits to 2KB file size) -- $100.00.