CP/M 2.2b for Tarbell SD Controller with the MEMON PROM Monitor

This version of CP/M 2.2 is for the Tarbell single density floppy controller with the MEMON PROM monitor handling the serial I/O ports. MEMON version 3.04 or newer is required. The MEMON base address (MEBASE) must be set to F800h.

The BIOS uses full track buffering on both reads and writes to improve performance. Performance is 20%-70% faster than the non-buffered BIOS for typical disk based operations. Disks are fully interchangeable with the non-buffered versions of CP/M 1.4 and 2.2.

The disk image file, CPM22b11-56K.DSK, is sized for 56K of RAM and includes utilities to transfer individual files to/from a PC (PCPUT and PCGET), backup/restore disk images (FLOP2PC and PC2FLOP), and to size CP/M for a different amount of RAM (MOVCPM). The MOVCPM on this disk is custom for this version of CP/M and *does not* require the boot loader or BIOS to be patched into the CP/M image.

The PC2FLOP utility can be used to create a bootable floppy by transferring the disk image from a PC and writing it to a disk in the target machine. The XMODEM protocol is used for the transfer. To create a bootable floppy, use MEMON to load PC2FLOP.HEX into RAM with the hex load command (HL). After loading, execute PC2FLOP by typing "EX 100". Since this is a soft sector controller, PC2FLOP provides the option to format the disk, if required.

The FLOP2PC utility provides the inverse function of PC2FLOP and allows saving a floppy to a disk image on the PC. Both PC2FLOP and FLOP2PC are available on the supplied disk image and can also be run without CP/M by loading the .HEX version of the programs using MEMON.

IOBYTE Implementation

The CP/M IOBYTE can be used to direct serial I/O through the console port or the transfer port as defined by MEMON. Due to size constraints on the boot tracks, redirection through BAT is not supported.

CON device (bits 1,0):	**PUN** device (bits 5,4):
00 - TTY on console port*	00 - TTY on console port*
01 - CRT on console port	01 - PTP on console port
10 - BAT on transfer port	10 - UP1 on transfer port
11 - UC1 on transfer port	11 - UP2 on transfer port
RDR device (bits 3,2):	**LST** device (bits 7,6):
00 - TTY on console port*	00 - TTY on console port*
01 - PTR on console port	01 - CRT on console port
10 - UR1 on transfer port	10 - LPT on transfer port
11 - UR2 on transfer port	11 - UL1 on transfer port

* = Default IOBYTE

Patching the IOBYTE and MODE Byte

The STAT utility in CP/M is typically used to make IOBYTE device assignments as required. These assignments are temporary and the defaults shown above are restored whenever CP/M is cold started. To permanently modify the IOBYTE, the default IOBYTE in the CP/M boot image must be patched.

To change the default IOBYTE that CP/M loads on cold start, the MOVCPM file can be patched or memory can be modified after running MOVCPM, but prior to writing the image to disk using SYSGEN.

The IOBYTE is at 1FB4h in memory after running MOVCPM or loading MOVCPM.COM into memory using DDT. Each of the four logical devices occupies a two bit field in the IOBYTE. Each two bit field, in turn, selects one of four physical devices for the logical device. The bit field locations and values are shown in the device mapping table above.

The default IOBYTE in binary is 00 00 00 00 (00h). Note that this is a value of 0 in each of the four logical device fields. As an example, to force the RDR, PUN and LST devices to use the MEMON transfer port instead of the console port, the IOBYTE should be set to binary 10 10 10 00 (A8h).

You can also find the proper value to patch by looking at the runtime value of IOBYTE after executing the appropriate STAT commands. CP/M keeps the IOBYTE at address 03 on page zero.