7. PC COHERENT Manual Pages

This section contains additional pages for the *COHERENT Command Manual* and the *COHERENT System Manual* which apply only to the PC version of COHERENT and to this release of COHERENT, as well as manual pages that have changed since the last major revision of the COHERENT manuals. The introductions in the *COHERENT Command Manual* and the *COHERENT System Manual* describe the format of these pages.

al describes the asynchronous line device driver. **console** describes the console device driver. **cron** is a way of scheduling periodic actions on the system. **cv** describes the Corvus hard disk device driver. **dos** transfers files to or from an PC DOS floppy disk. **dv** describes the Davong hard disk device driver. **epson** prints files on an Epson printer. **elle** is a screen editor. **fd** describes the floppy disk device driver. **fderror** interprets floppy disk error messages. **fdformat** formats an PC floppy disk. **hd** describes the generic hard disk device driver. **lp** describes the line printer driver. **ss** describes the Micronetworks hard disk device driver. **tc** describes the Tecmar hard disk device driver. **trout** is another screen editor. **xt** describes a built-in hard disk device driver.

NAME

al - asynchronous line driver

DESCRIPTION

/dev/al* are asynchronous line drivers for PC COHERENT. Each driver is assigned major device number 5.

/dev/al0 has minor number 0 and corresponds to line COM1. It uses interrupt level 4 and port addresses 0x3F8 to 0x3FF.

/dev/al1 has minor number 1 and corresponds to line COM2. It uses interrupt level 5 and port addresses 0x2F8 to 0x2FF.

/dev/tty50 and /dev/tty51 are linked to /dev/al0 and /dev/al1.

FILES

/dev/al0	
/dev/al1	
/dev/tty50	linked to /dev/al0
/dev/tty51	linked to /dev/al1

NOTES

The al driver works on the PC asychronous port card and the Tecmar 1st-Mate card. Tecmar claims the 1st-Mate requires signal DSR to function properly, but this is apparently not always the case.

NAME

console - console device driver

DESCRIPTION

/dev/console is the device driver for the console of a PC COHERENT system. The driver is assigned major device number 2 and minor device number 0. **/dev/tty20** is linked to **/dev/console**.

/dev/console interprets escape sequences in console output to control output on the console monitor. These escape sequences are similar to those used by Zenith Z-19 terminals or VT-52 terminals; software which drives the screen with the proper escape sequences will work on the PC console.

The special sequences include:

ESC = Enter alternate keypad mode.
ESC > Exit alternate keypad mode.
ESC @ Enter insert character mode.
ESC A Cursor up.
ESC B Cursor down.
ESC C Cursor right.
ESC D Cursor left.
ESC E Clear screen.
ESC H Cursor home.
ESC I Reverse index (reverse line feed).
ESC J Erase from cursor to end of screen.
ESC K Erase to end of line.
ESC L Insert line.
ESC M Delete line.
ESC N Delete character.
ESC O Exit insert character mode.
ESC Y *row col*
Direct cursor addressing. The *row* should be an ASCII character in the range ' ' to '8', with ' ' (ASCII 32) indicating row 1 and '8' (ASCII 56) indicating row 25. Similarly, the *col* should be an ASCII character in the range ' ' to 'o', with ' ' (ASCII 32) indicating column 1 and 'o' (ASCII 111) indicating column 80.
ESC b Erase from beginning of screen to cursor.
ESC c Blink mode (non-Z-19).
ESC d Non-blink mode (non-Z-19).
ESC e Intense video mode (non-Z-19).
ESC f Non-intense video mode (non-Z-19).
ESC j Save cursor position.
ESC k Restore cursor position.
ESC l Erase entire line.
ESC n Report cursor position.
ESC o Erase beginning of line.
ESC p Reverse video mode.
ESC q Non-reverse video mode.
ESC t Enter keypad shifted mode.
ESC u Exit keypad shifted mode.

ESC x *p* Set mode command; the driver recognizes the character *p* as part of the escape sequence, but ignores the command.
ESC y *p* Reset mode command; the driver recognizes the character *p* as part of the escape sequence, but ignores the command.
ESC z Reset to power-up configuration.

The console keyboard sends the expected ASCII characters for the usual alphabetic, numeric and punctuation keys. The numeric keypad normally sends editing escape sequences, as described below. When shifted or in num lock mode, it sends '0' to '9' and '.' instead. In num lock mode, **Shift** restores the normal escape sequences. In alternate keypad mode, the numeric keypad sends "ESC ? p" to "ESC ? y" for '0' to '9' and "ESC ? n" for '.'.

Home	sends cursor home.
Up	sends cursor up.
Pg Up	sends nothing.
Left	sends cursor left.
5	sends nothing.
Right	sends cursor right.
End	sends cursor to bottom left of screen.
Down	sends cursor down.
Pg Dn	sends nothing.
Ins	toggles insert mode.
Del	deletes the character at the cursor.

The effect of the remaining keys is described below.

F1-F10	currently sends nothing.
Esc	marks the beginning of an escape sequence; **ESC ESC** sends ASCII **ESC**.
Tab	sends ASCII **HT**.
Ctrl	combined with 'A' to '_' sends the corresponding ASCII control character; combined with **Return** sends ASCII **LF**; combined with **Backspace** sends ASCII **DEL**; combined with **<Scroll Lock>** sends signal **SIGINT**; combined with **Alt** and **Del** issues system reset. **<Ctrl-X>** cancels an escape sequence.
Shift	changes alphabetic keys from lower case to upper case, or from upper case to lower case in caps lock mode.
Alt	combined with **<Scroll Lock>** sends signal **SIGQUIT**; combined with **<Ctrl-Alt-Del>** issues a system reset.
Backspace	sends ASCII **BS**; with **Ctrl**, sends **DEL**.
Return	sends ASCII **CR**; with **Ctrl**, sends **LF**.
*	sends ASCII '*'.
Caps Lock	toggles caps lock mode.
Num Lock	toggles the interpretation of the numeric keypad, as described above.
Scroll Lock	toggles console output, like **<Ctrl-S>** and **<Ctrl-**

Q>; combined with <Ctrl>, sends signal SIGINT; combined with <Alt>, sends signal SIGQUIT.

- sends '-'.

+ sends '+'.

FILES

/dev/console

/dev/tty20 linked to **/dev/console**

SEE ALSO

COHERENT System Manual: **ascii**, **signal**

NOTES

There is currently no provision for other foreground/background color combinations with a PC color board.

NAME

cron - execute commands periodically

USAGE

/etc/cron&

DESCRIPTION

cron is a daemon which executes commands at preset times. The commands and their scheduled execution times are kept in the file **/usr/lib/crontab**.

Once each minute **cron** searches through the **crontab**. For each command stored there, **cron** compares the current time with the scheduled execution time and executes the command if the times match. When it finishes the search, **cron** sleeps until the next minute. Since it never exits, **cron** should be executed only once (customarily by **/etc/rc**).

The **crontab** consists of lines separated by newlines. Each line consists of fields separated by white space (tabs or blanks). The first five fields describe the scheduled execution time of the command. In order, they represent:

minute (0-59),
hour (0-23),
day of the month (1-31),
month of the year (1-12), and
day of the week (0-6, 0 meaning Sunday).

Each field may contain a single integer in the appropriate range, a pair of integers separated by a '-' (meaning all integers between the two, inclusive), an asterisk '*' (meaning all legal values), or a comma separated list of the above forms. The remainder of the line gives the command to be executed at the given time.

cron recognizes three special characters and escape sequences in the **crontab**. If a command contains the percent character '%', **cron** executes only the portion up to the first '%' as a command and passes the remainder to the command as its standard input. **cron** translates any percent characters in the remainder to newlines. The special interpretation of '%' can be prevented by preceding it with a backslash, '\%'. Finally, **cron** removes the sequence '**newline**' from the text before passing it to the shell **sh**; this can be used to make an entry in the **crontab** more readable.

cron is designed for commands that need to be executed regularly. One-shot commands should be handled by the **at** command.

FILES

/usr/lib/crontab for stored commands

SEE ALSO

init
COHERENT Command Manual: **at**
COHERENT Administrator's Guide

NAME

cu - terminal emulation and remote copy utility

USAGE

cu [-h] [-l line] [-s speed] [profile]

DESCRIPTION

cu provides facilities for terminal emulation and low-level file copying between COHERENT and COHERENT-like systems. **cu** acts as a terminal on the serial line identified to COHERENT as */dev/modem*. It can be used to execute commands on a remote system, or to transfer files to and from the remote system.

The following command line options are available:

-l line	Use `line' instead of /dev/modem
-s speed	Set the baud rate to `speed' (default: 1200)
-h	Select half-duplex operation

If the filename *profile* is specified, **cu** will read the file for commands and text, instead of taking input from the standard input device. Input lines which begin with the character `~' are commands, and must be one of the following:

~f	Select full duplex operation
~h	Select half duplex operation
~sspeed	Set baudrate to `speed'
~w	Wait for carrier

After reading and executing command lines in *profile* (those beginning with `~') **cu** pushes the rest of the file onto a stack of input files, from which it reads commands and text. As **cu** reads the input file (or standard input after all other input files have been read), it writes lines not beginning with `~' to the serial port. Lines beginning with `~' are commands to **cu**. The recognized interactive commands are:

~#	comment
~!	invoke an interactive shell on local system
~<file	redirect input from `file'
~>>file	redirect to `file', as well as to standard output
~>>:file	redirect to `file', but not to standard output
~>:file	append to `file'
~>	end output redirection
~Pn	pause `n' seconds
~q	exit cu and hang up phone line
~Q	exit cu without dropping phone line
~f	enter full-duplex (no echo) mode

~h	enter half-duplex (echo) mode
~s n	set serial port speed to `n'
~gfile	get `file' from remote system
~pfile	put `file' to remote system
~?	print a list of special commands
~~	send the character `~'

NOTES

Lines of text that begin with `~' will interpreted as commands. If this is not what was intended, the single `~' must be replaced by "~~" so that the `~' will be taken literally.

DIAGNOSTICS

cu exits with non-zero status if an error occurs.

NAME

cv - Corvus hard disk driver

DESCRIPTION

/dev/cv* are device drivers for the Corvus hard disk of a PC COHERENT system. Each driver is assigned major device number 9 and may be accessed as a block special device or a character special device.

The number of partitions on the drive depends on the size of the disk, which should be identified by a sticker on the rear of the disk drive. The following table summarizes the device file name, minor device number, default partition start sector, default partition sector size, and default use of each cv minor device supported by COHERENT.

cv0	0	0	5610	COHERENT root device
cv1	1	5610	5610	Unused
cv2	2	11220	5610	Unused
cv3	3	16830	5610	Unused
cv4	4	22440	5610	Unused
cv5	5	28050	5610	Unused
cv6	6	33660	4800	Unused

Prefixing an r to the name given above gives the name of the corresponding character device.

For a disk partition to be accessible from the COHERENT system, a device file must be present in directory /dev with the appropriate type, major and minor device numbers, and permissions. The **mknod** command creates a special file for a device. Unused partitions may be assigned to PC-DOS or other operating systems; they are not used by COHERENT except under user instructions.

The PC COHERENT distibution file system contains special files /dev/cv0 and /dev/cv1. The root file system is on /dev/cv0. The 5 megabyte Corvus has one additional partition. To build a file system for the additional partition, use the following command:

```
/etc/mkfs /dev/cv1 5610
```

For the 10 megabyte Corvus, use the additional commands:

```
/etc/mknod /dev/cv2 b 9 2
/etc/mkfs /dev/cv2 5610
/etc/mknod /dev/cv3 b 9 3
/etc/mkfs /dev/cv3 5610
```

FILES

/dev/cv*	block special files
/dev/rcv*	character special files

SEE ALSO

hd
COHERENT Command Manual: **mkfs, mknod**

NOTES

The Corvus driver assumes port address 0x02EE. The Corvus interface does not support interrupts or DMA transfers. The driver supports 5 and 10 megabyte drives, which are sometimes identified as 6 and 12 megabyte drives.

NAME

disable - disable port for dialup use

USAGE

disable *port...*

DESCRIPTION

disable removes one or more specified asynchronous *ports* from the allowable dialup ports. The name of each *port* is given as **tty***nn*, which is the name of the port as given in the directory **/dev**.

To check whether or not the port is **disabled**, use the command **ttystat**:

```
ttystat tty50; echo $?
```

If the return from **ttystat** is **1** then the port is enabled, if it is a **0** then the port is disabled.

When one *port* is specified, **disable** returns **1** if the port is successfully disabled, **0** if the port is still enabled. If multiple ports are specified, the return value is based on the last port found, unless no ports are found, in which case **disable** returns **-1**. An exit status of **-2** means that the command had an error.

EXAMPLE

To **disable** port **tty50**, enter

```
disable tty50
```

FILES

/etc/ttys -port characteristics file

SEE ALSO

enable, **ttystat**

NAME

dos - transfer files to/from IBM PC DOS floppy disk

USAGE

dos *option*[*modifier*] *device* [*file* ...]

DESCRIPTION

dos transfers files between COHERENT and an IBM PC DOS floppy disk. The given *device* should be a special file specifying a floppy disk drive; the drive should contain a formatted DOS floppy disk.

File naming conventions for COHERENT and DOS differ. When transferring a file from COHERENT to DOS, **dos** strips the file name of any leading directory prefixes and converts lower-case letters to upper-case letters. If the COHERENT file name contains '.', the DOS file name extension contains the characters after the '.'. The part of the file name preceding the '.' is truncated to eight characters, and the extension is truncated to three characters. When transferring files from DOS to COHERENT, **dos** converts upper-case letters to lower-case letters. If the DOS file name contains no extension, the COHERENT file name contains no '.'.

The available *options* are:

d Delete each *file* from the DOS floppy disk.

f Construct an empty DOS file system on the DOS floppy disk. This is analogous to the **mkfs** command for a COHERENT file system. If a *file* is given, place it on block 0 as a bootstrap.

r Replace each given *file* on the DOS floppy disk.

t Print a table of contents of the DOS floppy disk.

x Extract each given *file* from the DOS floppy disk. If no *file* is given, extract all files.

The available *modifiers* are:

a Transfer ASCII files, converting COHERENT newlines (ASCII **LF**) to/from DOS end-of-line (ASCII **CR LF**).

p Pipe: modifies the **r** or **x** option to read input from the standard input or write output to the standard output rather than a file, for use in pipelines. The command line must contain exactly one *file* argument.

v Verbose: print a description of each action taken on the standard error. When used with **t**, print additional information about the files and the floppy disk.

1 The DOS floppy disk is single-sided (default: double-

sided). This modifier is necessary only with the f option.

8 The DOS floppy disk has eight sectors per track (default: nine sectors per track). This modifier is necessary only with the f option.

SEE ALSO

COHERENT Command Manual: **basename, mkfs**

dos rc1 dev/fd0 *.c

NAME

dv - Davong hard disk driver

DESCRIPTION

/dev/dv* are device drivers for the Davong hard disk of a PC COHERENT system. Each driver is assigned major device number 10 and may be accessed as a block special device or a character special device.

The number of partitions on the drive depends on the size of the disk. The following table summarizes the device file name, minor device number, default partition start sector, default partition sector size, and default use of each dv minor device supported by COHERENT.

dv0	0	0	5202	COHERENT root device
dv1	1	5202	5202	Unused
dv2	2	10404	10404	Unused
dv3	3	20808	10404	Unused

Prefixing an **r** to the name given above gives the name of the corresponding character device.

For a disk partition to be accessible from the COHERENT system, a device file must be present in directory **/dev** with the appropriate type, major and minor device numbers, and permissions. The **mknod** command creates a special file for a device. Unused partitions may be assigned to MS-DOS or other operating systems; they are not used by COHERENT except under user instructions.

The PC COHERENT distibution file system contains special files **/dev/dv0** and **/dev/dv1**. The root file system is on **/dev/dv0**. There is one other partition for the 5 megabyte Davong disk. To build it, use the following command:

```
/etc/mkfs /dev/dv1 5202
```

For the 10 megabyte Davong, use the additional commands:

```
/etc/mknod /dev/dv2 10 2
/etc/mkfs /dev/dv2 10404
```

For the 15 megabyte Davong, also use:

```
/etc/mknod /dev/dv3 10 3
/etc/mkfs /dev/dv3 10404
```

FILES

/dev/dv*	block special files
/dev/rdv*	character special files

SEE ALSO

hd

COHERENT Command Manual: **mkfs**, **mknod**

NOTES

The driver assumes the "new style" disk drive, with fast buffered seek. The COHERENT installation procedure prompts for the size of the disk in Mbytes; the appropriate response is 5, 10 or 15.

The driver uses interrupt level 5, DMA channel 3, and assumes a port address of 0x0320. The drives are assumed to have 306 cylinders formatted with 17 sectors per track. The 5, 10, and 15 Mbyte drives have 2, 4, and 6 heads respectively. Programs which use the raw device interface must read whole sectors into buffers which do not straddle DMA boundaries.

The Davong drive should be powered on before the PC.

NAME

elle - screen editor

USAGE

elle [*file*]

DESCRIPTION

elle is a screen-oriented text editor. It provides the ability to enter, change, or delete text and write all or part of the text out to a file.

If **elle** is called with the name of an existing *file*, it will read the **file** into a buffer and let you edit it in the buffer. If the *file* does not exist, the buffer will be created with the name of the *file*, although the *file* will not be created until the buffer is written out to it.

COMMAND SUMMARY

This is a summary of all the **elle** commands. The **Ctrl** commands require that you hold down the <**Ctrl**> (<**CONTROL**>) key while striking the other character key. The **Esc** commands require that you strike the <**Esc**> (<**ESCAPE**>) key *before* hitting the other character key. The **DEL** commands refer to the <**DELETE**> key.

The commands are listed alphabetically in four groups: the **Ctrl** commands, the **DEL** command, the **Ctrl-X** commands, and the **Esc** commands.

For more information, see the document *An introduction to elle*.

Ctrl-@	set mark at cursor position.
Ctrl-A	move to beginning of current line.
Ctrl-B	move backward one character.
Ctrl-D	delete current character.
Ctrl-E	move to end of current line.
Ctrl-F	move forward one character.
Ctrl-G	abort current command.
Ctrl-H	move backward one character.
Ctrl-I	insert tab.
Ctrl-K	kill to end of line.
Ctrl-L	refresh current screen.
Ctrl-N	move to next line.
Ctrl-O	open new line
Ctrl-P	move to previous line.
Ctrl-Q	quote next character.
Ctrl-R	reverse search for string.
Ctrl-S	search forward for string.
Ctrl-SPACE	set mark where cursor is, on most terminals.
Ctrl-T	transpose characters.
Ctrl-U Ctrl-L	refresh only current line.
Ctrl-U	multiply next command by 4.
Ctrl-V	move to beginning of next page.
Ctrl-W	kill between cursor and mark.

Ctrl-Y	un-kill last killed.
DEL	delete previous character.
Ctrl-X !	escape to the shell.
Ctrl-X 1	make one window.
Ctrl-X 2	make two windows (split screen).
Ctrl-X B	select buffer.
Ctrl-X F	set line length for filling.
Ctrl-X K	kill buffer.
Ctrl-X O	go to other window.
Ctrl-X ^	grow window.
Ctrl-X Ctrl-B	show names of buffers.
Ctrl-X Ctrl-C	quit **elle**.
Ctrl-X Ctrl-E	write region to file.
Ctrl-X Ctrl-F	find a file and make a buffer for it.
Ctrl-X Ctrl-I	insert file.
Ctrl-X Ctrl-L	make region lowercase.
Ctrl-X Ctrl-O	delete blank lines around cursor.
Ctrl-X Ctrl-R	read new file.
Ctrl-X Ctrl-S	save file.
Ctrl-X Ctrl-U	maks region uppercase.
Ctrl-X Ctrl-W	write buffer to file.
Ctrl-X Ctrl-X	exchange cursor and mark.
Ctrl-X Ctrl-Z	quit **elle**.
Esc %	query replace.
Esc ;	inserts comment (for C programs).
Esc <	move to beginning of buffer.
Esc >	move to end of buffer.
Esc B	move backward one word.
Esc C	capitalize word.
Esc Ctrl-W	append next kill.
Esc D	kill forward one word from the cursor.
Esc DEL	kill previous word.
Esc F	move forward one word.
Esc H	mark paragraph.
Esc I	inserts indentation equal to previous line.
Esc L	make next word lowercase.
Esc Q	fill paragraph to set line length.
Esc T	transpose words.
Esc U	make next word uppercase.
Esc V	move to beginning of previous page.
Esc W	copy region.
Esc Y	un-kill next most recently killed.
Esc [	move backward one paragraph.
**Esc **	delete spaces around cursor.
Esc]	move forward one paragraph.
Esc number Ctrl-L	move cursor "number" of lines from top of screen.
Esc*number*	set line length.
Esc*number*	multiply next command by "number".
Esc ~	mark buffer as not modified.

NAME

enable - enable port for dialup use

USAGE

enable *port...*

DESCRIPTION

enable allows one or more specified asynchronous *ports* to be used as dialup ports. The name of each *port* is given as **tty***nn*, which is the name of the port as given in the directory **/dev**.

To check whether or not the port is **enabled**, use the command **ttystat**:

```
ttystat tty50; echo $?
```

If the return from **ttystat** is **1** then the port is enabled, if it is a **0** then the port is disabled.

When one *port* is specified, **enable** returns **1** if the port is successfully enabled, **0** if it is not. If multiple ports are specified, the return value is based on the last **port** found, unless no ports are found, in which case **enable** returns **-1**. An exit status of **-2** means that the command had a serious error.

EXAMPLE

To **enable** port **tty50**, enter

```
enable tty50
```

FILES

/etc/ttys -port characteristics file

SEE ALSO

disable, **ttystat**

NAME

epson - print files on Epson printer

USAGE

epson [**-cdfrw8**] [**-b** *head*] [**-i***n*] [**-o** *ofile*] [**-s***n*] [*file ...*]

DESCRIPTION

epson prints each *file*, or the standard input if none is given, on an Epson MX-80 printer. **epson** normally sends its output directly to the line printer **/dev/lp**. It recognizes the **nroff** output sequences for boldface and italics and normally converts them to emphasized print and italics.

The available options are:

-b *head*
Print the given *head* as a double width banner at the top of the first output page.

-c Use compressed printing mode.

-d Print boldface as double strikes. Normally, **epson** recognizes the sequence "*c*\b*c*" as boldface and prints *c* in emphasized printing mode. **-d** is useful in conjunction with **-c**.

-f Do not print a formfeed at the end of each *file*.

-i*n* Indent *n* spaces at the start of each output line.

-o *ofile*
Send output to *ofile* instead of **/dev/lp**.

-r Print all characters in Roman; do not use italics. Normally, **epson** recognizes the sequence "_\b*c*" as italic and prints *c* in its italic character set.

-s*n* Print *n* newlines at the end of each line. *n* must be 1, 2, or 3; the default is 1.

-w Use double width printing mode.

-8 Print lines with vertical spacing of eight lines per inch instead of the default six lines per inch.

FILES

/dev/lp line printer

SEE ALSO

COHERENT Command Manual: **lpr**, **nroff**, **pr**

DIAGNOSTICS

epson prints appropriate messages on the standard error if it cannot open a *file* or if an argument is incorrect.

NAME

fd - floppy disk driver

DESCRIPTION

/dev/fd* are device drivers for the floppy disks of a PC COHERENT system. Each driver is assigned major device number 4 and may be accessed as a block special device or a character special device.

The driver handles up to four 5.25 inch disk drives, each in one of several formats. The default floppy disk driver is **/dev/fd0**, which is normally linked to **/dev/f9d0**. The least significant four bits of the minor device number identify the type of drive. The next least significant two bits identify the drive. The following table summarizes the device name, minor device number, sectors per track, partition sector size, and characteristics for each **fd** drive 0 minor device supported by COHERENT.

fds0	0	8	320	SSDD
fdd0	1	8	640	DSDD
fdq0	2	8	1280	DSQD
f9s0	3	9	360	SSDD
f9d0	4	9	720	DSDD
f9q0	5	9	1440	DSQD

Prefixing an **r** to the name given above gives the name of the corresponding character device. Corresponding devices for drives 1, 2 and 3 have minor numbers with offsets of 16, 32 and 48 from the minor numbers given above.

For a diskette to be accessible from the COHERENT system, a device file must be present in directory **/dev** with the appropriate type, major and minor device numbers, and permissions. The **mknod** command creates a special file for a device.

FILES

<fdioctl.h>	driver command header file
/dev/fd*	block special files
/dev/rfd*	character special files

SEE ALSO

COHERENT Command Manual: **mkfs**, **mknod**
PC COHERENT Command Manual: **fderror**, **fdformat**

DIAGNOSTICS

The driver reports any error status received from the controller and retries the operation several times before reporting an error to the program which initiated an operation. The **fderror** command interprets diskette error status messages in somewhat clumsy English.

NOTES

The driver assumes the disk is formatted with 8 sectors of

512 bytes each per track. It uses surface addressing rather than cylinder addressing; it increments tracks before heads when computing sector addresses, so it uses the first surface completely before it uses the second surface.

Programs using the raw device interface must read whole sectors into buffers which do not straddle DMA boundaries. Treating a single sided diskette as double sided or a 48tpi drives as 96tpi will certainly cause errors. Quad density drives have not proven very reliable. The use of drives 2 and 3 is untested.

The ioctl commands for diskette formatting have changed from previous releases of PC COHERENT. **ioctl** (**FDFORMAT**, *buf*) formats the diskette according to the parameter block *buf*. The parameter block consists of header addresses for the sectors on the diskette, four bytes per sector: cylinder, head, sector, and log2(size)-7.

NAME

fderror - interpret floppy disk error

USAGE

/etc/fderror *status* ...

DESCRIPTION

The COHERENT system on the PC reports floppy disk errors with an error message giving seven status bytes received from the floppy disk controller. **fderror** interprets the status bytes and prints an error message. The given *status* should be the exact sequence of numbers printed by the system when the floppy disk error occurred.

fdformat formats a floppy disk. **mkfs** builds a COHERENT file system on a formatted floppy disk. **mount** mounts a floppy disk containing a file system to allow access to it through the COHERENT directory structure. **umount** unmounts a floppy disk.

SEE ALSO

fdformat
COHERENT Command Manual: **mkfs**, **mount**, **umount**
PC COHERENT System Manual: **fd**

NAME

fdformat - format floppy disk

USAGE

/etc/fdformat [*option ...*] *special*

DESCRIPTION

fdformat formats a floppy disk on a PC COHERENT system. The given *special* should be the name of the special file corresponding to the floppy disk drive.

The available *options* include:

-i *number*
Use *number* (0-7, default: 3) as the interleave factor in formatting.

-o *number*
Use *number* (*default*: *0*) as the skew factor for sector numbering.

-v Verify formatting and verify data written with the **-w** option.

-w *file*
Format the floppy disk and then copy *file* to it track by track. The raw device should be used.

mkfs builds a COHERENT file system on a formatted floppy disk. **dos** builds an MS-DOS file system on a formatted floppy disk and transfers files to or from it. **mount** mounts a floppy disk containing a file system to allow access to it through the COHERENT directory structure. **umount** unmounts a floppy disk.

SEE ALSO

dos, **fderror**
COHERENT Command Manual: **mkfs**, **mount**, **umount**
PC COHERENT System Manual: **fd**

DIAGNOSTICS

When errors occur on floppy disks devices, the system prints an error code describing the error. **fderror** interprets the error code.

NOTES

fdformat formats a track at a time. **fdformat** can be interrupted between tracks, which may result in a partially formatted floppy disk.

NAME

funkeys - set or display the function keys on PC keyboards

USAGE

/bin/funkeys [**-vsdf**] [**file**]

DESCRIPTION

funkeys assigns a string to each of the function keys (F1 - F10 and shifted versions) on the PC keyboard. Its functions are as follows:

s	Set the keys to the strings read from standard input. The user is prompted for the string to assign to F1 - F10, Shift-F1 - Shift F10, Alt-F1 - Alt-F10, and Shift-Alt-F1 - Shift-Alt-F10.
d	Display the current values of all keys that are assigned.
v	In conjunction with the s option, display the values that are being set.
f	Read settings from *file* arg.

In setting the keys the character '^' is used to denote <Ctrl>, and this function is escaped with '\'. Thus the inputs

```
/etc/mount\\n
/etc/umount
cd /usr/games
ctrl-D
```

would assign "/etc/mount\n" to F1, "/etc/umount" to F2, "cd /usr/games" to F3, and the NULL string to the remaining 37 keys.

NAME

hd - generic hard disk devices

DESCRIPTION

/dev/hd* are generic hard disk devices for PC COHERENT. Generic device names are links to hardware-specific device drivers.

Generic device names promotes device-independence. For example, **/dev/hd0** is linked to **/dev/dv0** on a system with a Davong hard disk and is linked to **/dev/cv0** on a system with a Corvus hard disk. The COHERENT documentation uses **/dev/hd0** to refer to the hard disk on either system.

FILES

/dev/hd*

SEE ALSO

cv, dv, ss, tc, xt

NAME

hp - filter ascii text to the HP LaserJet printer

USAGE

/usr/bin/hp [**-l**] [**-a**] [**-i***marg*] [**-p***lines*] [**-t***top*] file ...

DESCRIPTION

hp is a filter for sending characters to a Hewlett-Packard Laserjet printer. It initializes the printer and sends text in page-size chunks separated by formfeeds. **hp** converts **nroff** output for bold and and italics (underscore) into escape sequences. At the end of each job, **hp** resets the printer to the default settings and ejects the page. If the *file* is not specified, standard input is read.

hp prints files out as it parses the command line. This allows changing the setup with each new file.

The command line options are:

-l Select landscape (horizontal) mode. Page and text length are set to 51 lines.

-a Print single quotes ' slanted, by default single quotes appear straight up and down. Back quotes always appear slanted.

-i*marg* Indent the left margin of the text *marg* spaces. The default is 0. For **nroff** output files not indented using the **.in** command in **nroff**, an indentation of 10 spaces gives a centered output page.

-p*lines* Print *lines* per page. In portrait mode, the default is 66 lines.

-t*top* Set top margin of page *top* lines down. The default is zero lines.

EXAMPLES

To print the **nroff** output file **foo** with a top margin of 2 lines, a page length of 64 lines, and an indentation of 10 spaces; and the file **bar** with a top margin of 6 lines, an indentation of 11 spaces, and a page length of 60, enter:

```
hp -t2 -i10 -p64 foo -t6 -i11 -p60 bar | hpr
```

SEE ALSO

hpr, **hpskip**, **lpr**, **nroff**.
COHERENT System Manual: **hpd**.

NOTES

There is an unprintable region on the top of the paper, the right side, and the bottom. With a top margin of zero and a page length of 66 (the defaults), the first two lines of each page and the last two lines of each page will not ap-

pear; and all lines longer than 80 characters (including indentation) will be truncated. If these lines contain non-white-space, the top margin should be adjusted. **nroff** files processed with the **-ms** option will not need to be adjusted.