**BBC Model B 32K – With Internal Compact Flash Interface without Floppy Interface**

Thanks for buying this Computer from me. The BBC/IDE interface component of this kit is my own, new single chip custom programmable logic design, made to be compatible with various IDE patched operating systems for the BBC and Master Series Computers. Let’s go over some background of IDE, and the interface itself first.

This BBC IDE interface is 8 bit, as opposed to 16 bit that you would find in an Arc, or your PC. We’re forced to using only 8 bit, because that is the width of the data bus in the Beeb, and what all the operating systems have been written for. There is a 16 bit interface available for the Beeb, but because there’s no support software for it, it still has the same limitations as this 8 bit one. However, 1GB CF Cards are not at all expensive nowadays, and they will format to the full 512MB that ADFS (and many other computers of that era) can handle, so giving you plenty of space to work with. I’ve tested the interface with many cards, and all the ones I’ve tried seem to work just fine, but I can’t warrant that every single card will work perfectly. Some cards are 5v only, some 3.3v only, and some can use both. I have set the power jumper on the CF Interface card – JP2 – to 3.3v, as most cards seem happy at this. If you encounter errors, try putting it to 5v. If this does not work either, then the card may not be compatible, please contact me in this instance to see if I can shed light on the matter.

**SOFTWARE**

Internally, the machine contains 2 ROMs. One is the Operating system, OS 1.20. The other is a Combination ROM, which contains a total of 5 Sideways ROM images. The main PCB has been modified to increase the number of available Sideways Banks from 4 to 8. Two Banks are taken up by the Sideways RAM, at locations 15 and 11. 4 Banks are in the combination ROM, and because of the way it is programmed, there are actually 5 ROMs in there, more on that below. The other 2 free sockets are available for normal BBC ROMs, should you want to fit one.

A CD is also supplied which contains PC images for transferring files to and from the Beeb, via the CF card, or a serial cable.

**GETTING STARTED**

When you receive the machine, connect it up, and turn it on. You should see the BBC Computer 32K message and BASIC. In order to use the hard drive, you need to load one of the ADFSs into Sideways RAM. Let’s go over the 2 versions, and how they differ.

\*XADFS

Type this in and press return, after a second or two, the machine will reset, and another line will appear at the top of the screen, saying “Advanced DFS”. This is the ADFS 1.32. It uses some of the Sideways RAM as workspace, allowing the value of PAGE to stay at &E00, making it very compatible with Games and software that require lots of memory. The disadvantage of this is that because space has been made for the workspace in the SWR bank, some commands have been removed. If you intend to do programming and manipulation of files, I recommend using the Acorn ADFS.

\*YADFS

Now type this, and again, after a second or two, the machine will reset, and the message will now be “Acorn ADFS”. This is the ADFS 1.33, which uses main memory for workspace, pushing PAGE up to &1D00. This will annoy some games as some of the usable memory has been used up, but it retains all available commands.

\*CLRSWR

Type this in and press return, after a second the machine will reset, and the ADFS will be gone. These commands allow you to initialise and reset either of the ADFSs available in the machine.

**ENOUGH GIBBERISH, LETS PLAY A GAME!**

Okay, type

\*XADFS

Wait for the machine to reboot, then hold down <SHIFT> and press and release <BREAK> while still holding down shift for a moment. The machine will auto start the menu system on the CF card, and give you some choices. Follow those choices and have an explore of what’s on the machine.

**ADDING SOFTWARE**

To do this, the easiest and quickest way is to remove the CF card from the machine, and place it in your CF reader. If one was supplied, connect it to your PC first so it can detect it and load the drivers up. The CF is located inside the case on the lid, and is easily removed once the 4 screws for the lid are removed. If you need to remove the lid and the connecting cables, be sure to use the power connector on the IDE interface, not the one near the CF card.

On the CD supplied, in the CFTRANSFER folder, are two programs, CFBACKUP.EXE and CFRESTORE.EXE. These programs are designed to make a backup image of an 8 bit ADFS filing system on a Compact Flash card to a PC Hard drive via a USB Card Reader, and to write it back again, to the same, or a different card. The Image they create is compatible with ADFS Explorer, which can be found on the CD. These 2 programs are supplied as Freeware, but ADFS Explorer is Shareware, and requires a small registration fee - please see the Authors website for details and instructions on how to use ADFS Explorer.

To use these programs:

1. Copy these files into the root of your C: Drive
2. Open a DOS Box using START -> RUN then type CMD and click OK
3. Navigate to the root C drive by typing CD C:\

To back up a CF card to disc, at the DOS prompt type:

 CFBACKUP h C:\CF.DAT

 Where h is the drive letter of the CF Card slot, and C:\CF.DAT is the file to store the backup. You can then load CF.DAT into ADFS Explorer to manipulate files or use it with BeebEm to emulate the hard disc.

To restore a .dat file to your CF card, at the DOS prompt type:

 CFRESTORE h C:\CF.DAT

 Where h is the drive letter of the CF Card slot, and C:\CF.DAT is the file to restore to the card.

 **IMPORTANT:** *You need to be careful with the restore since if you use CFRESTORE C C:\CF.DAT by mistake, you will trash your hard drive, so please take care to select the correct drive for restore.*

cf1gb\_vxxx.dat is a test image you may load onto a compact flash containing games, utilities etc. You are advised to use the correct size of CF card, in this case 1GB, but it’s not strictly necessary – but if you don’t, then CF may corrupt when it fills up.

**FORMATTING A NEW CF CARD**

The utility to format a new CF card is called “HDINIT”, and is built into your machine. It is loaded by using the ROM Filing System as follows.

First you will need to fit the new CF card to your system, by removing the lid of the machine. Make sure the power is off and gently remove the old card and push the new one home. Do not push too hard, as the pins on the adaptor are easily bent.

We begin by using the Acorn ADFS, so type:

\*YADFS

Allow the machine to reset. If the machine seems to hang with a “Broken Directory” message, press <CTRL><F><BREAK> then release the <BREAK> before the other two. This will force it to boot up correctly.

Now type:

\*ROM
CHAIN”HDINIT”

The HDINIT program takes about 6-8 seconds to load from the Rom Filing System, and once loaded, the HDInit screen should be displayed. HDInit is part of the HADFS suite of software, but it serves our purpose well with the CF system and ADFS. You may want to read up on the program using the manual available on the Authors website, but I will give a brief overview of formatting a card here.

At the top, will be the drive selected as “Current Drive”. This should default to drive 0, but may be on Drive 4. We want to use Drive 0, so if it is set to 4, press “D” to select drive, then type “0”. Check that at the top, the drive is now “Current Drive 0 (IDE Device 0)”.

Take a look at the “Device Width” setting. It usually defaults to 16 bit. As this interface is 8 bit, we need to set this by pressing the <TAB> key.

Now press “I” to investigate the drive. Check that the indicated capacity of drive 0 looks about right, it should be just under half of the total capacity of the CF card, for example, if the card is 1GB, that is 1024MB, it should report around 495MB.

Now, we simply press “F” to Format the drive. Type “NO” when it asks you to leave space for the HADFS system, and “YES” to confirm formatting. Once done, the program resets, and you can then do a <CTRL><BREAK>, to reset the computer.

Now Type:

\*CAT

And you should get a blank directory. Typing:

\*FREE

Should confirm the free space you have available. Check this carefully, if HDInit has somehow failed to write the correct values here, it will need to be rerun, but once you start loading software, it can’t be changed, so best to check it before starting.

If you have a 2GB CF Card, you can format a second partition as Drive 1, by going back to HDINIT and selection drive 1 instead of 0, using the procedure above. Once you’ve done that, check the second partition by typing:

\*MOUNT 1

And then

\*CAT

And

\*FREE

To check the second partition on the card is formatted correctly. The size of the second partition may be slightly smaller than the first, this is normal, and is due to slight differences in actual formatted cards between manufacturers.

That should be all you need to get started. If you need any further assistance, please don’t hesitate to contact me. I’m here to help if I can! If you do encounter problems that seem frustrating – don’t dive in and reach for the Negative Feedback button, once you leave that, I’ll no longer want to play any part and consider the matter closed. I’ve done extensive testing of this system on many machines, using many different cards – some can play up and cause trouble, others work just smooth, but I have always managed to get everything working eventually! The software can have it’s quirks, but is usable, and is under constant improvement. You may find that the odd game or program here and there won’t load, or causes crashes. Please let me know if you find that so I can look into the problem. Remember we are hobbyists, not commercial retailers!

Thanks once again for purchasing this item from me.
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