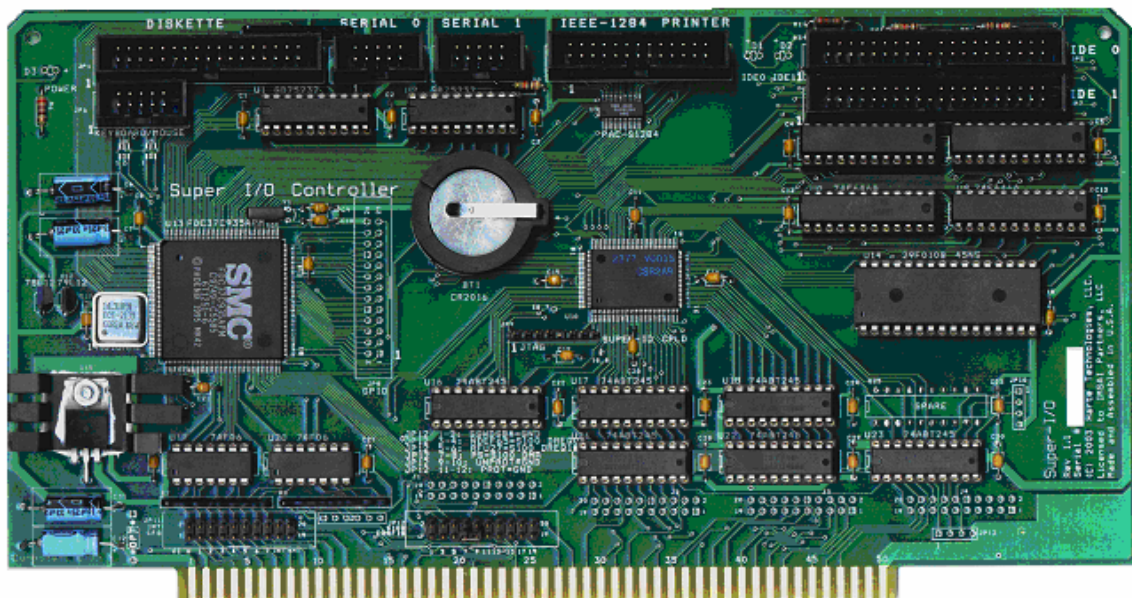


# Super I/O Controller

## FLASH Upgrade Guide

Revision 1.2  
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This guide describes the procedure for upgrading your existing Revision 1.2 FLASH memory device to a new version which loads CPM3.SYS and CCP.COM directly from FLASH memory. User responses are shown in *bold italics*.

**Do not attempt this process on pre-Revision 1.2 hardware or damage to your Super-I/O board may result.** If you wish to create a FLASH boot image for pre-Revision 1.2 hardware, you can download, assemble, and link the Revision 1.2 CBIOS source code and MONITOR. See step 5 and page 6 for some hints on this process.

Step 1: Boot the FLASH Upgrade Disk using your current MONITOR:

```
Super-I/O 8K [8080] MONITOR v1.2/M                S/N: 0021xxxx
```

```
(c) 2002-2004 Harte Technologies, LLC.  
(c) 1979-1983 Fischer-Freitas Company.  
(c) 1977,1978 IMSAI Manufacturing Company.
```

```
%B 1
```

```
CP/M V3.0 Loader  
Copyright (C) 1998, Caldera Inc.
```

```
BIOS3    SPR  EB00  0D00  
BDOS3    SPR  CC00  1F00
```

```
51K TPA
```

```
Common System Load  
Common Load Complete  
Banked System Load  
Executing System
```

```
S-100 Super-I/O Controller CBIOS v1.2/M  
(c) 2000-2004 Harte Technologies, LLC.
```

```
A>
```

2. Run FLASHPRO.COM to load CPM3F.SYS into FLASH Sector 2. This is done as a test, to ensure that your system is capable of reading CPM3F.SYS from the floppy disk, and to ensure that the FLASH programs and erases correctly. ***If any errors are reported during this step, do not proceed until the problem has been identified, and FLASHPRO.COM is able to program FLASH Sector 2 successfully.***

```
A>>flashpro cpm3f.sys 2
Super-I/O Flash Programming Utility v1.2
(c) 2004, Harte Technologies, LLC.
```

```
Selected Sector: 02
Loading File... 58h records loaded.
Manufacturer ID: 01 - AMD
Device ID: 20 - 29F010B
Erase sector... DONE
Program sector... DONE
Verify sector... DONE
```

```
A>
```

3. Run FLASHPRO.COM again to load CPM3F.SYS into FLASH Sector 1. This is the CP/M System file that will boot when you type 'B 1' in the MONITOR.

```
A>>flashpro cpm3f.sys 1
Super-I/O Flash Programming Utility v1.2
(c) 2004, Harte Technologies, LLC.
```

```
Selected Sector: 01
Loading File... 58h records loaded.
Manufacturer ID: 01 - AMD
Device ID: 20 - 29F010B
Erase sector... DONE
Program sector... DONE
Verify sector... DONE
```

```
A>
```

3. Next, FLASHPRO.COM again to load MON121.BIN into FLASH Sector 0. This is the new version of the MONITOR that is capable of reading CP/M System files when you use the Boot command in the MONITOR. This image also contains the CCP.COM file from FLASH address 2000-3FFFh. This time you will be prompted whether or not you want to continue. Read the messages, and if you are sure you want to continue, type 'y'.

```
A>>flashpro mon121.bin 0
```

```
Super-I/O Flash Programming Utility v1.2  
(c) 2004, Harte Technologies, LLC.
```

```
Selected Sector: 00
```

```
Programming FLASH Block 0 is strongly discouraged.  
If the programming process fails for any reason, the  
Super-I/O MONITOR and/or CP/M boot loader will be destroyed.  
You may want to test the programming process on another FLASH  
Block before attempting to program these crucial blocks.
```

```
Do you want to continue (Y/N)? y
```

```
Pre-programmed replacement FLASH devices are available from  
http://www.cpm80.com for a nominal charge. If you have a device  
programmer, you can download the complete FLASH HEX file from the  
web site above and program the FLASH in the device programmer.
```

```
Are you absolutely sure you want to continue (Y/N)? y
```

```
Loading File... 80h records loaded.  
Manufacturer ID: 01 - AMD  
Device ID: 20 - 29F010B  
Erase sector... DONE  
Program sector... DONE  
Verify sector... DONE
```

```
A>
```

4. Finally, reboot the system. When you type 'B 1' to boot CPM3.SYS from FLASH sector 1, you will find that your system boots very rapidly. The only delay before receiving a prompt is the time it takes for CP/M to log in the default disk drive.

```
A>>reboot
```

```
Super-I/O 8K [8080] MONITOR v1.2/M
```

```
S/N: FFFFFFFF
```

```
(c) 2002-2004 Harte Technologies, LLC.
```

```
(c) 1979-1983 Fischer-Freitas Company.
```

```
(c) 1977,1978 IMSAI Manufacturing Company.
```

```
%B 1
```

```
BIOS3    SPR  EC00  0C00
```

```
BDOS3    SPR  CD00  1F00
```

```
51K TPA
```

```
S-100 Super-I/O Controller CBIOS v1.2F/M
```

```
(c) 2000-2004 Harte Technologies, LLC.
```

```
A>
```

You may wish to generate a new system containing a new CPM3.SYS image that corresponds to your particular system configuration. You may want to have more or less drives, use C: as the default drive, or add support for custom hardware. In this case, you can download a 720K floppy disk image file from [www.cpm80.com](http://www.cpm80.com) that contains all of the latest CBIOS and MONITOR sources ready to assemble and link under CP/M. These files should be copied to a user area on your hard drive before assembling.

You can assemble and link the new CBIOS by typing:

```
C>>submit cbios.sub
```

After this process is complete, you can generate a new CPM3.SYS file by running GENCPM.COM. You may then write this CPM3.SYS file to the FLASH using FLASHPRO.COM. It is always advisable to write to a FLASH sector other than your primary boot sector. If you replace your primary boot FLASH sector with a non-functional CPM3.SYS image, your system may not boot.

## **Hints for pre-Revision 1.2 Hardware**

If you have pre-Revision 1.2 hardware, you should first contact Howard Harte ([hharte@hartetec.com](mailto:hharte@hartetec.com)) to arrange for an updated board to be sent to you. If you absolutely cannot wait for the Revision 1.2 hardware to arrive, you can build your own MONITOR and CPM3.SYS file from the v1.2 source code which is compatible with pre-Revision 1.2 hardware. This should only be attempted by those familiar with the Super-I/O CBIOS and MONITOR source code and build process. These hints are not meant as a tutorial on this process, but rather just some specific notes on how the binary images must be prepared for FLASH booting.

First, you must set `mux_ide` to `false` in the `CONFIG-?.INC` files, and rebuild the MONITOR and CPM3.SYS. Then, you have to create two FLASH images files. One to be written to FLASH Sector 0, and the other to be written to FLASH Sector 1.

- Sector 0: Contains the MONITOR at FLASH address 0000 and CCP.COM at FLASH address 2000h.
- Sector 1: Contains CPM3.SYS at FLASH address 0.

The method to actually create the FLASH Sector 0 binary image is beyond the scope of this manual, but can be done using DDT or SID, along with the SAVE command.