

NAME

fdread - read floppy disks

SYNOPSIS

fdread [-**qr**] [-**d** *device*] [-**f** *fillbyte*] [-**o** *file*]

fdread [-**d** *device*] -**I** *numsects* [-**t** *trackno*]

DESCRIPTION

The **fdread** utility reads floppy disks. Effective read blocking based on the track size is performed, and floppy-specific error recovery of otherwise bad blocks can be enabled.

The **fdread** utility will always read an entire floppy medium, and write its contents to the respective output file. Unlike other tools like **dd**(1), **fdread** automatically uses a read block size that is more efficient than reading single blocks (usually one track of data at a time), but falls back to reading single floppy sectors in case of an input/output error occurred, in order to obtain as much valid data as possible. While **fdread** is working, kernel error reporting for floppy errors is turned off, so the console and/or syslog are not flooded with kernel error messages.

The **fdread** utility accepts the following options:

- q** Turn on quiet mode. By default, the medium parameters of the device are being written to standard error output, progress will be indicated by the approximate number of kilobytes read so far, and errors will be printed out in detail, including the information about the location of recovered data in the output. In quiet mode, none of these messages will be generated.
- r** Enable error recovery. By default, **fdread** stops after the first unrecovered read error, much like **dd**(1) does. In recovery mode, however, one of two recovery actions will be taken:
 - If the error was a CRC error in the data field, the kernel is told to ignore the error, and data are transferred to the output file anyway. *Note that this will cause the erroneous data to be included in the output file!* Still, this is the best recovery action that can be taken at all.
 - All other errors are really fatal (usually, the FDC did not find the sector ID fields), thus a dummy block with fill bytes will be included in the output file.

Unless operating in quiet mode, the action taken and the location of the error in the output file will be displayed.

-d *device*

Specify the input floppy device, defaulting to */dev/fd0*. The parameter *device* must be a valid

floppy disk device.

-f *fillbyte*

Value of the fill byte used for dummy blocks in the output file in recovery mode. Defaults to '0xf0'. (Mnemonic: "foo".) The value can be specified using the usual C language notation of the number base.

-o *file* Specify the output file to be *file*. By default, the data will be written to standard output.

-I *numsects*

Read *numsects* sector ID fields, and write out their contents to standard output. Each sector ID field contains recorded values for the cylinder number ('C'), the head number ('H'), the record number (sector number starting with 1) ('R'), and the *sector shift value* (0 = 128 bytes, 1 = 256 bytes, 2 = 512 bytes, 3 = 1024 bytes) ('N'). The **-I** option is mutually exclusive with all other options except **-d** *device* and **-t** *trackno*.

-t *trackno*

Specify the track number (cylinder number * number of heads + head number) to read the sector ID fields from; only allowed together with the **-I** *numsects* option.

FILES

/dev/fd0 Default device to read from.

EXIT STATUS

The **fdread** utility sets the exit value according to `sysexits(3)`. In recovery mode, the exit value will be set to `EX_IOERR` if any error occurred during processing (even in quiet mode).

DIAGNOSTICS

Unless running in quiet mode, upon encountering an error, the status of the floppy disc controller (FDC) will be printed out, both in hexadecimal form, followed by a textual description that translates those values into a human-readable form for the most common error cases that can happen in a PC environment.

The FDC error status includes the three FDC status registers 'ST0', 'ST1', and 'ST2', as well as the location of the error (physical cylinder, head, and sector number, plus the "sector shift value", respectively). See the manual for the NE765 or compatible for details about the status register contents.

The FDC's status is then examined to determine whether the error is deemed to be recoverable. If error recovery was requested, the location of the bad block in the output file is indicated by its (hexadecimal) bounds. Also, a summary line indicating the total number of transfer errors will be printed before

exiting.

SEE ALSO

dd(1), fdwrite(1), sysexits(3), fdc(4), fdcontrol(8)

HISTORY

The **fdread** utility was written mainly to provide a means of recovering at least some of the data on bad media, and to obviate the need to invoke dd(1) with too many hard to memorize options that might be useful to handle a floppy.

The command appeared in FreeBSD 5.0.

AUTHORS

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BUGS

Concurrent traffic on the second floppy drive located at the same FDC will make error recovery attempts pointless, since the FDC status obtained after a read error occurred cannot be guaranteed to actually belong to the erroneous transfer. Thus using option **-r** is only reliable if *device* is the only active drive on that controller.

No attempt beyond the floppy error retry mechanism of fdc(4) is made in order to see whether bad sectors could still be read without errors by trying multiple times.

Bits that are (no longer) available on the floppy medium cannot be guessed by **fdread**.