MATOMARK / 22 MEGABYTE

ENHANCEMENTS

(COMMODORE VERSION)

MATOR SHARK WINCHESTER DOS ENHANCED FEATURES

The following notes provide a brief description of the extra facilities
which the MATOR SHARK WINCHESTER DOS provides in addition to the
emulation of the Commodore PET DOS Version 2.5.

1. As mentioned in the MATOR SHARK System Description, the Winchester
disc drive contained within the SHARK is partitioned into two logical
drives, each containing 299 tracks and each track containing 138 256-byte
sectors. Track 0 of the disc is reserved for the MATOR Volume Header,
Error Map and Reallocation Map, and tracks 599 and above are reserved for
defective sector reallocation.

The disc is physically formatted at the factory but if required may be
reformatted using the "KILL" command. This is a new command within the
DOS. Its format is "KILL:i" where i is the Interleave Sequence Number. At
the factory the disc has been formatted with i=7. This number provides
the facility to space out, round a track, logically consecutive sectors,
i-1 sectors apart.

This facility allows the user to optimise his physical disc layout to
match his controller/host processor speed.

The "KILL" command takes approximately 25 minutes to execute. During a
disc (re)format any defective sectors are reallocated in track 599
onwards.

The DOS "NEW" command simply (re)initialises one or other of the two
logical discs into PET-compatible format i.e. it sets up the BAM and
irectory of the disc in question. Therefore the "NEW" command does not
take long to execute - approximately 20 seconds. If a disc ID is not
specified, a default ID of "spaces" is used.

2. The maximum capacity of an individual Relative File has been increased
to over 1.7 Megabytes, compared with the 170 KB maximum imposed by the
8050 DOS. Otherwise, Relative File operation is as for the 8050.

3. The following error messages differ from those produced by the 8050
DOS. They are all related to the physical disc controller.

ERROR NO.	MESSAGE	MEANING
22	READ ERROR	Illegal Disc Command (System error)
23	READ ERROR	Read Error after Retry Count exhausted
25	WRITE ERROR	Write Error after Retry Count exhausted
26	WRITE PROTECT ON	Protect error
27	DEFECT OVERFLOW	Out of space in Defective Sector Reallocation Area

Errors 22 and 26 will not occur in normal running. A user cannot WRITE
PROTECT the disc or issue an ILLEGAL DISC COMMAND.

All other error messages have the same meaning as in the 8050 DOS.

4. Two new commands have been implemented to help the SHARK user recover
from disc error situations.

In the unlikely event of an irrecoverable read/write error (reported by
error codes 23 or 25), the user has available the following facilities -

1) BLOCK-CORRECT (B-C)
The syntax for this command is similar to that of the "BLOCK READ"
command. It is "B-C:"ch,dr,t,s. The effect of this command is to reformat
the selected sector, preserving the data held within the sector if at all
possible, and will probably clear the read/write error. If the error is
not cleared then the "BLOCK DEFECTIVE" command should be used (see
below).

ii) BLOCK DEFECTIVE (B-D)
The syntax for this command is again similar to that of the "BLOCK READ"
command. It is "B-D:"ch,dr,t,s. The effect of this command is to
reallocate the selected sector, preserving the data held within the
sector if at all possible, into the defective sector reallocation area.
Subsequently, any reference to this sector will automatically be
redirected to its new physical location on the disc.

For both these commands, a channel number must be specified, but it is of
no particular significance.

If it is practical to do so, the data in the reformatted/reallocated
sector should be checked for correctness, since there can be no guarantee
that it has been read from the faulty sector correctly.

5. By switching Switch number 8 of the controller's internal switch bank
ON, memory access commands (M-R, M-W etc) using an address in the range
1100 Hex to 1FFF Hex (the 8050 disc buffer areas) will automatically be
redirected to the equivalent SHARK disc buffer locations. By switching
this switch OFF, no redirection will take place. In either case,
addresses outside the above range are unaffected.

6. Please note that the microprocessor used within the SHARK controller
is an Intel 8085A, rather than a MOS 6502 as in the Commodore 8050. An
Intel 8085A will not execute 6502 assembler code!