

Track Buffered FLEX 2.0/3.0 on SWTPC 6800 with SWTPC DC-x Controllers

I created a track buffered disk driver for FLEX 2.0/3.0 (6800) to see if it improved the mediocre disk performance of FLEX. The new driver supports single density disks in 35 or 40 track format, single sided or double sided. It also uses the same disk layout/interleave as the original driver so existing disks can be used without modification.

Since the byte stream abstraction FLEX provides has so much overhead per byte, improving the low level disk I/O can only go so far. However, I was surprised by how much the new driver improves performance. Overall speed is twice as fast as with the original driver. Binary file load time (e.g., commands) improves by almost exactly 50%. Other operations (assembling files, NEWDISK, copy operations, etc.) improve 40%-70% versus the original disk driver.

The new driver and track buffer can be placed on a 4K RAM board at \$C000 or \$D000 which, in turn, takes zero space away from the FLEX memory map in the SWTPC 6800. Optionally, with FLEX 3.0, the driver can be configured to use memory from \$7300-\$7FFF if additional RAM is not available.

How to Try the Track Buffered Driver

The easiest way to try the track buffered driver is to load the FLEX 2.0 or 3.0 system file (FLEX2-TB.SYS or FLEX3-TB.SYS) onto an existing FLEX disk and then use the LINK command to point the boot loader to that file. The PCGET utility (see below) can be used to load the appropriate system file onto your disk. These system files require RAM at \$D000-\$DFFF.

If you don't have an existing FLEX disk, you can create a new one, even on a "cold" machine. See the ReadMe file up one level in this directory tree. The disk images mentioned in these ReadMe files already have the PCGET utility on them.

If your FLEX disk does not include the PCGET utility, the "FLEX 2.0 and FLEX 3.0 File Transfer" up two levels in this directory tree contains the information and files required to install PCGET on your disk.

For Even More Speed...

To further decrease command load time, use PCGET to load QLOAD.CMD onto your disk. Execute QLOAD at startup to install a quick binary loader into a spare area in the track buffer RAM. With QLOAD installed, command line programs load up 75% faster than with the original FLEX driver.

By default, the driver track step rate is slow (40ms). If you are using half-height drives, they most likely support a 6ms step rate. Use PCGET to load the STEPFast.CMD utility onto your disk. STEPFast.CMD is in the "Programs" folder up one level in this directory tree. Once the STEPFast command is issued, the faster step rate is used (12ms on a 1771 as on DC-x controllers, 6ms on a 2797 as on the FD-2 controller). You can put the STEPFast command in your STARTUP.TXT file.

In the same "Programs" folder is the FASTBACK utility which can backup a disk from drive 0 to drive 1 in about 30 seconds (single sided).