

For Superboard 600 and C1P

**YE-OSI DOS
SUPPLEMENT
DOSSUP V5.3**

1984 by TB

Revised 2023

```

*** DOSSUP V5.3 (DOS SUPPLEMENT) ***
*** WRITTEN IN 1984 BY TB ***
*** UPDATE TO MATCH ROM V52 ***
*****

```

To run YE-OSI DOS 3.53, it is mandatory to

- replace the OSI Boot ROM by EPROM1_V52.ROM (\$F800..\$FFFF)
- add 5,5k RAM memory to
 - \$E000-EFFF = (4k)
 - \$F200-F7FF = (1,5k)
- add a disk controller board from ELEKTOR or an OSI 610 Floppy board
- main memory requirements are min. 8k up to 40k with Hires Mode
- needs minor modifications on OSI 610 board to allow 3.5 & 5.25 inch drives
- YE-OSI DOS 3.53 requires an inverted Write Enable (WE) to prevent data corruption for drives without Head Load mechanism. There is a Data Separator board available/needed, that can provide this inverted signal.



```

*****
** Extended BASIC commands after YE-OSI DOS boot (file DOSSUP) **
*****

```

With DOSSUP you will provide additional BASIC commands as:

DIR, SEL, DSAV, DFMT, DCHK, DREN for disk file management

EOF, SEQS, SEQW, VER for disk data management

CLG, GDIS, SCR for Text and Low-resolution graphics

PTR for general purpose

DOSSUP will be loaded into memory at location \$E900 to 0xEFFF

Remark: Basic command parameters in [] are optional.

```

*****
***** QUICK START GUIDE *****
*****

```

DOSSUP provides some of the following BASIC commands to manage disk drives

EXAMPLES:

Show file directory of currently selected disk drive

→ DIR

Select the second disk drive 2, Boot drive is drive 0

→ SEL 2

Save current Basic program to disk drive 0

→ DSAV "TEST",0,0,0

will save under filename "TEST" onto drive 0 as a read write basic program.

Load back a Basic program from currently selected disk drive

→ DLOD "TEST"

The BASIC program "TEST" will be loaded into memory

Rename the Basic program "TEST" from disk drive 0 into "HELLO"

→ DREN "TEST","HELLO",0

The BASIC program "TEST" will be renamed to "HELLO" on disk 0

Delete a Basic program from disk drive 0

→ DREN "HELLO","",0

The BASIC program "HELLO" will be deleted from disk 0

**** DIR ***** COMMAND:

DIR ["String"]

DIR will list the current active file directory. If no "String" is entered all files will be displayed. The length is shown in 256-byte sectors. The listing will pause after 9 file names. To continue press, ENTER, any other key will end the directory listing.

DIR "String" will list all files starting with the "String" letters. For example: DIR"DO" will list all files starting with letters "DO..".

The file type is specified as:

BAS = BASIC Token Memory loads typically to \$0300

COM = MCODE Binary Code

SEQ = SEQUENCIAL Data values separated by comma

VAR = VARIABLE Other type of data

Protection status:

RWn = Read/Write normal

RWa = Read/Write autorun

R n = Read Only normal

R a = Read Only autorun

```

DEVICE 0
SECTORS FREE 560

NAME      LENGTH  TYPE
DOSSUP    7      COM  RWa
FORMAT    4      BAS  RWa
DCOPY     8      BAS  RWn

```

***** SEL ***** COMMAND:

SEL DRIVE

will select "DRIVE" number 0...3. If FAT was changed, FAT is saved before.

IMPORTAT !

Be careful removing and inserting disk into the drive during operation. YE-DOS will not automatically detect, when a new disk is inserted!!

To reload the Disk FAT directory, always type SEL 0..3, to get the current disk content. Otherwise, the disk content may get corrupted.

Only inserted disk will be detected as valid drives. Use DISK command to refresh the drive valid information.

Physical Drive 1

Side A: >Drive number 0

Side B: >Drive number 1

Physical Drive 2

Side A: >Drive number 2

Side B: >Drive number 3

Remark: Emulation supports drive number 0 and 2 only.

***** DSAV ***** Command:

DSAV "FILENAME", DRIVE, TYPE, PROTECTION

> 1st VERSION <

DSAV stands for Disk Save File and will write a BASIC program, Binary data or other data to disk. "FILENAME" are max 6 characters, longer names are ignored.

When DSAV has been executed, active drive will change to the "DRIVE" number. Check the variable ERR, if any Error occurred.

For the file attributes Type and Protection, see the following valid codes.

***** TYPE codes:**

BAS=0, COM=1, SEQ=2, VAR=3

***** PROTECTION codes:**

RWn=0 RWa=1 ROn=2 ROa=3

Example: DSAV "TEST",2,0,0 will save a BASIC program in memory with the filename "TEST". BASIC programs require no address range information.

If a file already exists and file protection is "Read Only", like 2 or 3, DSAV will fail. In such a case, you have to remove the file protection with DREN (Disk File Rename) first. For example, DREN "TEST","TEST",0,0,0

******* DSAV ***** Command:**

DSAV "FILENAME", DRIVE, TYPE, PROTECTION, START, END

> 2nd VERSION <

Types COM, SEQ and VAR are saved in the same way. These file types (Binary Code, Sequential or Variable) are written to the disk like binary data, but with its specific Type identification.

Example: DSAV "TEST", 0, 1, 1, 32768, 32768+1023 will write 1kb binary data to drive 0 as an autorun RW file (RWa). Execution will start after loading the file back at address 32768 in this example.

**** **SEQS** ***** COMMAND:

SEQS Address

SEQS or Sequence Set Read file pointer will set the pointer to the "Address" in memory.

The purpose is to READ strings or numbers from a given memory location.

These data elements have to be "comma" separated.

The next READ operation will get the stored strings and numbers in a typical DATA read operation.

***** **SEQW** ***** COMMAND:

NewAddress = SEQW Address, Parameter1, P2, ..

SEQW or Sequence Write data, will put strings or numbers to the Address Pointer. The Command will return the new Address pointing to the next Input.

SEQS and SEQW are used to store string or variables in memory that can be saved or loaded to or back from disk. Memory space selection and pointer control has to be done by software.

***** **EOF** ***** COMMAND:

[Value=] EOF

EOF will return TRUE after a READ operation, if more data is available.

Example in BASIC:

```
10 AN=61952:EN=AN+256-20
20 RESTORE:PAGE
25 A$="QWERTY"
30 LE=SEQW AN:REM SET START POINTER
35 PRINT"GENERATE SEQ DATA AT $F200"
40 LE=SEQW LE,A$,LE,-1
50 IFLE<ENTHEN40
60 LE=SEQW LE:REM GET END POINTER
70 SL=LE:LE=AN
80 SEQS LE
90 READB$,AD,F
110 PRINT B$;AD;F
120 IF EOF THEN90
130 PRINT
140 PRINT"SEQ DATA SIZE";SL-AN;" BYTES"
150 F$="DATA":DSAV F$,0,2,0,AN,SL
155 IF ERR<>0 THEN PRINT"ERROR";ERR:STOP
160 PRINT"DATA SAVED"
170 DLOD F$
180 IF ERR<>0 THEN PRINT"ERROR";ERR:STOP
190 SEQS AN:REM READ POINTER TO START
200 READB$,AD,F
210 PRINT B$;AD;F
220 IF EOF THEN200
230 PRINT"DATA LOADED BACK"
240 DREN F$,"",0:REM DELETE FILE
250 IF ERR<>0 THEN PRINT"ERROR";ERR:STOP
```

This program will generate a data parameter stream of a string and two numbers at \$F200 (Line 25..50). The sequential data stream is then stored as "DATA" SEQ file to disk. Afterwards read back and displayed using the BASIC READ statement (Line 190..220)

***** **VER** ***** COMMAND:

VER

VER will return the disk DOS version of the currently selected drive
For Example, VER will return "**YE-OSI DOS 3.53**" on the current revision.

***** **DFMT** ***** COMMAND:

DFMT DRIVE, SECTION, DISKTYPE

DFMT stands for Disk Format. The Command will format a disk "DRIVE".

DFMT will be executed without further prompt or question.

Please make sure, you have no valuable data on the disk to format.

"DRIVE" number has to be between 0...3.

"SECTION" defines, if the whole disk (0) or only the disk BOOT sector (1) has to be formatted.

"DISKTYPE" defines, if we have a single (0) or double-sided disk (1).

IMPORTANT !

DFMT will only create "blank" diskettes, without content. Use the Basic program FORMAT.BAS, to create fully bootable diskettes.

DFMT will immediately start, there will be no warning.

EXAMPLE: DFMT 2,0,0 will format disk 2

FORMAT.BAS program example:

```
10 REM DISK FORMAT UTILITY
20 TA=64768:PAGE:PRINT"UTILITY FOR 40/80 TRACK DRV":PRINT
25 PRINT"FORMAT DRIVE NUMBER ?":T=CALLTA,0:IFT<48 OR T>52THEN END
30 PRINT:PRINT"INSERT DISK IN DRIVE ";CHR$(T)
35 DR=T-48
40 PRINT"PRESS (Y), WHEN READY:":T=CALLTA,0:IFT<>89THEN END
50 PRINT:PRINT"FORMATTING DISK";DR
60 DFMT DR,0,0:REM FULL FORMAT DISK
80 IF ERR>0 THEN PRINT"FORMAT FAILED, ERROR NUMBER ";ERR
90 REM -----
100 PRINT"TRANSFER DOS TOOLS TO DRIVE";DR
105 PRINT"PRESS (Y), WHEN READY:":T=CALLTA,0:IFT<>89THEN END
110 SELDR:PRINT:PRINT "TRANSFER DOS EXTENSION TO DRV";DR
115 DSAV"DOSSUP",DR,1,3,233*256,240*256-1: REM TYPE MCODE,AUTORUN
120 IF ERR>0 THEN PRINT "TRANSFER FAILED WITH ERROR";ERR
130 PRINT:PRINT "TRANSFER FORMAT.BAS TO DRV";DR
140 DSAV "FORMAT",DR,0,1:PRINT:REM TYPE BASIC,R/W AUTORUN
150 IF ERR>0 THEN PRINT "TRANSFER FAILED WITH ERROR";ERR
160 DIR:IF ERR>0THEN PRINT"DOS FORMAT FAILED"
170 SEL0:IF ERR>0THEN PRINT"DOS DRIVE 0 FAILURE":END
```

***** **DCHK** ***** COMMAND:

DCHK "FILENAME"

DCHK stands for Disk Check/Verify. The Command will Verify a saved file "FILENAME" with its original location in memory.

It will also check, if the file exists on the disk.

If the filename is not on the disk, ERR number 9 is returned.

In case the filename exists, the file content is compared to memory.

If this verification fails, ERR number 11 is returned. Elsewhere ERR 0 is returned.

Verification or Check is done on the current selected drive only.

***** **DREN** ***** COMMAND:

DREN "FILENAME", "NEW FILENAME", DRIVE [, TYPE, PROTECTION]

DREN stands for Disk File Rename or Delete. The Command will rename a saved file "FILENAME", change its type or protection status. With an empty new filename, the file will be deleted.

Keep in mind, that Read Only protected files cannot be deleted, before the protection has been changed.

DREN Version 1 (5 parameters):

DREN "FILENAME", "NEW FILENAME", DRIVE, TYPE, PROTECTION

This will change Filename and/or file attributes. Using the same filename will only change attributes. For example, changing DOSSUP from RO to RW:

DREN"DOSSUP","DOSSUP",0,1,0 (Drive 0, COM Type, RW Protection)

DREN Version 2 (3 parameters):

DREN "FILENAME", "", DRIVE

This will delete the file "FILENAME" on drive "DRIVE". Data is still on the disk, but the directory entry filename is cleared.

File recovery is possible.

****** SCR ***** COMMAND:**

SCR X (0...31/63), Y(0...15/31), DATA, [DATA,...]

SCR will write DATA (Strings or Variables) to the screen at position X,Y.

The left bottom corner of the screen is at SCR 0,0,"x". Range depends on machine graphic capabilities like 32x32, 64x16 or 64x32 characters.

******* PTR ***** COMMAND:**

VAL=PTR(VARIABLE)

PTR will return the Pointer to the variable content as a 16bit address value. VARIABLES can be a numeric variable like AD=PTR(A) or a string variable AD=PTR(A\$) or a pointer to an array like AD=PTR(M(0)). PTR(M(0)) will return a pointer direction to the first byte of array M().

This can be used to reserve memory space and to place code or data into the array to peek or poke or read or write to the disk.

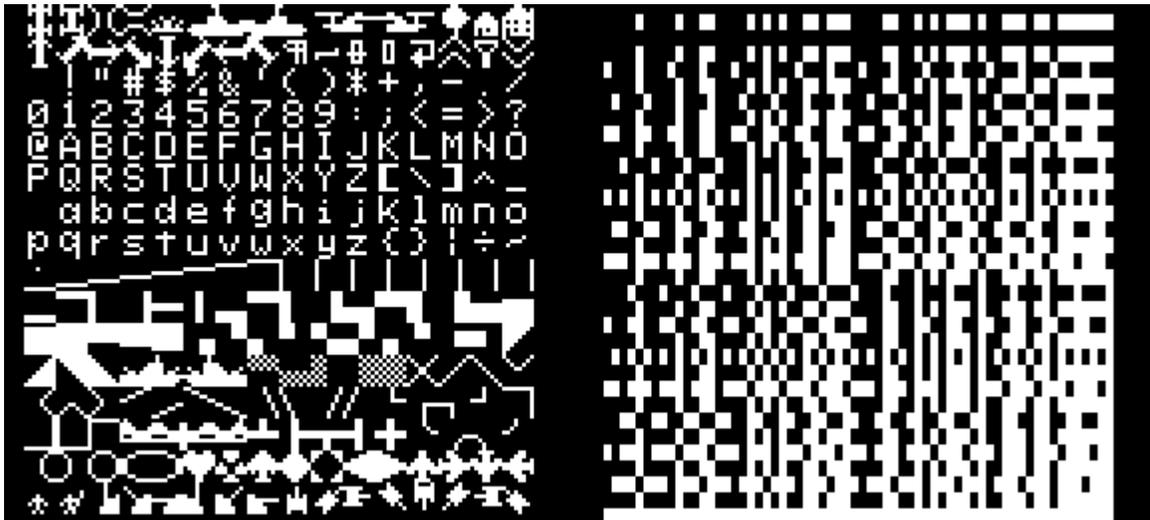
REMARK: Each array element occupies 4 bytes. DIM M(255) will reserve 1kB.

***** CLG ***** COMMAND:

CLG NUMBER

CLG will clear text or low-resolution graphics or enable/disable text/low resolution mode. Low resolution mode is a 128x32 pixel graphic displayed in the upper half of the text screen as a kind of split screen.

This was done by a modified character ROM of 4kB instead of 2kB. The graphic part of the ROM is enabled by the ACIA RTS line and the upper half display interval.



C1P lower 2kB character ROM

Upper Low-Res 2kB character ROM

placed into a pin compatible 4kB EPROM with one gate logic chip.

CLG 0: DISABLE LOW-RES MODE (same as CLG without parameter)

- Standard text mode (RESET (F12) will do the same)

CLG 1: ENABLE LOW-RES MODE

- TOP part of the low-res display (128x32 or 128x64 pixel) in half screen mode

CLG 2: Clear BOT half with "20"

- Clear text part

CLG 3: Clear TOP half with "00"

- Clear graphic part

also see PAGE command

- Clear entire text screen, when back in text mode

***** **GDIS** ***** COMMAND:

GDIS X (0...127), Y(0...16/32/63), MODE (depending on display mode)

When the low-resolution graphics mode is enabled, GDIS will plot dots or lines on the screen or will clear the same if required.

The Y coordinate of low-res section starts at Y=0 or Y=32 (upper half of screen, depending on display mode).

A graphic section of 128x32 or 128x64 is not much, but it is a simple add-on to allow fast pixel graphics in combination with text output on the C1P machine.

And it uses only the standard screen memory.

The pixel origin is at the left bottom corner of the upper low-res screen.

GDIS X, Y, 1	- Plot at X,Y a white dot
GDIS X, Y, 2	- Draw a line from the last coordinate to this one.
GDIS X, Y, 0	- Plot at X,Y a black dot (clear)
GDIS X, Y, 3	- Draw a black line (clear) to the new coordinate.

See GRDEMO.BAS program example:

```
5 OY=32:IFPEEK(65506)<>0THENOY=0
6 F=1:IFPEEK(65506)<>0THENF=2
7 OM=OY+16*F:OX=OY+32*F-1
8 CLG1:CLG3
9 CLG2:SCR5,5,"LINE SET&RESET"
10 GDIS0,OM-1,1:GDIS127,OM-1,2
11 FOR L=0 TO 1
12 FOR R=0 TO 127 STEP 2
15 IFL=0 THEN GDISR,OX,1:GDISR,OY,2
16 IFL=1 THEN GDISR,OX,0:GDISR,OM,3
17 IFL=1 THEN GDISR,OM-2,0:GDISR,OY,3
18 NEXT R:NEXT L
20 CLG3:IFPEEK(57088)=222 THEN 200
25 CLG2:SCR5,5,"LINE MESH"
30 FOR R=4TO 127 STEP 15
40 FOR S=4 TO 127 STEP 15
50 GDISR,OX,1:GDISS,OY,2
60 NEXT S:NEXT R
70 CLG3:IFPEEK(57088)=222 THEN 200
110 CLG2:SCR5,5,"BOXES"
112 F=1:IFPEEK(65506)<>0THENF=2
115 FOR L=0 TO 3:FOR S=0 TO 1
120 FOR R=1 TO 10*F STEP 2*F
```

```

130 GDIS64-7*R/F,OM-R,1-S:GDIS64+7*R/F,OM-R,2+S
140 GDIS64-7*R/F,OM+R,1-S:GDIS64+7*R/F,OM+R,2+S
150 GDIS64-7*R/F,OM-R,1-S:GDIS64-7*R/F,OM+R,2+S
160 GDIS64+7*R/F,OM+R,1-S:GDIS64+7*R/F,OM-R,2+S
190 NEXT R:NEXT S:NEXT L
195 CLG3:IFPEEK(57088)<>222 THEN 7
200 CLG0:PAGE:PRINT"READY"

```

In this program example, placing text by the SCR command and drawing and removing low-res lines by the GDIS command is shown.

***** Supporting Programs on disk (1 of 3)

FORMAT.BAS

This BASIC program will format a diskette in the chosen drive 2 (single sided only) and transfer the BOOT sector, DOSSUP and FORMAT.BAS to a new disk.

Basic Code:

```

10 REM DISK FORMAT UTILITY
20 TA=64768:PAGE:PRINT"UTILITY FOR 40/80 TRACK DRV":PRINT
25 PRINT"FORMAT DRIVE NUMBER ?":T=CALLTA,0:IFT<48 OR T>52THEN END
30 PRINT:PRINT"INSERT DISK IN DRIVE ";CHR$(T)
35 DR=T-48
40 PRINT"PRESS (Y) ,WHEN READY:" :T=CALLTA,0:IFT<>89THEN END
50 PRINT:PRINT"FORMATTING DISK";DR
60 DFMT DR,0,0:REM FULL FORMAT DISK
80 IF ERR>0 THEN PRINT"FORMAT FAILED, ERROR NUMBER ";ERR
90 REM -----
100 PRINT"TRANSFER DOS TOOLS TO DRIVE";DR

```

```

105 PRINT"PRESS (Y) ,WHEN READY:" :T=CALLTA,0:IFT<>89THEN END
110 SELDR:PRINT:PRINT "TRANSFER DOS EXTENSION TO DRV";DR
115 DSAV"DOSSUP",DR,1,3,233*256,240*256-1: REM TYPE MCODE,AUTORUN
120 IF ERR>0 THEN PRINT "TRANSFER FAILED WITH ERROR";ERR
130 PRINT:PRINT "TRANSFER FORMAT.BAS TO DRV";DR
140 DSAV "FORMAT",DR,0,1:PRINT:REM TYPE BASIC,R/W AUTORUN
150 IF ERR>0 THEN PRINT "TRANSFER FAILED WITH ERROR";ERR
160 DIR:IF ERR>0THEN PRINT"DOS FORMAT FAILED"
170 SEL0:IF ERR>0THEN PRINT"DOS DRIVE 0 FAILURE":END

```

******* Supporting Programs on disk (2 of 3)**

DCOPY.BAS

This BASIC program will copy all tracks of a diskette in Drive 1 (single sided only) to Drive 2.

Basic Code:

```

5 PAGE:PRINT"DISK COPY UTILITY DRV 1>2":PRINT
8 FA=62560:ID=62464:E=0:TM=61952
10 TA=64768:PRINT"INSERT FORMATTED DISK IN DRIVE 2":PRINT
15 PRINT"PRESS (Y) , WHEN READY":T=CALLTA,0:IFT<>89THEN END
20 SEL0:IF ERR>0 THEN PRINT "DRIVE 0 NOT READY":END
25 SEL2:IF ERR>0 THEN PRINT "DRIVE 2 NOT READY":END
30 FOR R=FA TO FA+(70*13) STEP 13: REM CHECK IF DRV2 IS EMPTY
40 IF PEEK(R)<>0 THEN E=1
50 NEXT R
60 IF E=0 THEN 100
70 PRINT:PRINT ">>DRIVE 2 IS NOT EMPTY !"
80 PRINT"PRESS (Y) , TO FORMAT DRV 2":T=CALLTA,0:IFT<>89THEN END
90 PRINT"FORMATTING, PLS WAIT":DFMT 2:
100 REM ***** COPY DISK 0 TO DISK 2 *****
110 SEL0:IF ERR>0 THEN PRINT "DRIVE 0 NOT AVAILABLE":END

```

```
130 FOR R=2 TO 79: REM SEC_T,TRK_T first, E022/E023 second
140 IF PEEK(ID+R)=0 THEN 310: REM TRACK NOT USED
150 PRINT"T="R;"-";
155 BI=1:FOR S=0 TO 7
160 POKE57381,255: REM Finish with E022/23
170 POKE57380,0: REM TAKE NEXT SECTOR
180 POKE57376,0: REM DRIVE 0 SOURCE
190 POKE57374,0: REM SINGLE SIDED
200 POKE240,0:POKE241,242: REM ADR=$F200
210 POKE57372,1: REM LENGTHH=256 Bytes
220 POKE236,R:POKE237,S: REM Start TRK2..79,SEC
225 IF (PEEK(ID+R) AND BI)=0 THEN 240:REM SKIP EMPTY SECTORS
230 DISK1:IF ERR>0 THEN PRINT "READ SECTOR FAILED":END
240 POKE236,R:POKE237,S: REM Start TRK2..79,SEC
250 REM TRK2,SEC0 info is given by last READ operation
260 POKE240,0:POKE241,242: REM ADR=$F200
270 POKE57372,1: REM LENGTHH=256 Bytes
280 POKE57376,2: REM DRIVE 2 DESTINATION
285 IF (PEEK(ID+R) AND BI)=0 THEN 305:REM SKIP EMPTY SECTORS
290 DISK2: IF ERR>0 THEN PRINT "SECTOR SAVE FAILED":END
300 PRINT S;
305 BI=BI*2:NEXT S:PRINT
310 NEXT R
500 DISK6:IF ERR>0 THEN PRINT "UPDATE FAT TO DRV 2 FAILED":END
510 POKE57381,0: REM Finish with 00 00
520 POKE57380,255: REM Take next free sector
530 SEL2:IF ERR>0 THEN PRINT "DRIVE 2 FAILED":END
540 SEL0:IF ERR>0 THEN PRINT "DRIVE 0 NOT AVAILABLE":END
600 PAGE:PRINT"COPY BOOT SECTOR AND FAT"
610 POKE57382,255: REM BOOT SECTOR FORMAT DISK
620 POKE57376,2: REM DRIVE2
630 POKE57374,0: REM SINGLE SIDED
640 DISK3: REM WRITE BOOT SECTOR
650 IF ERR>0 THEN PRINT "BOOT SECTOR FAILED":END
660 SEL0:IF ERR>0 THEN PRINT "DRIVE 0 NOT AVAILABLE":END
670 PRINT "READY"
700 SEL2:DIR:IF ERR>0 THEN PRINT "DOS FORMAT FAILED"
710 SEL0:IF ERR>0 THEN PRINT "DOS DRIVE 0 FAILURE":END
720 END
```

***** Supporting Programs on disk (3 of 3)

FCOPY.BAS

This BASIC program will copy a single file from diskette in Drive 1 to Drive 2. Read Only files will be transferred, if confirmed.

Basic Code:

```

5 REM FILE COPY UTILITY TO OTHER DRIVE
10 CLEAR:DR=PEEK(57376):IF DR=0 THEN DN=2
20 IF DR=2 THEN DN=0:REM GET OTHER DRIVE NUMBER
30 PAGE:PRINT"FILE COPY UTILITY FROM";DR;"TO";DN
40 INPUT"ENTER FILENAME ";NA$:IF NA$="" THEN 40
50 FA=62560:ID=62464:E=0:TM=61952:TA=64768:AD=245
60 DCHK NA$:REM TEST, IF FILENAME EXIST
65 FE=PEEK(AD)+256*PEEK(AD+1)
70 IF ERR=9THEN PRINT"FILENAME NOT FOUND, TRY AGAIN":PRINT:GOTO40
75 SEL DN:IF ERR>0 THEN PRINT "DRIVE";DN;"IS NOT AVAILABLE":END
80 DCHK NA$: IF ERR=9 THEN 110
90 PRINT"FILE EXIST,OVERWRITE IT (Y/N)?" : T=CALL TA,0
100 IFT<>89THEN PRINT"QUIT":END
110 SEL DR:IF ERR>0 THEN PRINT "DRIVE";DR;"IS NOT AVAILABLE":END
120 R=PEEK(FE+6):S=PEEK(FE+7)
125 S1=PEEK(FE+8):S2=PEEK(FE+9):S=S1+256*S2
130 E1=PEEK(FE+10):E2=PEEK(FE+11):E=E1+256*E2
135 TP=PEEK(FE+12):Z=FREE(0):IF Z<0 THEN Z=65536+Z
140 IF (E-S+255)<Z THEN 150
145 PRINT"NOT ENOUGH FREE MEMORY TO COPY FILE !":GOTO380
150 DIM M((E-S+256)/4)
152 MS=PTR(M(0)):ME=MS+(E-S):REM GET MEMORY ADDRESS

```

```
155 POKE (FE+8),MS AND 255:POKE (FE+9),INT (MS/256)
160 POKE (FE+10),ME AND 255:POKE (FE+11),INT (ME/256)
165 POKE (FE+12),16: REM SIMPLE BINARY FILE
170 DLOD NA$
180 POKE (FE+8),S1:POKE (FE+9),S2
190 POKE (FE+10),E1:POKE (FE+11),E2
200 POKE (FE+12),TP: REM RESTORE ORIGINAL
210 IF ERR>0 THEN PRINT "LOADING FILE ERROR":GOTO380
220 SEL DN:IF ERR>0THEN PRINT"DRIVE";DN;"IS NOT AVAILABLE":END
300 IF (TP AND 15)>=2 THEN DREN NA$,NA$,DN,1,0
305 DSAV NA$,DN,1,0,MS,ME
310 IF ERR>0THEN PRINT"SAVING FILE FAILED, ERROR";ERR:END
320 DCHK NA$:IF ERR>0 THEN PRINT "VERIFY FAILED, ERROR";ERR:END
330 FE=PEEK (AD)+256*PEEK (AD+1)
340 POKE (FE+8),S1:POKE (FE+9),S2
350 POKE (FE+10),E1:POKE (FE+11),E2
360 POKE (FE+12),TP: REM RESTORE ORIGINAL
370 POKE 57375,1:DISK 6:REM FORCE SAVING FAT
380 SEL DR:CLEAR
```

Listing

```

:
:           (c) Copyright TB 2023
:
:   File:           D_LE900_EFFF.bin           DOS Supplement
:
:   Date:           Wed July 2023
:
:   CPU:            MOS Technology 6502 (MCS8500 family)
:
:   VERSION:       53
:
:   Modified for C1P or UK101 with 32x32 or 64x16 screen
:   Needs EPROM1_LU52 YE-DOS System ROM
:   Uses BASIC ROM subroutines
:
:
: DOS SUPPLEMENT:
: These are extensions in Basic, that provide additional commands
: Code is located at $E900 to $EFFF, Basic code start is normal at $0300
: Screen Size taken from $FFE1 <32 or >32 and $FFE2 0 or 1 for 2K or 4k
:
:
D_VERS      = 53           ; Version number
ORG_POS     = $E900
FAT_LD      = $F400       ; FAT Memory area
FAT_LS      = FAT_LD+$60  ; FAT start of name table
FAT_VER     = FAT_LD+$50  ; VERSION TEXT STRING
FAT_CHANGE  = $E01F      ; FAT Change info flag
PAR_STOR    = $0230       ; Storage if command parameters (7 Bytes)
BASIC_EXT   = $022C       ; Basic extension Vector

FreeM       = $F300       ; Free Memory area (moved to $F300 up)
DOS_PARAM   = $E010       ; DOS Parameter table
DOS_E022    = $E022       ; Low FAT File Name Pointer or Free sector count
DOS_E023    = $E023       ; High FAT Mane Pointer

ACIA_LS     = $F000       ; SERIAL ACIA Control Port for turning low res graph on/off

BASIC_16_FLOAT = $AFC1    ; Convert Fixed Point to Floating Point
BASIC_OUT   = $A8E5       ; BASIC Character output

HORZ_SIZE   = $FFE1       ; <32 or >32 will indicate horizontal screen resolution (32 or 64)
VERT_SIZE   = $FFE2       ; 0 will indicate 2k, 1 is 4k Screen memory size

STOP = 3           ; DEBUGGING STOP CODE

.org   ORG_POS

lda   #DOSSUP&255
sta   BASIC_EXT
lda   #DOSSUP>>8
sta   BASIC_EXT+1
rts

```

```

VER: .DB "YE-OSI DOS 3."
     .DB 48*D_URS/10
     .DB 48*D_URS%10

```

```
FINAME: DB $00, $00
```

```
STAR: .DB "*", $00
```

```
CODETBL:
```

```

.DB $42, $41, $53, $00 ;"BAS"
.DB $43, $4F, $4D, $00 ;"COM"
.DB $53, $45, $51, $00 ;"SEQ"
.DB $56, $41, $52, $00 ;"UAR"

```

```
PROTTBL:
```

```

.DB $52, $57, $6E, $00 ;"RWn"
.DB $52, $57, $61, $00 ;"RWa"
.DB $52, $20, $6E, $00 ;"R n"
.DB $52, $20, $61, $00 ;"R a"

```

```
GDPIX: .db $01, $02, $04, $08, $10, $20, $40, $80 ; 8 Bit 4x2 1st is left
```

```
TSPACE:
```

```
.db " ", $00 ; SPACES
```

```
TDEV: .db $0D, $0A, "DEVICE", $00 ; DEVICE
```

```
TSEC: .db "SECTORS FREE", $00 ; SECTORS FREE
```

```
TNAME: .db $0D, $0A, $0A, "NAME LENGTH TYPE", $0D, $0A, $00 ; NAME LENGTH TYPE
```

```
DOSSUP: ldy #FF ;***** DOSSUP ENTRY POINT *****
        ldx #00
```

```
L0311:
```

```

iny
dex

```

```
L0313:
```

```

lda TOKEN-256,x ; BASIC TOKEN CHECK
beq L033F
sec
sbc ($C3),y
beq L0311
cmp #$80
beq L032D
ldy #$00

```

```
L0323:
```

```

dex
lda TOKEN-255,x
bpl L0323
dex
dex
bne L0313

```

```
L032D:
```

```

jsr $A70F ; BASIC:
pla
pla

```

```

        pla
        pla
        lda     TOKEN-257,x    ; Vector to DOSSUP Basic token code
        pha
        lda     TOKEN-258,x
        pha

L0336:
        inc     $C3           ; Moved from ROM to here
        bne     L033C
        inc     $C4
L033C:
        jmp     $00C2        ; Return to Address $00C2

;
L033F:
        ldy     ##01
        jsr     $A70F        ; BASIC:

        idx     $BF         ; continue Basic Interpreter
        jmp     L0336

;
; ***** PRINT 3x SPACES TO BASIC *****
L0347:
        lda     #TSPACE&255
L0349:
        ; *** PRINT TEXT in same segment (A) ***
        ldy     #TSPACE>>8
        JMP     $A8C3        ; BASIC PRINT 3x Space TEXT

;
; ***** SUB EVALUATE Byte/Word Parameters *****
L034E:
        jsr     $AC01        ; BASIC check Next parameter

L0351:
        ; **** Evaluate single Integer parameter ****
        sty     $C0         ; Pointer Counter to Parameter storage
        cpy     ##03        ; Already 3 Paramenets
        BCS     L036D        ; Jump, if 3 or more
        ; Evaluate Integers Parameters 1,2,3
        JSR     $B3AE        ; BASIC ROM: EVALUATE 8BIT EXPRESSION and convert to byte
        ; Integer value in (X)
        ldy     $C0
L035C:
        txa
        sta     PAR_STOR,y   ; Store Integer Parameter
        iny
        jsr     $00C2        ; Next BASIC value
        cmp     ##2C        ; More Parameters ?
        bne     L037D        ; Test for "" (jump and RETURN, if no more parameters)
        jsr     $00BC        ; BASIC: Advance to next parameter
        bne     L0351        ; Loop back for next parameter
L036D:
        jsr     $AAAD        ; ROM BASIC: EVALUATE 16BIT EXPRESSION, MAKE SURE IT IS NUMERIC
        jsr     $B408        ; CONVERT TO A 16-BIT VALUE
        ; Result in (A) and (Y)

        tax
        tya

```

```

        ldy    $C0
        sta    PAR_STOR,y    ; Store Lower Byte of 16Bit
        iny
        bne    L037C        ; Always jump to store Higher Byte in (X)
L037D:  rts
;
L037E:  ;***** Get String parameters to Stack *****

        bne    L0383        ; Command without parameters ?
L0380:  ;
        jmp    $AE88        ; STOP WITH ILLEGAL QUANTITY ERROR
;
L0383:  ;
        pla
        sta    $9C
        pla
        sta    $9D        ; Remember Return address

        jsr    $AAC1        ; ROM BASIC, Evaluate expression
        bit    $5F        ; Check for String
        bpl    L0380        ; ERROR of not a Sting

        jsr    $B2B3        ; ROM BASIC, Release string
        ; Pointer in 71/72, length in A
        ; Points to String in BASIC code or memory

L0398:  ;
        sta    $BF
        pha
        tya
        pha
        txa
        pha
        lda    $9D
        pha
        lda    $9C
        pha
        lda    $BF
        rts
;
L03A4:  ;***** SUB Process Parameter: Drive *****
        lda    #$00        ; Analyse input parameter for Drive number
        sta    $E027        ; Set ERROR to "0"
        lda    PAR_STOR    ; First Paramneter is DRIVE number
        cmp    $E020        ; Compare with actual Drive number
        beq    L03C3        ; Jump, if the same
        cmp    #$04        ; Check for range 0..3
        bcc    L03B8        ; Jump, if <4
        jmp    $AE88        ; FC-Error
;
L03B8:  ; New valid Drive number selected
        pha
        jsr    L03CD        ; DOS_WRITE_FAT(6), if FAT needs update
        pla
        sta    $E020        ; Store new drive number
        jsr    L03C7        ; DOS_READ_FAT(7), from new drive

```

```

L03C3:
    lda    $E027        ; Hold Error value in (A)
    rts

;
; ***** DIR *****
DIC:   bne    DIC1      ; Jump on search name
        lda    #$01
        pha
        lda    #STAR>>8 ; Pushing A(lenth)
        pha
        lda    #STAR&&255 ; Pushing V(High vector)
        pha
        lda    #STAR&&255 ; Pushing X(Low vector)
        jmp    DIC2
DIC1:
        jsr    L037E    ; Get String parameters to Stack
DIC2:
        lda    #TDEV&&255 ; Print DEVICE
        jsr    L0349    ; PRINT TEXT in same segment (A)
        idx    $E020
        lda    #$00
        jsr    $B95E    ; BASIC Print value in X,A (device no)
        jsr    $A86C    ; BASIC: Do PRINT CR,LF ?

        lda    #TSEC&&255 ; PRINT SECTOR
        jsr    L0349    ; PRINT TEXT in same segment (A)

        lda    #$00      ; SET lenth to 0 (FREE SPACE function)
        sta    $94
        jsr    L03E0    ; ROM: DOS SEARCH FILE returns disk free space
        idx    $E022    ; Free Space into X,A
        lda    $E01D
        jsr    $B95E    ; BASIC Print value in X,A (sectors free no)

;
        jsr    L0347    ; Print 3x SPACES

        lda    #TNAME&&255 ; PRINT LF NAME
        jsr    L0349    ; PRINT TEXT in same segment (A)

        inc    $E01D    ; Correct Preset for HL and Motor off

        lda    #FAT_S&&255 ; Start of FAT ($F460)
        sta    $97
        lda    #FAT_S>>8
        sta    $98      ; to pointer FAT address pointer $97/$98
        lda    #$08
        sta    $C0
        pla
        sta    $9E      ; ex: $FD / $FF
        pla
        sta    $9F      ; ex: $7F / $7F / $77
        pla
        sta    $BF      ; Pointer to DIR string to $9E/$9F
        pla
        sta    $BF      ; String length >0 ?
        sta    $BF      ; Remember length of DIR string
        bne    L041B
L041A:
        rts            ; BASIC: String "", just return

```

```

;
L041B:      ldy      #$00
L041D:      lda      ($9E),y
            cmp      #$2A      ; is "*"
            beq      L043F      ; jump to matching name in FAT
            cmp      ($97),y    ; Compare first char of FAT name
            bne      L0427      ; jump to not matching name
            iny
            cpy      $BF
            bcc      L041D
            bcs      L043F      ; jump to matching name in FAT
L0427:      lda      #$0D      ; Next FAT entry + 13
            clc
            adc      $97      ; Add 13 to FAT address pointer
            sta      $97
            bcc      L0432
            inc      $98
L0432:      cmp      #$FB      ; END OF FAT REACHED ?
            bne      L041B      ; Loop back search name
L0436:      idx      $98      ; Get ??
            inx
            bne      L041A      ; Jump, if was 0 FF ,return
            jmp      $A86C      ; BASIC: Do PRINT CRLF ? and return
;
L043F:      ldy      #$00      ; Matching first Character in FAT
L0441:      lda      ($97),y    ; Load last name char from FAT
            beq      L0427      ; Empty FAT entry found with "*", loop back

            jsr      OUTVEC      ; ROM Output
            iny
            cpy      #$06
            bcc      L0441
            jsr      L0347      ; Print 3x spaces
            ldy      #$0B
            lda      ($97),y    ; Calculate file length
            ldy      #$09
            sec
            sbc      ($97),y
            TAX
            INX
            pha
            LDA      #$00
            JSR      $B95E      ; PRINT Length of (A) and (X)
            PLA
            CMP      #$09      ; Value >=10
            BCS      L043FX
            lda      #$20      ; PRINT Single Space
            jsr      BASIC_OUT   ; PRINT TEXT in same segment (A)
L043FX:

```

```

    jsr    L0347          ; 3x SPACE
    ldy    #$0C
    lda    ($97),y      ; Get File Type
    pha
    lsr
    lsr
    clc
    adc    #CODETBL&255
    jsr    L0349          ; PRINT TEXT in same segment (A)
    jsr    $A8E0         ; PRINT LENGTH
    pla
    and    #$03
    asl
    asl
    clc
    adc    #PROTTBL&255
    jsr    L0349          ; PRINT TEXT in same segment (A)
    jsr    $A86C         ; BASIC Some kind of Print Return
    dec    $C0
    bpl    L0488         ; END of FAT ?
    jsr    INVEC         ; ROM Get Key every 8 lines
    cmp    #$0D
    bne    L0436
    sta    $C0
L0488:
    jmp    L0427
;
L048B:
    ;***** Copy FILE NAME to FAT *****
    inc    FATCHANGE    ; Mark Change drive
    lda    PAR_STOR+1   ; Get TYPE
    pha
    asl
    asl
    asl
    asl
    ora    PAR_STOR+2   ; OR with PROTECTION
    ldy    #$0C
    sta    ($F5),y      ; STORE TO FAT
    ldy    #$05
L049F:
    cpy    $94          ; Compare to length
    bcc    L04A6        ; Jump if smaller
    lda    #$20         ; Fill Name wit SPACE
    bne    L04A8
L04A6:
    lda    ($A2),y      ; If not, copy string name to FAT
L04A8:
    sta    ($F5),y
    dey
    bpl    L049F        ; Loop for 6 Parameters
    pla
    rts
;
;***** DSAU STORE *****
STR:  jsr    L037E        ; Get String parameters to Stack
      jsr    L034E        ; EVALUATE Byte/Word Parameters

```

```

        jsr    L03A4      ; Process Parameter: Drive
        beq    L04D5      ; Jump, if NO ERROR
L04D1:
        pla
        pla
        pla
        rts
        ; and return
;
L04D5:
        lda    #C0      ; Number of parameters found of min 3
        cmp    #02      ; String plus 2 parameter minimum.
        bcs    L04DE      ; jump if >=3
L04DB:
        jmp    $AE88      ; F-Error
;
L04DE:
        idx    PAR_STOR+1 ; 2nd parameter (File Type)
        beq    L04E9      ; Jump, if Command type is BASIC (0)?
;
        cmp    #03      ; Check number of parameters found for Type 1,2,3,..
        bcc    L04DB      ; Jump if number of parameters found <4 to Error
        ; String plus 3 parameter minimum (drive,type,prot)
L04E9:
        pla
        sta    $9E      ; Continue with 4 or more parameters or BASIC
        ; String name address to $9E/$9F
        tay
        pla
        sta    $9F
        sta    $A3      ; Store High address to A3
        pla
        sta    #C0      ; String length to #C0
        jsr    L07FA      ; FAT name Search (1 sector)
        beq    L050C      ; Check if found, jump if name exist in FAT
;
        lda    #FINAME>>8 ; Empty file name vector
        sta    $A3      ; *** SEARCH FOR "00" NAME (EMPTY)? ***
        ldy    #FINAME&&255
        lda    #01      ; Single byte is enough to find empty entry
        jsr    L07FA      ; FAT name Search (1 sector)
        beq    L0519      ; Check if found, jump if name exist in FAT
L0504:
        sta    $E027      ; Remember ERROR 9
        rts
        ; Return if not found (no Free entry ?)
;
L0508:
        ; Leave, if READ ONLY FILE FOUND
        lda    #0F
        bne    L0504      ; ERROR 15 - FILE is WRITE PROTECTED
;
L050C:
        ; *** FILE NAME ALREADY EXIST IN FAT ***
        ldy    #0C
        lda    ($F5),y    ; Get File Type
        and    #03
        cmp    #02      ; Check for READ ONLY
        bcs    L0508      ; Jump if >=2 (means READ ONLY)
;
        lda    #00
        sta    $E01D      ; HL and Motor keep on

```

```

        jsr     L05D2          ; DELETE CURRENT SELECTED FILE
                                ; Continue and overwrite same name.
L0519:
        lda     #$00
        sta     $E01D        ; HL and Motor keep on

        jsr     L05C2          ; COPY NAME and TYPE to FAT
        bne     L056F        ; Check if Type is "BASIC (0)"
        ldx     $7A          ; Type is BASIC
        ldy     $79          ; Get Basic Start -1
        bne     L0525
        dex

L0525:
        dey                ; Basic -1 is in (X),(Y)
        tya
        ldy     #$08
        sta     ($F5),y      ; Writes to FAT Directory Address parameter
        txa
        iny
        sta     ($F5),y      ; Start / End Address
        lda     $7B
        iny
        sta     ($F5),y      ;
        lda     $7C
        iny
        STA     ($F5),y      ;

L0539:
                                ; *** and write file to disk
        ldy     #$0C        ; Pointer to Type

L053B:
        lda     ($F5),y      ; Copy all to File discriptor block EE-F4
        sta     $E8,y
        dey
        cpy     #$07
        bne     L053B
        sec
        lda     $F3
        sbc     $F1
        sta     $E01C        ; Length Calc
        lda     $F0
        cmp     $F2
        bcs     L0556
        inc     $E01C        ; +1

L0556:
        lda     #$FF
        sta     $E024        ; Search free (FF default) for storage
                                ; DOS Write File
        jsr     L03CA
        ldy     #$06
        sty     $E024        ; Search free back to normal

        jsr     L0581        ; Check for ERROR, Read FAT back

        lda     FreeM
        sta     ($F5),y      ; Get fist Value form Table
                                ; Store Start Track to FAT
        lda     FreeM*1
        iny
        sta     ($F5),y      ; Store Start sector to FAT

```

```

        inc     $E01D           ; and back to HL and motor off

        jmp     L03CD           ; Write FAT (6) after file save

;
L056F:
        cmp     #$04           ; Type is "Others" 1,2,3.
        bcs     L0581           ; Return if Type >=4
        ldy     #$08

L0575:
        lda     PAR_STOR-5,y    ; Get Start Address and End Address
        sta     ($F5),y
        iny
        cpy     #$0C
        bne     L0575
        beq     L0539           ; Always jump to

L0581:
        ;*** Check for ERROR, Read FAT back ***
        lda     $E027           ; Check Error number
        beq     L058E           ; Return, if no ERROR
        pha
        jsr     L03C7           ; On Error READ FAT back (?)
        pla
        sta     $E027           ; Recover Write Error
        pla
        pla                     ; Remove caller address

L058E:
        rts

;
;***** DREN Rename *****
CHANGE: jsr     L037E           ; Get 1st String parameters to Stack
        jsr     $B117           ; Keep string in memory because of 2nd string
        jsr     $AC01           ; ROM BASIC, Evaluate String
        JSR     L037E           ; Get 2nd String parameters to Stack
        jsr     L034E           ; EVALUATE Byte/Word Parameters
        jsr     L03A4           ; Process Parameter: Drive
        beq     L0599           ; Jump, if NO ERROR

        pla                     ; Clear 2nd String descriptor Stack
        pla
        pla
        jmp     L04D1           ; Goto clear 1st String descriptor Stack and return

;
L0599:
        ; Continue on NO ERROR
        pla
        sta     $9E             ; Get 2nd String
        pla
        sta     $9F
        pla
        sta     $BF             ; Length to $BF
        bne     L05AE

        ; 2nd string was empty , delete file now

```

```

        lda    #FINAME>>8    ; Empty file name vector
        sta    $9F
        lda    #FINAME&255   ; *** POINTER TO "00" NAME (EMPTY)? ***
        sta    $9E
        lda    #$01          ; Lenth of 1 is enough
L05AE:
        sta    $C0
        pla
        pla    ; Get 1st String
        tay
        pla
        sta    $A3
        pla
        jsr    L07FA          ; FAT name Search (1 sector)
        beq    L05BE
        jmp    L0504          ; Return wit ERROR 9 File not found
L05BE:
        lda    $BF           ; if BF length = 0, delete file
        bne    L05C2X        ; Jump, if not delete
                                ;
                                ; DELETE CURRENT SELECTED FILE
L05C2X:
        jsr    L05D2
        jsr    L05C2          ; COPY NAME and TYPE to FAT
        jmp    L03CD          ; Write FAT (6) after file save and RETURN
                                ;
                                ; *** COPY NAME and TYPE to FAT ***
L05C2:
                                ; Transfer String vector to A2/A2 and 9F
        lda    $C0
        sta    $94
        lda    $9E
        sta    $A2
        lda    $9F
        sta    $A3
        jmp    L048B          ; Copy FILE NAME to FAT and RETURN
                                ;
                                ; ***** DELETE CURRENT SELECTED FILE *****
L05D2:
        lda    #$FF
        sta    $E021          ; Read or Delete flag set to DELETE (FF)
        jsr    L0618          ; ROM: DOS READ OR DELETE (5)
        ldy    #$00
        sty    $E021          ; Read or Delete flag set to READ (00)
        jmp    L0581          ; Check for ERROR, Read FAT back
                                ;
                                ; ***** PTR *****
DEZ:
        jsr    $ABFE          ; BASIC: Check for "("
        beq    L0615          ; FC ERROR
                                ;
        jsr    $AAC1          ; BASIC: Evaluate
        bit    $5F
        bpl    DEZ_1          ; Jump if Number
        jsr    $B2B3          ; ROM BASIC, Release string
        beq    L0615          ; FC ERROR, String is empty
DEZ_1:
        jsr    $ABFB          ; BASIC: Check for ")"

```

```

        ldy    $71
        lda    $72
        jmp    BASIC_16_FLOAT ; Convert Fixed Point to Floating Point
;
L0615:  JMP     $AE88          ; BASIC: FC ERROR
;
SEL:    beq    L0615          ; ***** SEL *****
        ldy    #$00          ; SEL will always reload FAT (diskchange)
        jsr    L0351          ; Evaluate single Integer parameter
        lda    $E020
        cmp    PAR_STOR      ; First Parameter is DRIVE number the same ?
        beq    L03C7          ; Reload in case of diskchanges
        jsr    L03A4          ; Process Parameter: Drive
        bne    L03C7          ; on ERROR Second try to reload FAT and exit
        rts

L03E0:  jmp     ($E000)          ; DOS: SEARCH FILE(0)
L03CA:  jmp     ($E004)          ; DOS: WRITE FILE(2)
FMT0:   jmp     ($E006)          ; DOS: FORMAT DISK(6)
L0618:  jmp     ($E00A)          ; DOS: WRITE OR DELETE FILE (5)
L03CD:  jmp     ($E00C)          ; DOS: WRITE FAT(6)
L03C7:  jmp     ($E00E)          ; DOS: LOAD DISK FAT (7)

INVEC:  jmp     ($0218)          ; INFO: indirect jump INVEC
OUTVEC: jmp     ($021A)          ; INFO: indirect jump OUTVEC

;
SCR:    beq    L0659          ; ***** SCR for 32x32 and 64x15/31 *****
        jsr    $B3AE
        txa
        pha
        jsr    $B3AB
        lda    HORZ_SIZE      ; Create flag for 32 or 64 in $BF
        cmp    #33
        ror    $BF            ; Bit 7 is set for 64 mode
        pla
        bit    $BF            ; Check horizontal chars
        bmi    SCR64
        and    #$1F           ; mask off all above 32
        bpl    SCR32          ; Branch always
SCR64:  and    #$3F            ; mask off all above 64
SCR32:  sta    $11
        txa                    ; Y-value

```

```

        ldx    #$00
        clc
        eor    #$FF
        bit    $BF
        bmi    SCR642
        ror
SCR642:
        ror
        ror
        ror
        tay
        rol
        cpx    VERT_SIZE      ; Check for 64x32
        bne    SCR32x32      ; jump on 2k video RAM
        and    #$03
SCR32x32:
        and    #$07
        ora    #$D0
        sta    $12
        tya
        and    #$E0
SCR643:
        ora    $11
        sta    $11
        jsr    $AC01
        bne    L0665
L0659:
        rts
;
L065A:
        jsr    L0675
        jsr    $00C2
        beq    L0659
        jsr    $AC01
L0665:
        jsr    $AAC1
        bit    $5F
        bmi    L065A
        jsr    $B96E
        jsr    $B0AE
        clc
        BCC   L065A

L0675:
        ;***** Sub Get Parameter
        ; as chars to ($11)
        jsr    $B2B6
        ldy    #$00
        tax
        bne    L0682
        inx
        lda    #$20
        bne    L0688
L0682:
        inx
L0683:
        dex
        beq    L068D
        lda    ($71),y

```

```

L0688:
    sta    (#11),y
    iny
    bne    L0683
L068D:
    tya
    clc
    adc    #11
    sta    #11
    bcc    L0697
    inc    #12
L0697:
    rts

CLG:   beq    L06A1                ;***** CLG *****
                                ; CLG : same as CLG 0
                                ; CLG 3: Clear TOP with "00"
                                ; CLG 2: Clear BOT with "20"
                                ; CLG 1: ENABLE LOW RES MODE
                                ; CLG 0: DISABLE LOW RES MODE

L069D:
    cmp    #30
    bne    CLG0
L06A1:
    lda    #11
CLGX:
    sta    ACIA_S                ; Turn off RTS at standard Baudrate /16,8N2
    bne    CLGRET                ; and return
CLG0:
    cmp    #31
    bne    CLG1
    lda    #51                    ; Turn on RTS at standard Baudrate /16,8N2
    bne    CLGX

CLG1:
    ldy    #00
    ldx    #00
    sty    $9E
CLGC2:
    cmp    #32
    bne    CLGC3                ; Jump on CLG 3 , clear with 00 starting at D0
    ldx    #20                    ; clear with 20
    lda    #D2                    ; clear from D2
    cpy    VERT_SIZE              ; 0=1kB >0=2kB
    beq    CLGC4
    lda    #D4                    ; clear from D4
    bne    CLGC4
CLGC3:
    lda    #D0
CLGC4:
    sta    $9F
    txa
    ldx    #02                    ; 2 blocks
    cpy    VERT_SIZE              ; 0=1kB >0=2kB
    beq    CLGCL
    ldx    #04                    ; 4 blocks

```

```

CLGCL:                                ; Clear screen section with A, D0 or D2/D4
    sta    ($9E),y
    iny
    bne    CLGCL
    inc    $9F
    dex
    bne    CLGCL
CLGRET:
    jmp    $00BC                        ; Return to BASIC

GDIS:  jsr    $B3AE                        ; ***** GDIS x 0.127 , y 0..31/63 *****
    ldy    #$FF
L06BB:
    iny
    sty    $C0
    beq    L06C3
    jsr    $B3AB                        ; Arg from Basic line
L06C3:
    ldy    $C0
    stx    $F0,y                        ; F0=X F1=Y F2=DOT(1) or LINE(2)
    cmp    #$2C
    BEQ    L06BB                        ; Store parameters in F0...

    ldy    $F1                        ; Y
    lda    $F2                        ; Type
    and    #$03                        ; Mask Type  0  1  2  3

    cmp    #$02
    bcc    L06_P
    eor    #$83                        ; 00 01 81 80 (clear dot, dot, line, clear line)
L06_P:
    idx    $F0
    stx    $30
    sty    $31
    sta    $34

    lda    HORZ_SIZE                    ; Create flag for 32 or 64 in $BF
    cmp    #33
    ror    $BF                        ; Bit 7 is set for 64 mode
    lda    $34
    bpl    L06DC                        ; Bit 8 of Mask set? (Line Mode)
    jmp    L072E
L06DC:
    lda    $31
    sta    $37
    lda    $30
    sta    $36

; *****
;
L06E9:                                ; *** Plot pixel (30,31) x,y preserved
    stx    $3E
    lda    $30

```

```

    cmp    #$80
    bcs    L072B           ; Jump and quit if X >= 128
    sta    $32

    bit    $BF
    bmi    PP64           ; jump to 64 cgar section
    asl    $32           ; Only for 32 char mode
    and    #$03
    tax

    lda    $31
    clc
    adc    #$C0
    bcs    L072B           ; Jump and quit if Y >= 32 or Y>=64
    eor    #$FF

    lsr
    php
    lsr
    ror    $32
    lsr
    ror    $32
    lsr
    ror    $32
    ora    #$D0
    sta    $33
    txa
    plp
    bcc    L0716
    adc    #$03
L0716:
    tax

PPexit:

    lda    $34           ; Check delete or write
    lsr
    lda    GDPIX,x
    ldx    #$00
    bcc    L0725
    ora    ($32,x)
    bne    L0729
L0725:
    eor    #$FF
    and    ($32,x)
L0729:
    sta    ($32,x)
L072B:
    ldx    $3E
    rts

PP64:
    lda    $31
    clc
    adc    #$C0
    bcs    L072B           ; Jump and quit if Y >= 64
    eor    #$FF

```

```

        sta    $33                ; Save converted Y
        and    #$03
        asl
        tax
        lda    $33
        asl    $32
        lsr
        lsr
        lsr                ; move Y2 down
        ror    $32
        lsr
        ror    $32                ; now x0 is in carry , 32 ready

        bcc    L06E9x
        inc
        ; Mask X0 set, X ready
L06E9x:
        lda    $33                ; Correction for double size display
        lsr
        lsr
        lsr
        lsr
        clc
        adc    #$D0

L06E9z:
        sta    $33
        jmp    PPexit

;*****
;
L072E:                ;*** LINE MODE
        idx    #$02
L0730:
        lda    $2F,x
        sec
        sbc    $35,x
        bcs    L073D
        eor    #$FF
        adc    #$01
        clc
L073D:
        sta    $37,x
        ror    $35
        dex
        bne    L0730
        lda    $38
        bne    L074C
        cmp    $39
        beq    L0757
L074C:
        asl
        bcs    L0756
        asl    $39
        bcc    L074C
        ror    $39
        clc

```

```

L0756:
ror
L0757:
sta $38
ldy #$00
ldx #$00
L075D:
txa
clc
adc $38
tax
bcc L076E
bit $35 ; Check Bit 7
bmi L076C
inc $30 ; increment x coordinate
bcs L076E
L076C:
dec $30 ; decrement x coordinate
L076E:
tya ; Delta Y in Y
clc
adc $39
tay
bcc L077F
bit $35 ; Check Bit 6
bvs L077D
inc $31 ; increment y coordinate
bne L077F
L077D:
dec $31 ; decrement y coordinate
L077F:
JSR L06E9 ; Plot pixel (30,31) x,y preserved

lda $30 ; compare that endpoint is reached
cmp $36
bne L075D
lda $31
cmp $37
bne L075D
rts
;
SAFI: jsr $AAAD ;***** SEQU *****
jsr $B408 ; BASIC GET 16BIT ARG FROM BASIC LINE
jsr $00C2 ; BASIC GET CURRENT CHAR FROM BASIC LINE
beq L07A2
jsr $AC01 ; BASIC CHECK SYBBOLS IN BASIC CODE
bne L07C8
L079F:
jsr L0675 ; Parameter Loop
L07A2:
lda #$2C
ldy #$00
sta ($11),y
inc $11
bne L07AE
inc $12
L07AE:

```

```

        jsr    $00C2          ; BASIC GET CURRENT CHAR FROM BASIC LINE
        bne   L07C5
        ldy   $11
        lda   $12
        ldx   #$00
        stx   $5F
        ldx   #$90
        sta   $AD
        sty   $AE
        sec
        jmp   $B7E8          ; BASIC Return new 16bit address
;
L07C5:  jsr    $AC01          ; BAIC CHECK SYVBOLS IN BASIC CODE
L07C8:  jsr    $AAC1          ; BASIC EVALUATE EXPRESSION
        bit   $5F
        bmi   L079F          ; Loop next parameter
        jsr   $B96E          ; BASIC Build ASCII number in 100 form AC-AF
        jsr   $B0AE          ; BASIC PRINT MESSAGE
        jmp   L079F          ; Loop next parameter
;
; *****
; ***** SEQ5 Set Read pointer to memory *****
;
SEFI:   jsr    $AAAD          ; BASIC GET 16BIT ARG FROM BASIC LINE
        jsr   $B408          ; BASIC Convert FLOAT to INT, Result in 11-12
        lda   $11
        ldy   $12
        jmp   $A624          ; within BASIC FINALIZE RESTORE
;
; *****
; *****
;
EOF:    ldy    #$01          ; ***** EOF *****
        lda   ($9F),y
        cmp   #$2C
        bne   L07EE          ; EOF = 1 (more data)
        dey
;
L07EE:  jmp    $AFD0          ; BASIC Returns value in Y ??
;
; *****
; ***** DCHK Check/Verify *****
;
CHECK:  JSR    L037E          ; Get String parameters to Stack
        pla
        tay
        pla
        sta   $A3          ; High address
        pla
        jsr   L07FA          ; FAT name Search
        beq   CHEC1          ; Check if found, jump if name exist in FAT
        sta   $E027          ; ERROR 9 File not found returned
        rts

```

```

CHEC1:
    sta    $E026
    jsr    L0618        ; DOS READ/VERIFY FILE(5)
    lda    #$FF
    sta    $E026        ; Verify bit set to 1
    rts

;

; ***** FAT name Search *****
; (A) length, (Y) low

L07FA:
    bne    L07FF        ; String length >0
    jmp    $B268        ; BASIC: Sting length ERROR

L07FF:
    tax

L0800:
                                ; MOVED FROM ROM TO DOSSUP
    sty    $A2          ; Store DOS FILNAME VECTOR ADDRESS
    stx    $94          ; String length in X and $94
    jsr    L03E0        ; Call DOS SEARCH FILE (0)
    lda    DOS_LE022    ; Load DOS Vector for FILE POINTER
    sta    $F5
    lda    DOS_LE023
    sta    $F6

    cmp    #$F8        ; Pointing outside FAT (Means Name not found)
    bne    L0822
    lda    #$09        ; Load ERR=9 (File not found)
    rts

L0822:
    lda    #$00        ; File found

L0824:
    rts

;
; *****

                                ; **** VERSION ****

SVER:
    lda    #FATVER&255
    ldy    #FATVER>>8
    jmp    $A8C3        ; BASIC PRNT string

;
; *****

FORMAT:
                                ; **** FORMAT ****
    ldy    #$00
    sty    PAR_STOR+1    ; Second Parameter is Full(0) or BootSec(>0) only
    sty    PAR_STOR+1    ; Third Parameter is Single (0) or Double(>0) sided
    JSR    L0351        ; Evaluate integer parameters
    lda    PAR_STOR      ; First Parameter is DRIVE number
    cmp    #$04        ; Check for range 0..3
    bcc    FMT1        ; Jump, if <4
    jmp    $AE88        ; FC-Error

```

```

FMT1:
    sta    $E020        ; Store target drive number
    lda    PAR_STOR+1
    beq    FMT2
    lda    #$FF

FMT2:
    sta    $E026        ; Store 00/FF for format option
    lda    PAR_STOR+2
    beq    FMT3
    lda    #$FF

FMT3:
    sta    $E01E        ; Store 00/FF for single/double sided

    jsr    FMT0        ; DOS: FORMAT DISK (6)
    ldy    #$00
    sty    $E01E        ; Default Single (0) sided
    dey
    sty    $E026        ; Back to read mode

    lda    $E027        ; Check Error
    bne    L0824        ; Jump on Error
    jsr    L03C7        ; DOS_READ_FAT(7), from new drive

VERSION:
    ; Updates VERSION Info
    ldy    #$0F

VERLP:
    lda    VER,y
    sta    FATVER,y
    dey
    bpl    VERLP
    inc    FATCHANGE    ; Mark changed FAT
    jmp    L03CD        ; DOS: WRITE DISK FAT (7)

    .db    #00        ; End of Table

.DW SVER-1
.db $D2, $45, $56        ; VER Command

.DW FORMAT-1
.db $D4, $4D, $46, $44        ; DFMT Command

.DW DIC-1
.db $D2, $49, $44        ; DIR Command

    .DW CLG-1
    .db    $C7, $4C, $43        ; CLG Command

.dw SEL-1
.db $CC, $45, $53        ; SEL Command

.DW CHECK-1
    .db    $CB, $48, $43, $44        ; DCHK Verify Command

    .DW CHANGE-1
    .db    $CE, $45, $52, $44        ; DREN Command

.dw STR-1

```

```

.DB $D6, $41, $53, $44                ; DSAU Command

.dw EOF-1
.DB $C6, $4F, $45                    ; EOF Command

.DW DEZ-1
.DB $D2, $54, $50                    ; PTR Command

.DW SAFI-1
.DB $D7, $51, $45, $53                ; SEQU Command

.dw SEFI-1
.DB $D3, $51, $45, $53                ; SEQ5 Command

.DW SCR-1
.DB $D2, $43, $53                    ; SCR Command

.dw GDIS-1
.DB $D3, $49, $44, $47                ; GDIS Command

```

```
; 7 bytes free
```

```
TOKEN:
```

```
:
```

```
; ***** END $EFFF *****
```

```

HERE_POS      .SET *
               .ORG $F000
DELTA         .SET HERE_POS - *
               .IF DELTA > 0
               .ERROR "*** ADDRESS Conflict !! ***"
               .ENDIF

```