

Table 6-4. AIM 65/40 DOS 1.0 Variables (Cont'd)

Addr (Hex)	Label	No. Bytes	Init Value	Definition
543	FNAMEC	3	4C 2A FA	JMP FNAME*
546	NOUTC	3	4C AC F3	JMP NOUT*
549	NUMAC	3	4C A4 F3	JMP NUMA*
54C	OUTALC	3	4C 2B F3	JMP OUTALL*
54F	OUTPUC	3	4C 52 F3	JMP OUTPUT*
552	RCHEK	3	4C 7D B0	JMP VARCHK*
555	REDOC	3	4C 9B F2	JMP REDOUT*
558	WHERE	3	4C B9 AE	JMP WHEREO*
55B	STORIO	3	8D 80 FF	STA PRIRTY*
55E		1	60	RTS*
55F	MENUVC	2	62 80	Before UTILITY Decode Vector*
561	MENULS	2	85 80	After UTILITY Decode Vector*
563	NOVRFY	1	01	Format Disk No Verify Flag*
<p style="text-align: center;">NOTES</p> <p>*User-alterable</p> <p>1. The DOS 1.0 variables are initialized by a cold reset (refer to the AIM 65/40 System User's Manual) only if the AIM 65/40 Monitor is installed.</p>				

APPENDIX A

DISK DRIVE CONFIGURATION

This appendix describes the actual configuration of some of the more popular disk drives. The drives included are:

Shugart SA400

Shugart SA450

Pertec FD200

Shugart SA800

A.1 5" DISK DRIVE CONFIGURATION

To operate the RM 65 FDC module in single- or double-density mode with these 5" drives, perform the following steps:

- a. Set up switch S1 for common bank operation with both the Program ROM and I/O enabled.

S1-1 = OPEN

S1-2 = OPEN

S1-3 = CLOSED

S1-4 = CLOSED

- b. Set up the jumpers for no DMA, no precompensation (which is not required for 5" double density) and the number of heads.

E1 = EITHER

E2 = EITHER

E3 = B for only single sided drives
(SA400 or FD200)

A for double sided drives
(SA450)

- c. Set up the standard/mini-floppy headers (JB1, JB2) for mini-floppy drives (shown in Figure 2-2a).

- d. Ensure that the FDC module has both +5 VDC and +12 VDC. The +5 VDC can be verified by reading the Program ROM (\$8000) and comparing this with the Program Listing. The +12 VDC can be verified by reading the FDC device registers (\$8F00 - \$8F03). If these four locations are \$FF, +12 VDC is not reaching the module.

The 5" disk drives must also be prepared as described in the following sections.

A.1.1 Shugart SA400

The Shugart SA400 is a single-sided 5" drive. As factory configured, the SA400 is ready to operate as the only drive. If additional drives are used, make the following changes to each:

CAUTION

Refer to the SA400 user instructions accompanying your drives to confirm this setup.

- a. Install the termination resistor pack only in the last drive on the Floppy Disk cable.
- b. Open the MX shunt.
- c. Short the HL shunt and open the MH shunt.
- d. Short only one--1, 2 or 3 (Drive select 4 is not available) and open the remaining two positions to assign a unique number to each drive.

Ensure that both +5 VDC and +12 VDC are present at power connector J2.

A.1.2 Shugart SA450

The Shugart SA450 is a double-sided 5" drive. As factory configured, this drive is ready to operate as the only drive. If additional drives are used, make the following changes to each:

CAUTION

Refer to the SA450 user instructions accompanying your drives to confirm this setup.

- a. Install the termination resistor pack only in the last drive on the Floppy Disk cable.
- b. Open the MX shunt.
- c. Open the MM and the MS shunts.
- d. Short only one--1, 2, 3 or 4 and open the remaining three positions to assign a unique number to each drive.

Ensure that both +5 VDC and +12 VDC are present at power connector J2.

A.1.3 Pertec FD200

The Pertec FD200 is a single-sided 5" drive (although this drive allows the front and back side of the disk to be used, this is a non-standard format that is only compatible with Pertec drives).

If additional drives are used, the following changes must be made to each:

CAUTION

Refer to the FD200 user instructions accompanying your drives to confirm this setup.

- a. Install the termination resistor pack only in the last drive.
- b. Cut the PC etch between the pads at DC.
- c. Short only one--1, 2, 3 or 4 and open the remaining three switch positions to assign a unique number to each drive.
- d. Leave the head-load option in the standard configuration with W2 installed and W1 removed.

Ensure that both +5 VDC and +12 VDC are present on the power connector J3.

A.2 8" DISK DRIVE CONFIGURATION

To operate the RM65 FDC module in single- or double-density mode with 8" drives, perform the following steps:

- a. Set up switch S1 for common bank operation with both the Program ROM and I/O enabled.

S1-1 = OPEN
S1-2 = OPEN
S1-3 = CLOSED
S1-4 = CLOSED

- b. Set up the jumpers for no DMA, no precompensation and the number of heads.

E1 = EITHER

E2 = EITHER

E3 = B for only single sided drives
(SA800)
A for double sided drives
(SA850)

- c. Set up the standard/mini-floppy headers (JB1, JB2) for standard floppy drives (shown in Figure 2-2b).
- d. Ensure that the FDC module has both +5 VDC and +12 VDC (refer to Section A.1.d).

A.2.1 Shugart SA800/801

The Shugart SA800 is a single-sided 8" drive. Configure each SA800 drive as follows to use with the FDC module:

CAUTION

Refer to the SA800 user instructions accompanying your drives to confirm this setup.

- a. Short only one of the DS1, DS2, DS3 or DS4 jumpers and leave the other three open to assign a unique number to each drive.
- b. If only one drive is used, install jumpers at T3, T4, T5 and T6. If additional drives are used, remove jumpers at T3, T4, T5 and T6 from all drives except for the last one on the Floppy Drive cable.
- c. Remove jumper at 801.
- d. Install jumpers at A, B, HL, I, L, R, RI, RR, S, T1, WP, X, Z, 32 and 800.

- e. Leave all remaining positions open.

Ensure that +5, +24 and -5 VDC are all present at connector J5, and 110 VAC is applied to connector J4.

A.3 DMA Configuration

The RM 65 FDC module will operate in all modes--5" or 8", single- or double-density--with the RM 65 DMA Controller module (RM65-5104). To operate in the 8" double-density mode this module is required, but all modes will show performance improvement when the DMA module is used. For an operating description and complete configuration details, refer to the RM 65 DMA Controller User's manual. To configure the DMA module for operation, perform the following steps:

- a. Set up switches S1-1 to S1-8 for the desired base address of the DMA module. This module address can be any page of the RM 65 memory map not being used, where the switches reflect the selected page. Thus, for a typical base address of \$7F00;

S1-1 to S1-7 = CLOSED
S1-8 = OPEN

- b. Set up switches S1-9 and S1-10 for common bank operation for use with AIM 65 and AIM 65/40 single bank systems;

S1-9 = OPEN
S1-10 = OPEN

- c. Set up the DMA interrupt request to be sent over the BIRQ/ interrupt line;

EI = A

The DMAC module requires RAM that is directly addressable from the RM 65 bus--such as an RM 65 8K Static RAM module--to supplement the AIM 65 or AIM 65/40 on-board RAM. To configure the 8K RAM module for operation, perform the following steps:

- a. Set up switches S1-1 to S1-8 for the desired base address of the RAM module. This module address can be any two 4K byte blocks of the RM 65 memory map, with each of the four switches assigning a block. Thus, for typical base addresses of \$1000 and \$2000;

S1-1 = CLOSED
S1-2 to S1-5 = OPEN
S1-6 = CLOSED
S1-7 to S1-8 = OPEN

- b. Set up switches S2-1 and S2-2 for common bank operation;

S2-1 = OPEN
S2-2 = OPEN

- c. Set up the RAM for no write protection;

S2-3 = OPEN
S2-4 = OPEN

The FDC module does not have any special configuration. The DMA request selection jumper can be set for either BDRQ1/ or BDRQ2/.

In addition to configuring the module, the DMA variables in the FDC firmware must also be set:

- a. The DMA module address must be written into the variable DMAADR. Thus, for a typical base address of \$7F00;

DMAADR (\$4B9) = \$7F

- b. The variable DMAFLG must set up with a DMA module enable (bit 0), DMA transfer source bank address (bit 7), and DMA transfer destination bank address (bit 6). Thus, for single bank operation in Bank 0;

DMAFLG (\$4BA) = \$01

When the DMA module enable bit of DMAFLG is set, many of the firmware routines make use of the module for data transfers. This use is automatic--each routine will set up the DMA module and initiate the transfers as required. No software changes are required to take advantage of the DMA module.

NOTE

When using the RM 65 DMA Controller module with the FDC module, the disk read and write buffers (RDBUF, WRBUF) must be on the supplemental RM 65 RAM module. For file management, the source and destination buffers (set up from BUFFER) must be on the supplemental RM 65 RAM module.

APPENDIX B

FORTH AND THE RM 65 FDC MODULE

This appendix describes the actual code used to interface the RM 65 FDC module with AIM 65 and AIM 65/40 FORTH. This example uses a single 5" drive with one side and double density recording. The example is entered into the text editor and compiled using the SOURCE word. For a detailed description of the code words, refer to the AIM 65/40 FORTH User's Manual, Section 12. There are seven major words created which supplement the use of the FDC module:

INIT

Initializes the FDC module and turns on drive one, side one in single density mode.

MOTORON

Turns on the drive from SRCDSK, side from SRCSID, and density from SRCDEN.

MOTOROFF

Turns off the selected drive.

FORMAT

Initializes the disk in the selected drive. A formatted disk will have all sectors filled with \$E5, which on the AIM 65 is displayed as a blank, and printed as "%". On the AIM 65/40, this is displayed as a blinking "E.", and printed as "e".

WIPE

n ---

Clears screen n by filling it with null characters (\$00).

LIST

n ---

Lists screen n as 16 numbered lines (0 to F) with 64 characters each.