C.M.I. FLASH KIT

Importing wave files in the Fairlight C.M.I. Series II/IIx & other tricks

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I. Introduction

The availability of a Flash Drive Storage solution for the Fairlight C.M.I. has made it possible to transfer wave files between your Fairlight and a computer.

This tutorial is both for Mac and Windows users. But since I'm a Mac user this tutorial focusses more on the Mac experience.

Besides the instructions on how to import wave files you'll also find lots of other useful tips & tricks for using the C.M.I. Flash Kit.

More info about The C.M.I. Flash Kit, including buying one, can be found here:
http://mustudio.fr/?p=2058

II. Tools needed

1. A Flash Kit: http://mustudio.fr/?p=2058
2. HxCFloppyEmulator : http://hxc2001.free.fr/floppy_drive_emulator/
3. cmios9: https://sourceforge.net/projects/cmios9/files/
4. A computer with an Audio editor (Adobe Audition, Sony Sound Forge, ...) and an SD card reader

III. Preparing the blank disk image

Take a blank 6800 disk image. You can use one of the 6800 images from the directory labeled 'Virgin' on the SD card that came with your Flash Drive.

This disk image is in the .HFE file format and needs to be converted into a binary format for use in cmios9. We'll use HxCFloppyEmulator to convert the .HFE file into a .IMG binary file.

1. Open **HxCFloppyEmulator** and select **Settings > SD HxC Floppy Emulator settings**
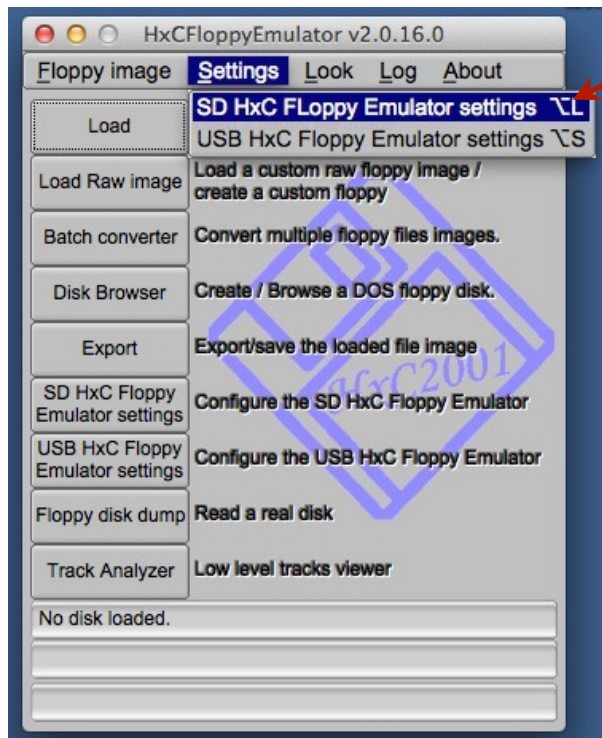
2. Deselect **Auto** and make sure that the HFE file interfacemode is set to **Generic Shugart.** Click
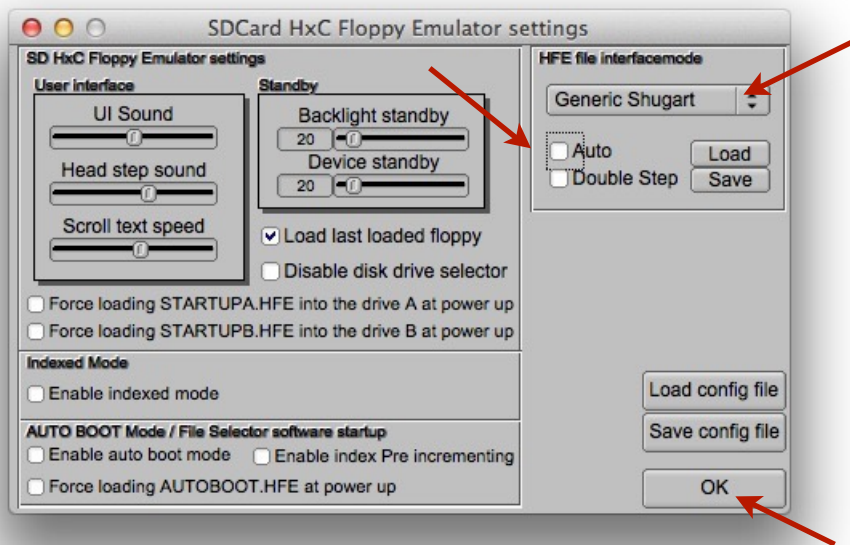
3. **Drag** the disk image (e.g. 6800_1) onto the HxCFloppyEmulator application.

4. Click on **Export** and **Save As: IMG file (RAW Sector file format *.img)**
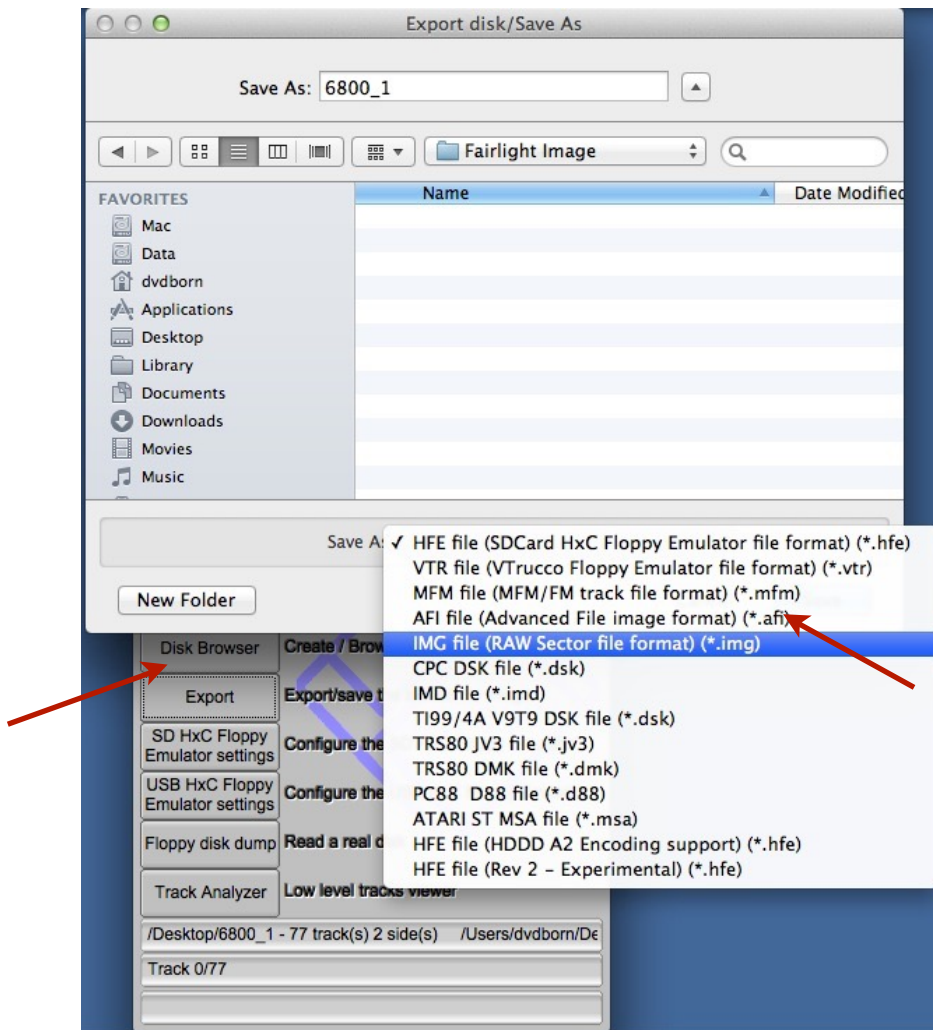
5. I'll save the file with the name **6800_1.IMG**.

This file will always be your starting point.
When you want to import files make a copy of this file so that you never edit the original file.

IV. Importing wave files in the blank disk image

We'll be using the cmios9 application developed by kmi9000 to import the wave files in the blank disk image. You'll need at least cmios9 version 2.10.

You can download cmios9 here: https://sourceforge.net/projects/cmios9/files/

1. Prepare your wave files. The wave files need to be 8 bit, mono, <= 30200Hz. Only the first 16634 samples will be used since the Fairlight samples are always 16KB in size. cmios9 will automaticaly truncate the sample.
2. Copy the wave files into the same folder as where the blank disk image is located.
3. Open the terminal application on your Mac or the Command prompt window (Windows).
4. Navigate to the folder where the blank disk image is located: *cd <path>*
Instead of typing the path you can drag the folder where the file is located onto the Terminal.
5. Open the blank disk image with the cmios9 application: *cmios9 -q 1 ImageName.IMG*
6. Import the wave files using the wav2vc2 command in cmios9: *wav2vc2 TEST.WAV*
7. When done type: *exit*

Mac OS X Tip:
Follow these instructions so you can use the cmios9 command everywhere in the terminal.

- In the terminal, create the folder /usr/local/cmios9: *sudo mkdir /usr/local/cmios9*
- copy the cmios9 application into this folder using the *sudo cp* command:
     - In the Finder go to the folder where the cmios9 file is located.
     - In the terminal type *sudo cp* and drag the cmios9 file on the terminal.
     - Next finish the command in the terminal with */usr/local/cmios9* and press enter. You'll need to enter your computer account's password.
     - The command will look something like this
       sudo cp /location/cmios9 /usr/local/cmios9
- Add the new folder to the $PATH variable: *export PATH=$PATH:/usr/local/cmios9*

Next time that you'll need the cmios9 command you can just type *cmios9* it in the terminal without specifying the path where it's located.

V. Convert the disk image to a .HFE file

We will need to convert the binary disk image back into a .HFE that can be read by the Flash Kit.

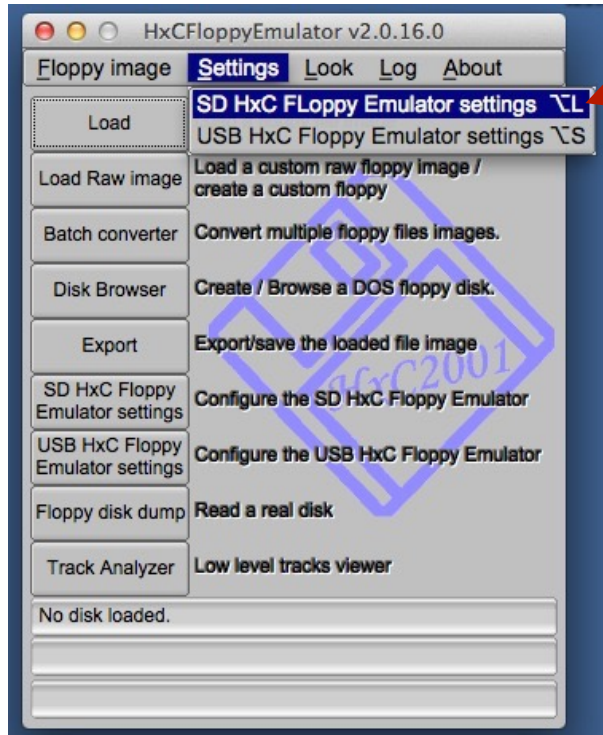1. Open **HxCFloppyEmulator** and select **Settings > SD HxC Floppy Emulator settings**

2. Deselect **Auto** and make sure that the HFE file interfacemode is set to **Generic Shugart.** Click OK to close.
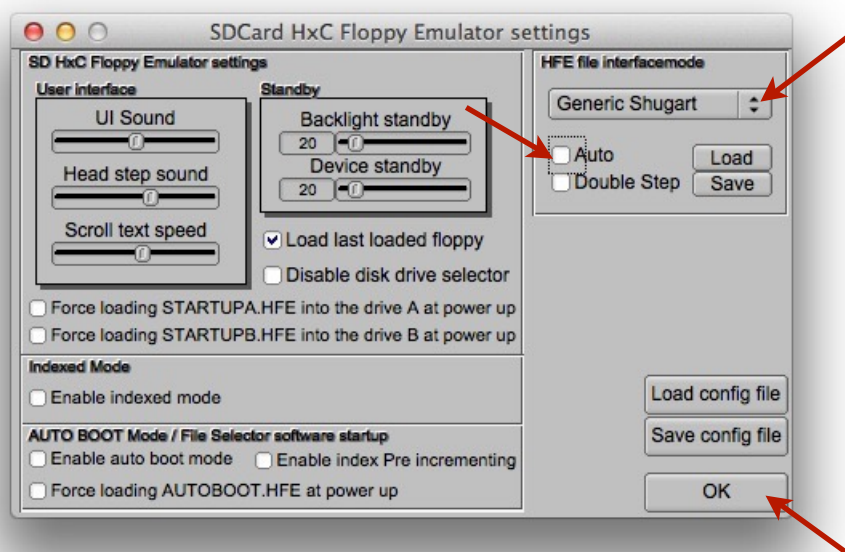
3. Click on **Load Raw Image**
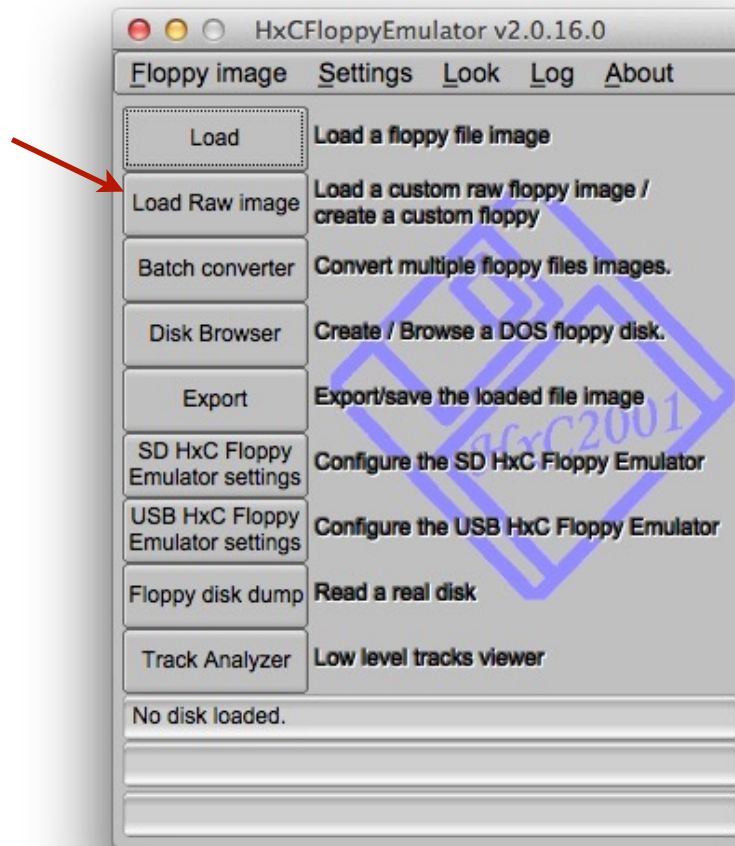
4. Make sure that the settings correspond to this screenshot:
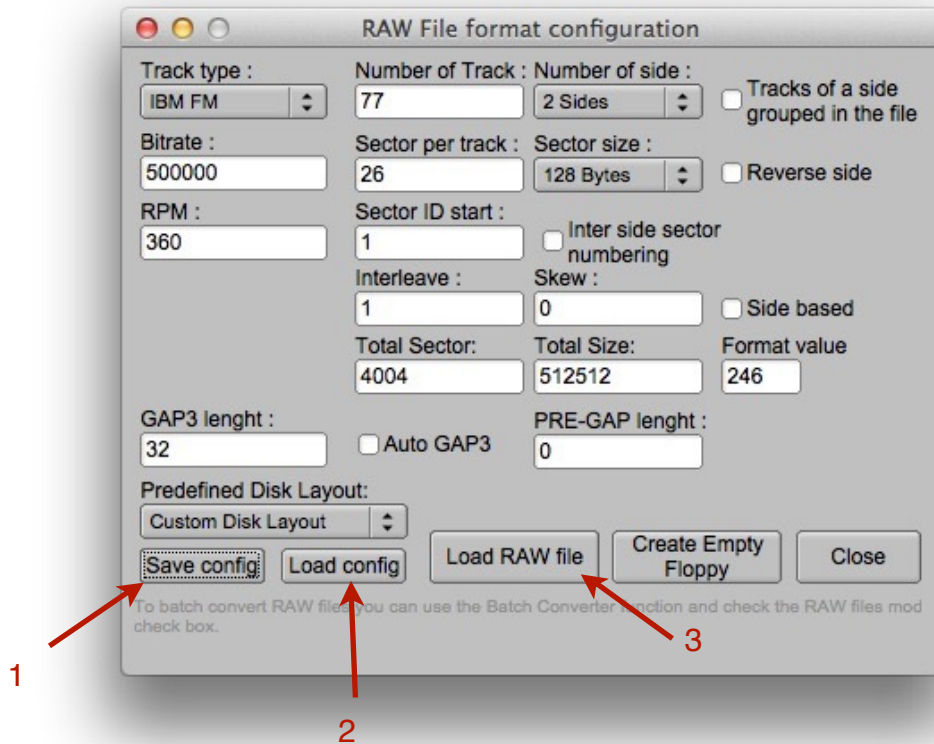
5. Click on **Save config** (1) to save these settings so that you can load them the next time by clicking on the **Load config** (2) button.

6. Click on **Load RAW file** (3) and select the disk image with the imported wave files.

7. Click on **Export**
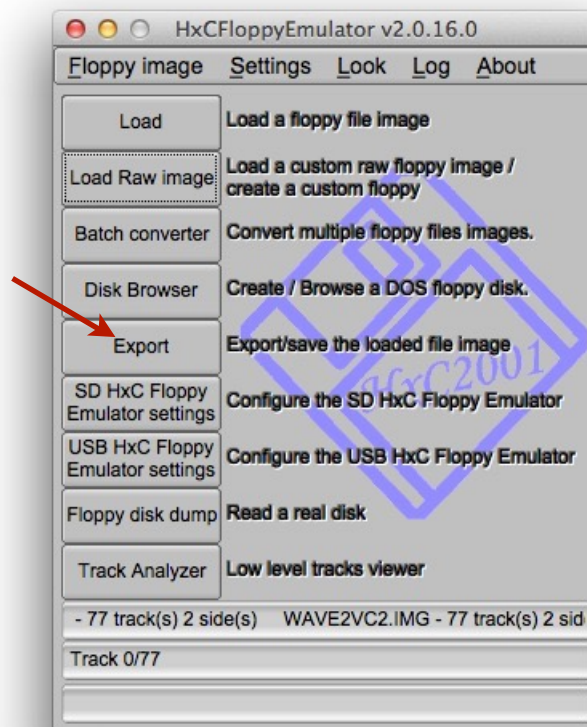
8. Save the file as a **HFE file (SDCard HxC Floppy Emulator)**
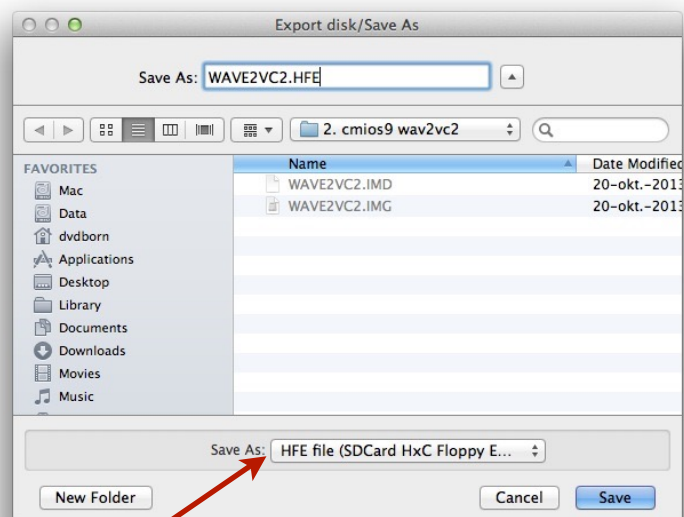
9. Copy the **ImageName.HFE** file to your SD card and insert the SD card in the Flash Drive. You're now ready to load the imported samples as voice files in your Fairlight II/IIx

VI. Importing and playing stereo files

Now that we have the power to import wave files we can go one step further and import and play stereo samples.

1. In your favourite audio editor, save each part (left & right) of the stereo sample as a seperate audio file. Keep in mind to export only 8 bit, mono files. We'll name them **sample_L.wav** and **sample_R.wav**
2. Import both samples as described in chapter IV .
3. Convert and transfer the disk image as descibed in chapter V.
4. To play both samples as a stereo file we will load both .VC files in the same register using the multi-voice load command.
   Use the following command on the CMI to load the samples in register A:
   [L,A,sample_L, sample_R <return>]

Now, all you have to do is pan the corresponding audio outputs on your mixing desk hard left and right and you can play your stereo sample.

I'll refer to the Series II manual for more info about the multi-voice load command:

```
12.  MULTI-VOICE load command
```

Pressing one note on the music keyboard will play more than one sound.

TO LOAD MULTIPLE-VOICES

                    TYPE: **L,r,filename,filename,...<return>**

where: r = register A - H
      filename = 1-8 character voice filename with or without
                   .VC suffix (see PAGE 2 description)
          ,... = continue up to eight filenames

EXAMPLE:
   L,B,DRUM,BRICK,DOG<return> - Load voice files: DRUM.VC,
                               BRICK.VC and DOG.VC into
                               register B

Interesting **phasing** effects arise when two voices with identical waveforms but different names, are loaded into one register.
If PAGE 7 pitchbend or vibrato speed and depth is changed on one voice it a frequency shift is produced.

If more than one VOICE is loaded into a register the number of channels required by the register will be NPHONY multiplied by the NUMBER of VOICES. Thus the NPHONY must be set such that the channel TOTAL does not exceed 8 BEFORE loading multiple voices. The register becomes a MULTI-VOICE REGISTER: one key will play all its voices. NPHONY must first be reduced to less than 8.

For example, if NPHONY of register A is set to 1 and B to Ø, register A may be loaded with EIGHT voices - all of which will play when the register is activated.

          type: L,A,V1,V2,V3,V4,V5,V6,V7,V8<return>
          where: V1,V2,etc = eight voice filenames

VII. Copying files from an 8-inch floppy (6800 format) to the Flash Kit

1. Choose the 3rd drive combination (QFC9 down & Flash up) as described in the Flash Kit Manual
2. Place the sample disk (6800 format) in the 8-inch drive
3. Start the CMI with OS version V4_C5_R1_20 on the Flash Drive B
4. Start the copy procedure by going to Page 2 and typing: **[T,*] <return>**
5. You'll see the following message appear: **[PLACE FILE DISK IN LH DRIVE].** This means that you'll have to select a 6800 disk image on the Flash Drive B instead of the OS image (V4_C5_R1_20)
6. Caution: once you've selected the disk image on the Flash drive the transfer process starts immediately. Make sure that you select a blank image so you don't accidentally delete existing files on a disk image
7. Once the transfer process has completed the following message will appear:
[REPLACE SYSTEM DISK IN LH DRIVE]
8. The transfer process is now completed.
9. You can continue by selecting the OS disk image again on Drive B (V4_C5_R1_20)

VIII. Copying files from the Flash Kit to an 8-inch floppy (6800 format)

1. Choose the 1st drive combination (QFC9 up & Flash down) as described in the Flash Kit Manual
2. Start the CMI with an OS floppy with version V4_C5_R1_20 in the 8-inch drive.
3. Load the disk image you want to copy in Flash drive B.
4. Start the copy procedure by going to Page 2 and typing: **[T,*] <return>**
5. You'll see the following message appear: **[PLACE FILE DISK IN LH DRIVE].** This means that you'll have to insert a 6800 formatted floppy in the 8-inch drive instead of the OS floppy.
6. Caution: once you've inserted the floppy the transfer process starts immediately. Make sure that you insert an empty floppy so you don't accidentally delete existing files.
7. The C.M.I. will copy the files one at a time from Flash drive B to the 8-inch floppy
8. At the end of the transfer process you'll see this message:
[REPLACE SYSTEM DISK IN LH DRIVE]
9. This means that the transfer process has completed.

IX. HxC drive configuration

It's possible to configure the HxC drive. Several parameters can be saved in the onboard EEPROM.

In order to access these parameters you need to remove the SD card from the Flash drive, then click for 2 seconds on the red button.

The following menu will appear:

```
┌─────────────────────┐
│   Setting Menu      │
├─────────────────────┤─────────────────────
│ < Interface CFG >   │  < From HFE File >
├─────────────────────┤─────────────────────
│   < Bitrate >       │  < From HFE File >
│  < Track Step >     │  < From HFE File >
│ < Write Protect >   │  < From HFE File >
│   < Drive B >       │  < From HFE File >
│  < Step Sound >     │  < From HFE File >
│ < Sound Volume >    │  < From HFE File >
│  < Backlight >      │  < From HFE File >
│   < Standby >       │  < From HFE File >
│ < Soft Version >    │  V1.8.2.30 L:AFC9
│ < Clear Settings >  │  No, <Clear EEPROM>
│     < Exit >        │
└─────────────────────┘
```

The SD card that came with your Flash kit already has a configuration file so you don't have to change the configuration settings on your HxC Flash drive.

In the event that you screw up the settings I suggest you perform the < Clear Settings > command.

X. How to increase the number of blank disk images (6800 and 6809)?

This is quite simple. You have 2 possibilities:

1. The fastest solution is to insert the SD card in your computer and make duplicates of the files located in the folders /Virgin/6800 or /Virgin/6809

2. Or you can load an existing disk image on the C.M.I. and erase the existing files, or format the disk image.

XI. How to copy QDOS disks?

Start by choosing the drive configuration that you need. For more info check the C.M.I. Flash Kit manual on page 11

1. To copy from Flash Drive B to the 8-inch drive you need to select configuration 3 (QFC-9 down and Flash up)

    1. Copy files one by one:
    Type: **[copy FileName :0 :1]**
    Where FileName is the name of the file that you want to copy.

    2. Copy a complete image:
    Type: **[backup]**

    The following message will appear: **[BACKUP FROM DRIVE 0 TO 1 ?]**
    You'll need to insert an 8-inch disk that's formatted for the 6809 format.

    Caution, if you want to copy another disk images instead of the QDOS disk from which you booted you now need to enter another QDOS floppy in the 8-inch drive.
    Confirm the backup process by typing **[Y]**

    Warning: once you've typed **[Y]** the copy process starts. Make sure you don't delete older files on the floppy that you inserted.

    The C.M.I. will copy the contents of the disk image in **Flash Drive B** to the 6809-format floppy in the **8-inch drive**.

    At the end of the copy process the command line will be back available.

2. To copy from the 8-inch drive to Flash Drive B you need to select configuration 1 (QFC-9 up and Flash up)

    1. Copy files one by one:
    Type: **[copy FileName :0 :1]**
    Where FileName is the name of the file that you want to copy.

    2. Copy a complete image:
    Type: **[backup]**

    The following message will appear: **[BACKUP FROM DRIVE 0 TO 1 ?]**
    You'll need to insert an 8-inch disk that's formatted for the 6809 format.

    Caution, if you want to copy another disk images instead of the QDOS disk from which you booted you now need to select this other QDOS disk image on Flash Drive B.
    Confirm the backup process by typing **[Y]**
    Warning : once you've typed **[Y]** the copy process starts. Make sure you don't delete older files on the floppy that you inserted.

    The C.M.I. will copy the contents of the **8-inch drive** to the 6809 disk image in the **Flash Drive B**. At the end of the copy process the command line will be back available.