

# **FLEX CPU09CMI Utilities**

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## **BLIST - Version 1**

### SYNTAX

**BLIST,<file spec>**

### DESCRIPTION

The BLIST command is similar to the LIST command, in that it lists the contents of text files to the screen or printer. However, it uses a very large buffer to reduce wear and tear on the disk drives, especially valuable when a slow printer is being used. Pagination and line numbers are not supported in this version.

Where <file spec> is the name of the text type file to list {an extension of .OUT is assumed unless otherwise specified}.

BLIST may be preceded with the "P" command. The "escape character" feature of FLEX (refer to TTYSET) is active.

BLIST and its buffer occupy most of \$0100-\$7FFF of memory.

### NOTE:

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## **BOOTON - Version 7**

Show {change} floppy disk cable type.

### SYNTAX

#### **BOOTON**

### DESCRIPTION

If FLEX did boot from floppy drive:  
it show the disk drive cable type.

1 = Straight FLEX cable  
5 = PC cable (twisted)

If the disk driver can use the cable type flag then it show:  
"Try a cable change."

And works the same as the boot from IDE drive.

If FLEX did boot from IDE drive:  
it show the cable type and will ask if you want change it.  
And if de cable type is not 1 or 5  
it will ask to set the correct type.

```
+++BOOTON
No BOOT cable found
Set cable code 1/5 ?1
+++
+++BOOTON
BOOT on Straight cable (code=1)
Change cable code y/n ?y
+++BOOTON
BOOT on PC cable (code=5)
Change cable code y/n ?
+++
```

### NOTE:

When FLEX boot from IDE and there is no floppy in drive 0  
or no image loaded on GoTek 0,  
the device will not give a ready signal the cable will be type 5.  
Use BOOTON to check and change the cable type.

Manual change the cable type:

```
+++MON
cmi-bug 1.5 - 60k

>M F7EE
- F7EE 05 01
- F7EF 00
>
WARM start FLEX
```

## **CHECKSUM - Version 1**

Reads the specified file, calculates a checksum on it.

### SYNTAX

**CHECKSUM <file spec>**

### DESCRIPTION

The CHECKSUM command reads any disk file and can put a checksum on it. This is a quick way of determining whether or not two copies of a program or text file are identical versions.

Another way of using it is, every time you make changes to a program or other file, to calculate the checksum of the new version and write it in a log.

Later, if you want to determine which version a particular copy is, calculate the checksum on it and look it up in the log.  
(the extension defaults to .BIN}.

The 2 byte checksum is displayed as a four digit hexadecimal number.

Another possible use for this command is to read a file to see if any sectors in it have read errors.

### NOTE:

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## **CMILINK - Version 1.0**

Links FLEX to BOOT loader.

### SYNTAX

**CMILINK** <file spec>

### DESCRIPTION

Links FLEX on a IDE drive in the boot loader on sector 0.

Links FLEX on a Floppy drive in the boot loader on sector 1.

+++CMILINK 0.FLEXIDE.SYS

+++CMILINK 2.FLEXFLP.SYS

## **CMISTEP - Version 6.0**

Change Floppy drive step rate.

### SYNTAX

#### **CMISTEP**

### DESCRIPTION

Depending on the FLEX disk driver:

cmi\_io2  
cmi\_io4  
cmi\_io4x  
cmi\_io4A

It will set the disk step rate for all the floppy drives.

cmi\_io4B  
cmi\_ide  
cmi\_ide2

It will set the disk step rate for each floppy drive separate.  
And set double step for each floppy drive separate.

### Note:

When using only Gotek drives, set the lowest step rate.

## **DIR-COPY - Version 0.1**

**JCP** script to Copy/Update subdirectories.

### SYNTAX

**JCP DIR-COPY+'source' destination' subdirectory['C]**

### DESCRIPTION

JCP runs the script DIR-COPY to copy the new 'subdirectory' from 'source' to 'destination'.

**JCP DIR-COPY+'1'2' subdirname'C**

Will copy the subdirectory "subdirname" from drive 1 to drive 2.

To update a subdirectory.

**JCP DIR\_COPY+'1'2' subdirname**

Will transfer the files from "subdirname" on drive 1 missing in "subdirname" on drive 2.

### SEE ALSO

**SHOWDIR, GCOPY**

## **FDRIVES - Version 6.1**

Show all drives in FLEX.

### SYNTAX

**FDRIVES** [<options>]

### DESCRIPTION

**FDRIVES** will report current settings and can swap partitions.

Command line format:

```
report current settings
    fdrives<cr>

    hard drive parameters
        fdrives n t d p      n = logical drive
                                t = type W or F
                                d = physical strapped drive
                                p = partition on hard drive

    floppy drive parameters
        fdrives n t d      n = logical drive
                            t = type W or F
                            d = physical strapped drive
```

When VIRTUAL is loaded, FDRIVES has a message telling you what to do.

### SEE ALSO

**IDEFMT, PLIST**

## (Uni)FLEX - Version 1.3

**NOTE: This is a WINDOWS program!**

### SYNTAX

#### (Uni)FLEX

### DESCRIPTION

**(Uni)FLEX.EXE** will create a formatted Gotek IMA image for the 6802 and 6809 FLEX.

It will ask for:

```
image name,  
boot loader name, < must contains 02 or 09 or UF  
in the filename and must be  
256 or 512 bytes long>  
+ volume name,  
+ volume number,  
+ sectors on track 0, <10 or 15> (5" or 8")  
+ sectors on track 1, 5" <10 or 18> (SD or DD)  
8" <15 or 26> (SD or DD)  
+ number tracks, 5" <35 or 40 or 80 or 81 ... 255>  
8" <77 or 81 ... 244>  
+ sides, <1 or 2> (tracks >80 use 2)
```

If the file size is not the calculated size the program stops with:  
'Build error'  
'File Size incorrect'.

After creating the image there will be a prompt for 8" images to optimize the interleave values.

Then it will show the Gotek 'IMG.CFG' data.

**OK** - will save it in an 'image name.cfg' file.  
**EXIT** - will leave the program.

- The program has the option to just put a boot loader on an existing FLEX (no Dens, SD, DD bytes are set) / UniFLEX image.

Copy (Uni)FLEX.EXE to Uni-FLEX.exe or make a Shortcut and change the Target: (Uni)FLEX.exe "3" it will skip the + prompts.

Note:

- 5" image up to 255 tracks will work.
  - 8" image Track \$F4, \$F5, \$FE create an error and FLEX can destroy the image.
- The 8" maximum save track number is 244!

**FORMAT5 - Version 5.2****FORMAT8 - Version 8.2**

FLEX Floppy Disk formatter.

**SYNTAX**

**FORMAT5,<drive>**  
**FORMAT8,<drive>**

**DESCRIPTION**

**FORMAT5** will format a floppy disk or GoTek image and write a BOOT loader.  
There are the following options:

35, 40, 80 tracks  
Single/Double Sided  
Single/Double Density

**FORMAT8** will format a floppy disk or GoTek image and write a BOOT loader.  
There are the following options:

77 tracks  
Single/Double Sided  
Single/Double Density

The formatter will give the message "Not a Floppy disk"  
on an IDE or VIRTUAL disk number.

- If FLEX is booted on a version without the IDE drivers then all logical  
drive numbers can be formatted. Also if VIRTUAL is loaded and with SET  
the drives are swapped then there is no problem,  
the formatter then uses both the logical and physical drive number.

- If FLEX is booted on the IDE driver then the formatter uses  
both the logical and physical drive number.  
Even if the drives are swapped with FRDRIVES.

- If FLEX is booted on the IDE driver and VIRTUAL is loaded  
the formatter works with logical and physical drive number.  
Unless SET and/or FRDRIVES is used to swap drives.  
Then unload VIRTUAL with "SET <' then run FRDRIVES and reload VIRTUAL.

**Note:**

FORMAT5 and FORMAT8 have been rewritten to work on the 16MHz CPU09CMI  
card and with the IDE/VIRTUAL driver and with PC/Straight cable.

**But the PC cable is not an option because then only logical drive  
numbers 0 and 1 can be used.**

**SEE ALSO**

**FRDRIVES, SET**

## **IDEFMT - Version 6.1**

FLEX IDE Disk formatter.

### SYNTAX

**IDEFMT, <drive>**

### DESCRIPTION

Format IDE logical drive.

Maximum track number = 255

When formatting logical drive 0 it will ask for writing the BOOT loader.  
Formatting other partitions can be done  
by swapping the partitions with FDRIVES.

#### Note:

IDE FMT does not format a floppy or virtual disk.

### SEE ALSO

**FDRIVES, PLIST**

## **NEWBDISK - Version 1**

## **NEWMDISK - Version 1**

FLEX GoTek 3 MB image re-formatter.

### SYNTAX

```
NEWBDISK,<drive>
NEWMDISK,<drive>
```

### DESCRIPTION

**NEWBDISK** will reformat a GoTek 'Boot09name.DSDD-B-8.IMA' image and write a BOOT loader.

This are the 3,388 MB settings:

```
    255 tracks
    Double Sided
    Double Density
```

Can give CRC errors on track \$F5 and \$FE.

**NEWMDISK** will reformat a GoTek 'Boot09name.DSDD-M-8.IMA' image and write a BOOT loader.

This are the 3,242 MB settings:

```
    244 tracks
    Double Sided
    Double Density
```

For safety uses WD2793 maximum track count.

- If FLEX is booted on a version without the IDE drivers then all logical drive numbers can be formatted.

- If FLEX is booted from the IDE then the formatters can use drive 1.  
Jumper a GoTek as Drive 1.

And run:

```
+++FDRIVES 1 F 1
+++NEWMDISK 1
```

### Note:

Logical and physical drive number must be the same.

NEWBDISK use 255 tracks, but the WD2793 can give CRC errors on a Sector or Track when it uses the number \$F5 or \$FE !

NEWBDISK and NEWMDISK have been rewritten to work on the 16MHz CPU09CMI card and with the IDE driver and with PC/Straight cable.

### SEE ALSO

**FDRIVES**

## **PLIST - Version 6.0**

Show IDE drives information.

### SYNTAX

**PLIST**

### DESCRIPTION

It will show all the following data on the IDE device:

PART number VOL Name VOL Number Description

Then the program allows updating of this information.

"SPACE Bar - Exit, <CR> - Change Description, (M)ount, (K)ill, (U)ndo ? "

Note: A <CR> will leave the entry unchanged  
Enter a single space to blank VOLNAM or Description

The program will check if de IDE driver is loaded.

## **RAMDSK**

CPU09RAM memory page test.

### SYNTAX

#### **RAMDSK**

### DESCRIPTION

**RAMDSK** - Will show the switch setting.  
Then the program will check if all pages are unique.  
It will write and read each page full with a unique code.

```
+++RAMDSK
Switch setting: CB
Write chip: 01234567
Read chip: 01234567
+++
```

Any RAMDSK Error looks like:

```
Read chip: 012
Error at:
WRITE READ PAGE Chip
0803 0800 0003 U6
Read chip: 34567
```

NOTE: It use FLEX calls and return to FLEX.

### SEE ALSO

**RAMDSK3, RDSKTST**

## **RAMDSK3**

CPU09RAM memory test.

### SYNTAX

#### **RAMDSK3**

### DESCRIPTION

**RAMDSK** - Will show the switch setting.  
The first run will check if all pages are unique.  
The second one will write all 0000 to the ram,  
you can change the 0000 at \$0142.  
The third one will write all FFFF to the ram,  
you can change the FFFF at \$0157.

```
+++RAMDSK3
Switch setting: CB
    > Page select test <
Write chip: 01234567
Read chip: 01234567
    > Write/read $0000 <
Write chip: 01234567
Read chip: 01234567
    > Write/read $FFFF <
Write chip: 01234567
Read chip: 01234567
+++
```

Any RAMDSK3 Error looks like:

```
Read chip: 012
Error at:
WRITE READ PAGE Chip
0803 0800 0003 U6
Read chip: 34567
```

NOTE: It use FLEX calls and return to FLEX.

### SEE ALSO

**RAMDSK, RDSKTST**

## **RBRDSK - Version 1.0**

CPU09RAM disk memory test.

SYNTAX

**RBRDSK**

DESCRIPTION

This is a rotating bit memory test.  
Each good test will print '+' on the screen.

Any RBRDSK Error looks like: Error at: 48CB ECAA

48CB is the address stored at \$ED00 and \$ED01.  
ECAA is the address in the RAM space EC00-EDFF.

NOTE: It use FLEX calls and return to FLEX.

SEE ALSO

**RBRDSKM**

## **RBRDSKM - Version 1.0**

CPU09RAM memory test.

### SYNTAX

#### **RBRDSKM**

### DESCRIPTION

This is a rotating bit memory test.  
Each good test will print '+' on the screen.

Any RBRDSKM Error looks like: Error at: 48CB ECAA

48CB is the address stored at \$ED00 and \$ED01.  
ECAA is the address in the RAM space EC00-EDFF.

NOTE: It use MONITOR calls and ends in the MONITOR.

### SEE ALSO

#### **RBRDSK**

## **RDSKTST**

CPU09RAM memory test.

### SYNTAX

**RDSKTST**

### DESCRIPTION

**RDSKTST** - Will show the switch setting.

The first run will check if all pages are unique.  
The second one will write all 0000 to the ram,  
you can change the 0000 at \$0142.  
The third one will write all FFFF to the ram,  
you can change the FFFF at \$0157.

```
+++RDSKTST
Switch setting: CB
    > Page select test <
Write chip: 01234567
Read chip: 01234567
    > Write/read $0000 <
Write chip: 01234567
Read chip: 01234567
    > Write/read $FFFF <
Write chip: 01234567
Read chip: 01234567
cmi-bug 1.5 - 60k
```

>

Any RDSKTST Error looks like:

```
Read chip: 012
Error at:
WRITE READ PAGE Chip
0803 0800 0003 U6
Read chip: 34567
```

NOTE: It use MONITOR calls and ends in the MONITOR.

### SEE ALSO

**RAMDSK, RAMDISK3**

## **RWTST09**

Floppy disk, GoTek image and VIRTUAL disk Read/Write test.

### SYNTAX

#### **RWTST09**

### DESCRIPTION

Load the rwtst09.s1 file start \$0100 or run it from FLEX.

Program prompts user for function (F?)  
To which the user can respond 'R' (READ)  
or 'W' (WRITE).  
Then it prompts for single digit drive number (D?),  
Two digit HEX track number (T?)  
And two digit HEX sector number (S?).

After performing the function,  
test repeats the prompting for another function,  
or a 'F' (Return to FLEX),  
or a 'M' (Exit to monitor).

To read the boot loader from a GoTek images:

```
+++RWTST09
F?R
D?2
T?00
S?01

86 F1 20 09 61 00 00 00 0A 0A 0C 00 00 1F 8B 32
8D 03 2D A6 8C EE 85 20 26 06 A6 8C EC A7 8C E8
86 02 97 02 30 8D 00 D8 17 00 6A 26 48 EC 8C D5
10 27 00 DC 33 8D 02 C8 EF 8C D0 17 00 A3 81 02
27 12 81 16 26 F5 17 00 98 A7 E3 17 00 93 A7 61
4F 1F 8B 39 17 00 8A A7 E3 17 00 85 A7 61 35 20
17 00 7E 27 D6 1F 89 34 04 17 00 75 A7 A0 35 04
5A 26 F4 20 C6 30 8C 08 AD 9F F8 12 6E 9F F8 00
2D 20 43 61 6E 27 74 20 72 65 61 64 20 73 65 63
2E 32 0A 0A 04 86 8C 97 00 30 8D 01 63 20 04 96
03 A7 80 96 08 2B F8 27 FA D6 00 C5 9C 39 D7 02
E1 8D FF 54 34 01 E6 8D FF 4A 35 01 23 02 CA 10
D7 04 91 01 27 0A 97 03 86 1B 97 00 D6 08 27 FC
D6 00 C5 98 39 33 8D 01 27 EC C4 ED 8D FF 26 33
44 11 A3 8D FF 25 27 03 A6 C0 39 EC 8D FF 16 27
19 8D BB 17 FF 9F 27 DD 86 0B 97 00 8D CE 6A 8D

F?F
+++
```

### NOTE:

This will not work on the IDE driver's SD card, use DPACH.  
FLEX must be loaded.

## **SET**

Show - change floppy and virtual drives number and type.

### SYNTAX

**SET** <options>

### DESCRIPTION

Command is added by loading VIRTUAL driver.

Command for resetting drive type and local drive number for each of the Floppy and Virtual drives.

```
SET 0=V0 1=D0 2=D1 3=D2 ?
NOTE ='S ,COMMAS, & SPACES ARE OPTIONAL AND IGNORED
WILL EQUATE FLEX DRIVE 0 TO VIRTUAL DRIVE 0
          1 TO REGULAR DISK DRIVE 0
          3 TO REGULAR DISK DRIVE 1
          4 TO REGULAR DISK DRIVE 2
/ - WILL SUPPRESS PRINT OF CURRENT STATUS
< - WILL CLEAN UP THE VIRTUAL PROGRAM
    EG RESTORE MEMORY FOR FLEX.
```

NOTE - SCAN STOPS AT FIRST ENCOUNTER OF <,>, <CR>

"S" AND "W" WILL ASSIGN SYSTEM AND WORK DRIVES

EG.

```
IF S APPEARS BEFORE DISK ASSIGNMENT WILL SET SYS TO ALL
IF S APPEARS AFTER DISK ASSIGNMENT WILL SET SYS TO THAT DRV
SAME FOR W - WORK ASSIGNMENT
```

```
+++SET S 0=V0
      WILL EQUATE THE SYSTEM DRIVE TO "ALL" AND
      EQUATE FLEX DRIVE 0 TO VIRTUAL DRIVE 0 AND PRINT

+++SET 0=V0 S 3=W
      WILL EQUATE THE VIRTUAL DRIVE TO FLEX DRV0 AND
      EQUATE THE WORK DRIVE TO PREVIOUSLY DEFINED FLEX #3 WITH NO PRINT

+++SET
      WILL RESET THE PROCESSOR DP REGISTER TO 0 AND PRINT
```

### NOTE:

WHEN USING THE IDE DISK DRIVER, SET WILL SHOW A H0, H1 DRIVE  
DON'T USE SET TO CHANGE THE Hx DRIVES.  
THE VIRTUAL DISK WILL BE PUT ON THE HIGHEST LOGICAL NUMBER.  
DON'T USE FDRIVES TO CHANGE THE Dx AND OR V0 DRIVES AFTER  
THE VIRTUAL DRIVER IS LOADED.

### SEE ALSO

**VIRTUAL**

## **SHOWDIR Version 2.0**

Show Subdirectories.  
Create script to copy subdirectories.

### SYNTAX

**SHOWDIR** <drive>[ [ <dest>] [ <option>[-<start,end>] [ <prog>]] ]

### DESCRIPTION

Show numbered .**DIR** files on <drive> of 1 sector in size.

#### Option:

A - Show all .**DIR** files on <drive>, no numbering.  
a - Show all .**DIR** files on <drive>, no numbering.  
E - Create EXEC script from <drive>, update existing subdirs.  
e - Create EXEC script from <drive>, copy subdirs.  
            No error recovery, unlimited size.  
J - Create JCP script from <drive>, update existing subdirs.  
j - Create JCP script from <drive>, copy subdirs.  
            Default destination drive=3,  
            <dest> drive number will overrule.  
            Some error traps, size limit for JCP ~15 subdirectories.

<start> - Number first subdirectory to put in script.  
<end> - Number last subdirectory to put in script.

<prog> - Overrule both script copy commands put 8 character string.  
            'GCOPY ', 'N COPY ', 'Y COPY ', 'CP +DN '.  
Defaults are: update = GCOPY, copy = COPY.

#### To make an EXEC script run:

O,<drive>DIR,SHOWDIR,<drive> <dest> e

#### Run then:

TTYSET PS=NO  
EXEC <drive>DIR.OUT

#### To make a JCP script with first 5 subdirectories run:

O,<drive>DIR,SHOWDIR,<drive> <dest> j-1,5

#### Run then:

TTYSET PS=NO  
JCP <drive>DIR.OUT

The script can be too big for JCP, default JCP buffer is ~1500 Kb.  
Each .DIR entry is ~100 byte. Use option <start,end>.

Make sure the <dest> drive will fit all the subdirectories.

On a SD <source> the space N = (64770 - Free - Sectors + number DIR's).  
So de <dest> must have N free sectors.

To delete a subdirectory,  
first delete the files in the subdirectory itself.  
This is to restore the freechain.  
Only then delete the (1 sector) .**DIR** subdirectory.

### SEE ALSO

**COPY, ECHO, EXEC, GCOPY, JCP**

## **VDISK - Version 9.7**

FLEX RAM disk formatter.

### SYNTAX

#### **VDISK**

### DESCRIPTION

When the virtual disk driver is loaded it can format the virtual disk(s).  
If there is only one virtual drive it will format V0.

If there are 2 virtual drives it will ask the number to format:

0 = format V0  
1 = format V1  
A = format both

If the Format protection switch SW2-4 on the RAM card is on  
VDISK will tell that, to overrule the protection type: Yes

If the Battery low switch SW1-1 is on or the 'UPS RAM' gives a low signal  
VDISK will start automatically after loading the VIRTUAL driver.

### NOTE:

The size of the Disk(s) will be set by VIRTUAL  
depending on the RAM card DIP switch settings.

### SEE ALSO

#### **VIRTUAL**

## **VIRTUAL - Version 9.7**

FLEX Virtual Disk driver.

### SYNTAX

**VIRTUAL [,<drive>=W] [,<drive>=S]**

### DESCRIPTION

**VIRTUAL** will scan the RAM card DIP switch settings and set the data for VDISK.

+++VIRTUAL 3=W

Sets the virtual drive on FLEX drive 3 as work drive .

After first time loading VIRTUAL de drive(s) needs to be formatted, when removing virtual with 'SET <' or a WARM FLEX boot only VIRTUAL has to be loaded again.

Any COLD FLEX boot with the SYSTEM power on  
or any COLD FLEX boot after a SYSTEM power off  
but with a RAM card 'UPS RAM' needs only a VIRTUAL reload.

If the Battery low switch SW1-1 is on or the 'UPS RAM' gives a low signal VDISK will start automatically after loading the VIRTUAL driver.

NOTE: On all non IDE disk drivers if SW2-2 = ON Virtual set:

Boot, 0=D0 1=D1 2=V0 3=V1

VIRTUAL will overrule the RAM DIP switch SW2-2 status if the IDE disk driver is loaded:

Boot from IDE, 0=H0 1=H1 2=D2 3=V0  
Boot from FLP, 0=D0 1=V0 2=H0 3=H1

### SEE ALSO

**SET, VDISK**