Publications Update

MARK 386S Business System Installation/Operation Guide

Incorporation of the attached pages into Revision B of the manual brings it up to Revision C

May 1991

Publications Update

TO: **MARK 386S Users**

FROM: **Publications Department**

DATE: **May 22, 1991**

SUBJ: **MARK 386S Business System Installation/Operation Guide, REVISION C UPDATE PACKAGE**

The MARK 386S Installation/Operation Guide has been updated. The revised pages are attached. Incorporation of these pages into a Rev B document brings it up to Revision C. Remove and insert pages as indicated below.

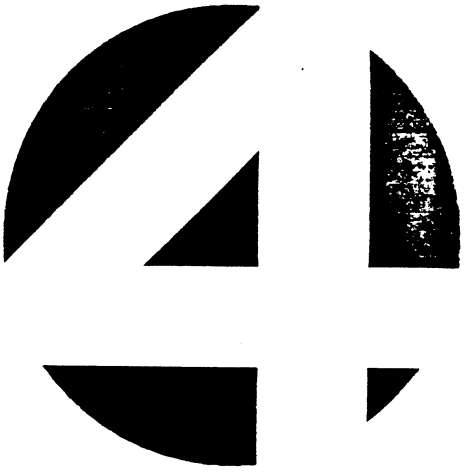
FILING INSTRUCTIONS

Remove	Insert
Title thru ix	Title thru ix
4-1 thru 4-18	4-1 thru 4-6
none	F-1 thru F-11
Comment Sheet/Mailer	Comment Sheet/Mailer

MARK 386S

BUSINESS SYSTEM INSTALLATION/ OPERATION GUIDE

Revision C



NOTICE

Every effort has been made to make this manual complete, accurate and up-to-date. However, all information herein is subject to change due to updates. All inquiries concerning this manual should be directed to POINT 4 Data Corporation.

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A	Initial Customer Release	04/20/90
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C	Revised Section 4; new Appendix F	05/22/91

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Section 4
INSTALLING DOS ON THE HARD DISK DRIVE

4.1 GENERAL

This section provides the user with the information or references necessary to initially load the Disk Operating System (DOS), low-level format the hard disk, partition it with **fdisk**, format it for DOS, and finally install DOS.

Many versions of DOS are available. While the general steps given in this section will be applicable to all versions of DOS, specific steps are given for Microsoft MS-DOS Operating System Version 3.3.

Additional information can be found in the *MS-DOS User's Guide* and *User's Reference* manuals, or in the manuals provided with your particular operating system.

Section 5 provides information on installing XENIX on the hard disk.

4.2 CONFIGURING THE HARD DISK

To enable MS-DOS to boot automatically when you turn on your computer, you must load the MS-DOS files onto your hard disk. First, you must configure your hard disk to accept MS-DOS, since it was only low-level formatted at the factory. The following subsections contain the procedures necessary to configure the hard disk; they include:

1. Low-level format the disk (done at the factory).

2. Partition the disk using the **fdisk** command.

3. Format the disk for MS-DOS.

4. Install MS-DOS.

4.2.1 Low-Level Formatting

The hard disk drive installed in your system was low-level formatted before it left the factory. Low-level formatting is only required for newly installed, unformatted drives or drives which have experienced a catastrophic failure.

CAUTION

Low-level formatting will result in the loss of all data stored on the hard disk drive. Back up the data (if applicable) before beginning this procedure.

The following is a step-by-step procedure to perform the low-level formatting.

1. Get into the System Set-Up by using <CTRL>, <ALT>, and <Insert>. For each hard disk drive connected to the controller, specify "Type 1". For each hard disk drive not connected to the controller, specify "not installed".

2. Boot DOS 3.3 or higher revision from the floppy disk drive. The computer may display a hard disk error message. This is because the hard disk has not been formatted yet. Load the DEBUG program. To do this from the DOS prompt ">", enter:

```
DEBUG <RETURN>
```

   Once in the DEBUG program, the prompt is changed to "-". Enter:

```
G=C800:5 <RETURN>
```

   The format menu is displayed.

3. Upon entrance into the BIOS format program, the following message is displayed. Select "0" for AUTO-SETUP. AUTO-SETUP will generate the drive parameters by reading them from the ESDI disk drive.

```
DO YOU WANT AUTO-SETUP OR ROM-BASED TABLE SETUP?
(0=AUTO-SETUP, 1=ROM-BASED TABLE):  0
```

4. The following is then displayed:

```
HOW MANY DRIVES DO YOU HAVE? (0, 1 OR 2):  1
```

   Enter the number of hard disks attached to the system, then press the <RETURN> key.

5. The Main Menu is displayed on the screen:

```
NCL 5355/5356 ESDI DISK FORMAT UTILITY PROGRAM (V4.X)

DRIVE 0 PARAMETERS: HEAD=XX,CYLINDER=XXXX,SECTOR/TRACK=XX
-------------------------------------------------------
DRIVE 0 TRANSLATION NOT ACTIVE    TRUNCATION NOT ACTIVE

0-FORMAT DRIVE
1-VERIFY
2-ENABLE TRANSLATION MODE
3-DISABLE TRANSLATION MODE
4-ENABLE CYLINDER TRUNCATION
5-DISABLE CYLINDER TRUNCATION
6-EXIT

PLEASE ENTER YOUR CHOICE
```

The drive parameter displayed on the second line is the physical drive parameter acquired from the attached ESDI disk drive. If two drives are connected to the controller card, the additional drive parameter information will be displayed on the screen.

6. Format the drive by selecting "0" from the option. By selecting this option, the controller initializes the disk drive according to the drive parameter displayed on the second line of the main menu. The BIOS prompts the choice of drive "0" or "1" to be formatted.

```
WHICH DRIVE DO YOU CHOOSE?  (0/1):  0

WARNING:  ALL FILES ON DISK DRIVE WILL BE LOST!!!
DO YOU WISH TO CONTINUE?  (Y/N):  N
```

The BIOS asks the confirmation of loss of files. Answer "Y" to continue. After the completion of initialization, the following question is asked:

```
FOR DEFECT HANDLING:
DO YOU WANT SECTOR MAPPING OR TRACK MAPPING?
(0=SECTOR_MAPPING, 1=TRACK_MAPPING):0)
```

Answer "0" selecting Sector Mapping for the defect handling.

```
DO YOU WANT TO USE MANUFACTURERS DEFECT LIST?  (Y/N):  Y
PRESS ANY KEY TO DISPLAY MANUFACTURERS DEFECT LIST.
                                    .
                                    .
DEFECT LIST
                                    .
                                    .
PRESS ANY KEY TO START FORMATTING THE DEFECT LIST, IF ANY.
```

Answering "Y" to the question makes the controller read the defect list from the drive and perform the defect map.

If you see the following message displayed, use the manual defect entry for the particular surface by answering "Y" to additional defect entry in Step 7.

```
CAN NOT READ MANUFACTURERS DEFECT LIST FOR SURFACE:  XX
```

7. After performing Step 6, the BIOS prompts for the additional defect information as shown below.

```
DO YOU WANT TO ENTER ADDITIONAL DEFECTS?  (Y/N):  N
```

By answering "Y" to this question, the following Cylinder and Head information will be requested. Answering "N" to this question brings you back to the main menu.

```
ENTER CYLINDER NUMBER:  XXXX
ENTER HEAD NUMBER:  YY
ENTER BYTE COUNT FROM INDEX:  ZZZZ

ARE THE CYLINDER AND HEAD NUMBERS ABOVE CORRECT?  (Y/N):  Y

MORE BAD TRACK TO ENTER?  (Y/N):
                                    .
                                    .
                                    .
```

Each time the entry is confirmed, the controller performs bad sector format. Answering "N" returns to the main menu.

8. The controller BIOS provides disk surface verify function to detect additional defects. If a bad spot is detected during the verify operation, bad track format is performed automatically. If there are no more defects before the verify operation, you can skip this operation.

   After performing the verification, the BIOS will return to the main menu. This verify process will destroy the data on the disk drive.

9. After preparation is complete, select "EXIT" from the main menu.

```
PUSH CTRL, ALT, DEL TO REBOOT THE SYSTEM

THEN USE "FDISK" AND "FORMAT" UTILITIES
TO COMPLETE HARD DISK INSTALLATION PROCESS
```

After rebooting the system, you are ready to install the operating system to the attached ESDI disk drive.

Notes:

1. The disk drives should be set to enable Spin-Up when power is applied.

2. See Appendix F for jumper settings for the MAXTOR 8760E disk drive.

4.2.2 Partitioning the Hard Disk

A hard disk can be partitioned, or divided, into a maximum of four independent sections, each containing the same or different operating systems. Before your hard disk can use MS-DOS, an MS-DOS partition must be created on it. Many users create a single partition and use the entire hard disk for MS-DOS. If you plan to create partitions for both MS-DOS and XENIX, the MS-DOS partition must be created first.

Run **fdisk** and try to create an MS-DOS partition. If an MS-DOS partition exists, a message to that effect will be displayed.

Refer to the *MS-DOS User's Reference*, Appendix F or the manual provided with your operating system for the hard disk partitioning procedure.

4.2.3 Formatting the Hard Disk and Installing MS-DOS

After you have low-level formatted and partitioned the hard disk for MS-DOS, you must format it so that it can accept MS-DOS. The following procedures assume your hard disk is designated as drive C.

Format Procedure:

1. Manually boot MS-DOS and enter the current date and time.

   At the A> prompt type:

```
format c:  /v /s <RETURN>
```

   where: /v allows the user to assign a name to the volume of data in drive C, and /s adds the system files to drive C making it self-booting.

   MS-DOS will now format the hard disk.

2. When the format process is complete, a message similar to the following is displayed:

```
Volume label (11 characters, ENTER for none)?
```

   Enter the name you wish to use to identify the volume of data in drive C and press <RETURN>, or just press <RETURN> if you do not wish to choose a name at this time.

   MS-DOS then asks:

```
Format another?  (Y/N)
```

   Type "N" to stop the format process.

Appendix B
80386SX MOTHERBOARD CONFIGURATION

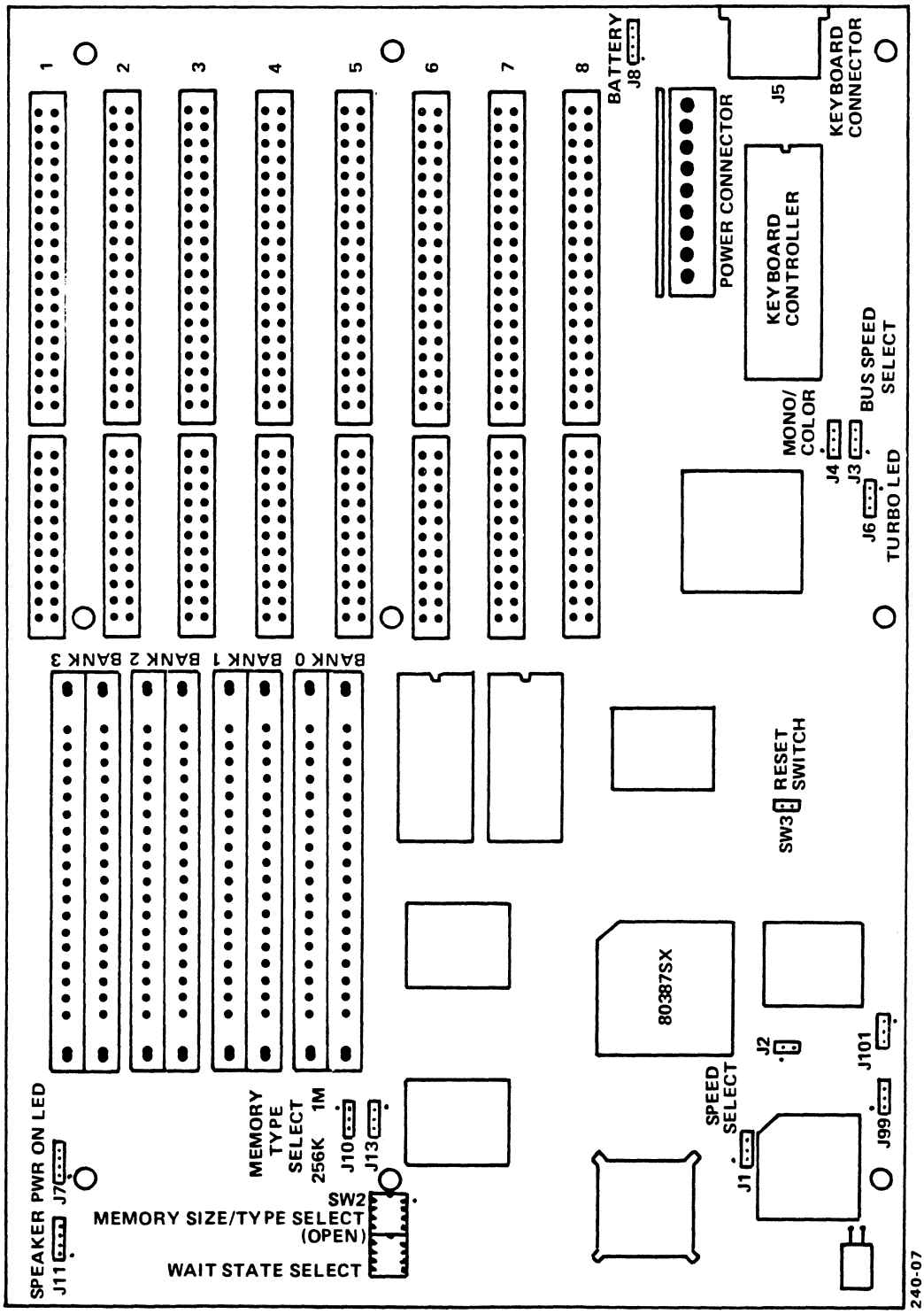

Figure B-1. Motherboard Layout

Table B-1. SW2 Settings (Part 1)

MEMORY OPTIONS	BANKS				JUMPER SETTINGS		MEMORY SELECT (SW2)
	0	1	2	3	J13	J10	
512K	TWO 256K SIMMS				256K	256K	ALL OFF
1MB	TWO 256K SIMMS	TWO 256K SIMMS			256K	256K	MS1=ON MS2=OFF MS3=OFF MS4=OFF
1.5MB	TWO 256K SIMMS	TWO 256K SIMMS	TWO 256K SIMMS		256K	256K	MS1=OFF MS2=ON MS3=OFF MS4=OFF
2MB	TWO 256K SIMMS	TWO 256K SIMMS	TWO 256K SIMMS	TWO 256K SIMMS	256K	256K	MS1=ON MS2=ON MS3=OFF MS4=OFF
	TWO 1MB SIMMS				1MB	1MB	MS1=OFF MS2=OFF MS3=ON MS4=ON
3MB	TWO 256K SIMMS	TWO 256K SIMMS	TWO 1MB SIMMS		256K	1MB	MS1=OFF MS2=ON MS3=ON MS4=OFF
4MB	TWO 1MB SIMMS	TWO 1MB SIMMS			1MB	1MB	MS1=ON MS2=OFF MS3=ON MS4=ON
5MB	TWO 256K SIMMS	TWO 256K SIMMS	TWO 1MB SIMMS	TWO 1MB SIMMS	256K	1MB	MS1=ON MS2=ON MS3=ON MS4=OFF
6MB	TWO 1MB SIMMS	TWO 1MB SIMMS	TWO 1MB SIMMS		1MB	1MB	MS1=OFF MS2=ON MS3=ON MS4=ON
8MB	TWO 1MB SIMMS	TWO 1MB SIMMS	TWO 1MB SIMMS	TWO 1MB SIMMS	1MB	1MB	ALL ON

NOTE: 256Kx9 or 1MBx9 SIMMS Only (16 MHz=100NSEC, 20 MHz=80NSEC or 70NSEC

Appendix F
DISK DRIVE JUMPER SETTINGS

This section provides jumper settings for various disk drives.

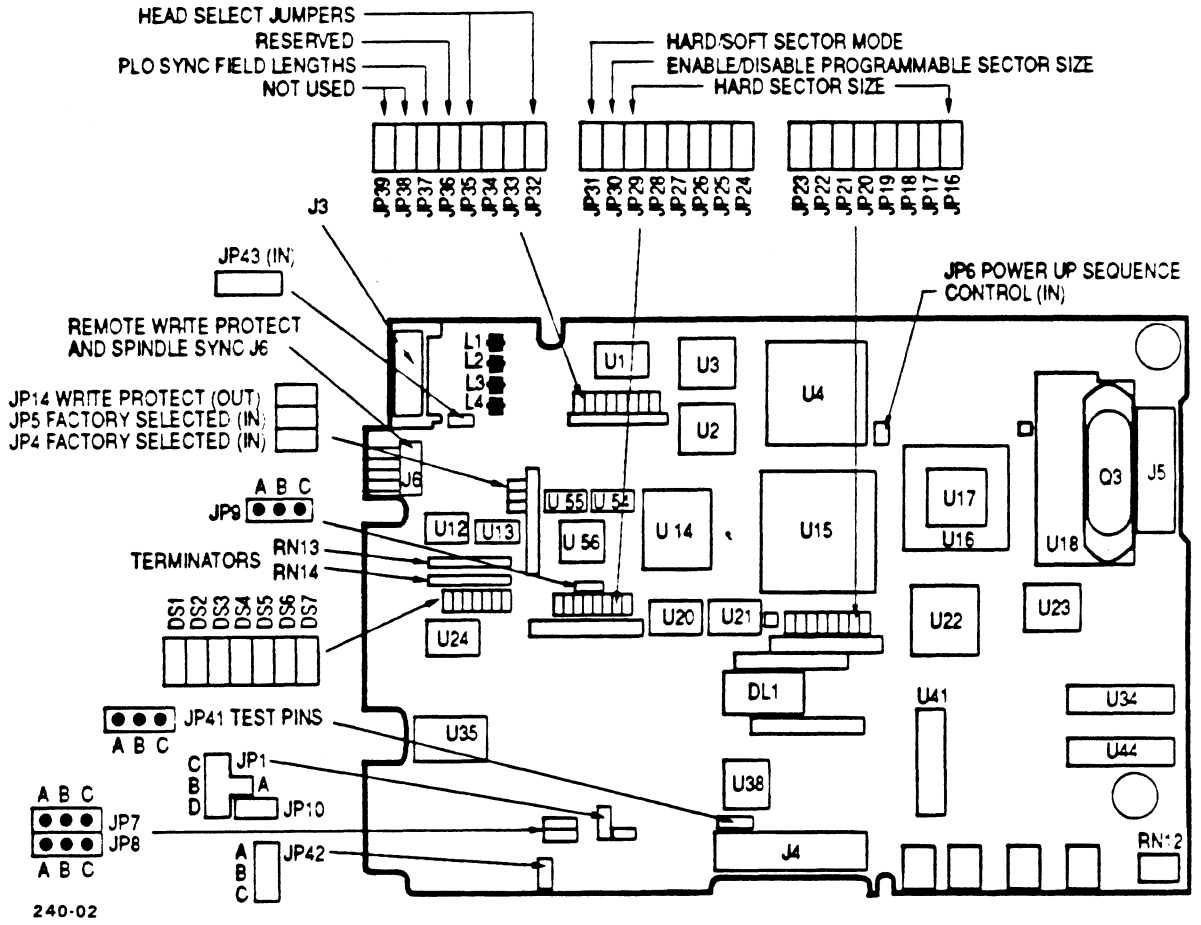

Figure F-1. MAXTOR PCBA #1014520

Table F-1. MAXTOR 765MB, PCBA #1014520 Jumper Settings

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	In (A-B)	RESERVED
JP2	In	Needed for Phase Margin Testing
JP3	In	Used for Phase Margin Testing
JP4	In*	In=2,7 Encoding
JP5	In	In=15Mbit/sec Transfer Rate
JP6	In	In=Remote Spinup Option Enabled
JP7	In (B-C)	Read Gate Delay Option
JP8	Out	Read Gate Delay Option
JP9	In (A-B)	Index Width Selection
JP10	In	Write Gate Delay

*Etched on Solder Side of Board

Table F-1. PCBA #1014520 Jumper Settings (Continued)

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP11	N/A	
JP12	N/A	
JP13	N/A	
JP14	Out	In=Write Protect
JP15	Out	Factory Selected
JP16	Out	Hard Sector Size
JP17	Out	Hard Sector Size
JP18	In	Hard Sector Size
JP19	In	Hard Sector Size
JP20	In	Hard Sector Size
JP21	Out	Hard Sector Size
JP22	In	Hard Sector Size
JP23	Out	Hard Sector Size
JP24	Out	Hard Sector Size
JP25	In	Hard Sector Size
JP26	Out	Hard Sector Size
JP27	Out	Hard Sector Size
JP28	Out	Hard Sector Size
JP29	Out	Hard Sector Size
JP30	Out	Enable/Disable Programmable Sector Size In=Enable-Hard Sector Mode Only
JP31	Out	Hard/Soft Sector Mode; In=Soft Sector
JP32	In	Head Select Jumpers
JP33	In	Head Select Jumpers
JP34	In	Head Select Jumpers
JP35	In	Head Select Jumpers
JP36	Out	RESERVED
JP37	Out	PLO Sync Field Lengths
JP38	Out	NOT USED
JP39	Out	NOT USED
JP40		Test Jumper
JP41	Out	Test Pins Differential Data Signals
JP42	In (B-C)	Test Pin - Write Gate to Flex Circuit
JP43	In	Test Out Disables On-board ROM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

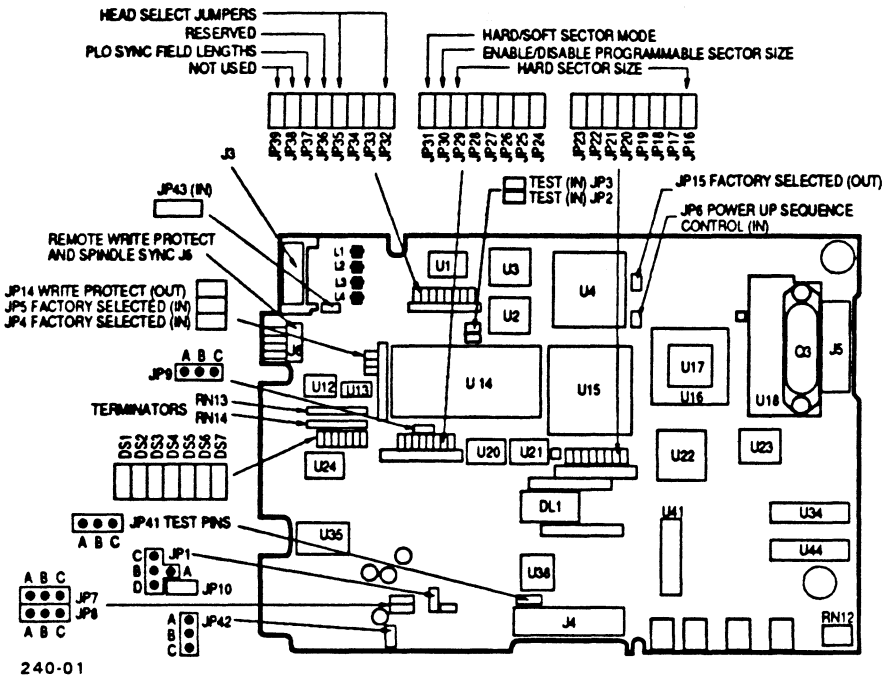

Figure F-2. MAXTOR PCBA #1015468

Table F-2. MAXTOR 765MB, PCBA #1015468 Jumper Settings

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	In (B-C)	RESERVED
JP2	In	Needed for Phase Margin Testing
JP3	In	Used for Phase Margin Testing
JP4	In*	In=2,7 Encoding
JP5	In	In=15Mbit/sec Transfer Rate
JP6	In	In=Remote Spinup Option Enabled
JP7	In (B-C)	Read Gate Delay Option
JP8	Out	Read Gate Delay Option
JP9	In (A-B)	Index Width Selection
JP10	Out	Write Gate Delay

*Etched on Solder Side of Board

Table F-2. PCBA #1015468 Jumper Settings (Continued)

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP11	N/A	
JP12	N/A	
JP13	N/A	
JP14	Out	In=Write Protect
JP15	Out	Factory Selected
JP16	Out	Hard Sector Size
JP17	Out	Hard Sector Size
JP18	In	Hard Sector Size
JP19	In	Hard Sector Size
JP20	In	Hard Sector Size
JP21	Out	Hard Sector Size
JP22	In	Hard Sector Size
JP23	Out	Hard Sector Size
JP24	Out	Hard Sector Size
JP25	In	Hard Sector Size
JP26	Out	Hard Sector Size
JP27	Out	Hard Sector Size
JP28	Out	Hard Sector Size
JP29	Out	Hard Sector Size
JP30	Out	Enable/Disable Programmable Sector Size In=Enable-Hard Sector Mode Only
JP31	Out	Hard/Soft Sector Mode; In=Soft Sector
JP32	In	Head Select Jumpers
JP33	In	Head Select Jumpers
JP34	In	Head Select Jumpers
JP35	In	Head Select Jumpers
JP36	Out	RESERVED
JP37	Out	PLO Sync Field Lengths
JP38	Out	NOT USED
JP39	Out	NOT USED
JP40		Test Jumper
JP41	Out	Test Pins Differential Data Signals
JP42	In (A-B)	Test Pin - Write Gate to Flex Circuit
JP43	In	Test Out Disables On-board RAM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

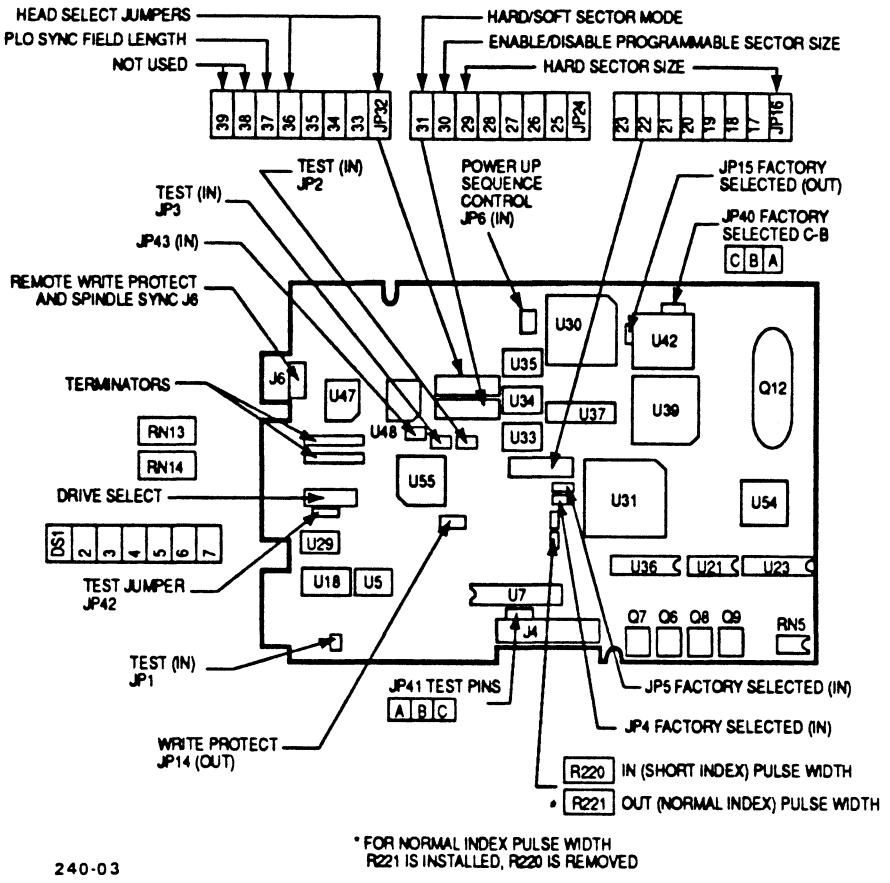

Figure F-3. MAXTOR PCBA #1014150

Table F-3. MAXTOR 765MB, PCBA #1014150 Jumper Settings

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	In	Encoded Write Data, TTL
JP2	In	Needed for Phase Margin Testing
JP3	In	Used for Phase Margin Testing
JP4	In*	In=2,7 Encoding
JP5	In	In=15Mbit/sec Transfer Rate
JP6	In	In=OFF Power-Up Sequence Control
JP7	N/A	
JP8	N/A	
JP9	N/A	
JP10	N/A	

*Etched on Solder Side of Board

Table F-3. PCBA #1014150 Jumper Settings (Continued)

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP11	N/A	
JP12	N/A	
JP13	N/A	
JP14	Out	In=Write Protect
JP15	Out	Factory Selected
JP16	Out	Hard Sector Size
JP17	Out	Hard Sector Size
JP18	In	Hard Sector Size
JP19	In	Hard Sector Size
JP20	In	Hard Sector Size
JP21	Out	Hard Sector Size
JP22	In	Hard Sector Size
JP23	Out	Hard Sector Size
JP24	Out	Hard Sector Size
JP25	In	Hard Sector Size
JP26	Out	Hard Sector Size
JP27	Out	Hard Sector Size
JP28	Out	Hard Sector Size
JP29	Out	Hard Sector Size
JP30	Out	Enable/Disable Programmable Sector Size In=Enable-Hard Sector Mode Only
JP31	Out	Hard/Soft Sector Mode; In=Soft Sector
JP32	In	Head Select Jumpers
JP33	In	Head Select Jumpers
JP34	In	Head Select Jumpers
JP35	In	Head Select Jumpers
JP36	Out	Head Select Jumper
JP37	Out	PLO Sync Field Lengths
JP38	Out	NOT USED
JP39	Out	NOT USED
JP40	Out	Factory Selected
JP41	Out	Test Pins Differential Data Signals
JP42	In (B-C)	Test Pin - Write Gate to Flex Circuit
JP43	In	Test Out Disables On-board RAM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

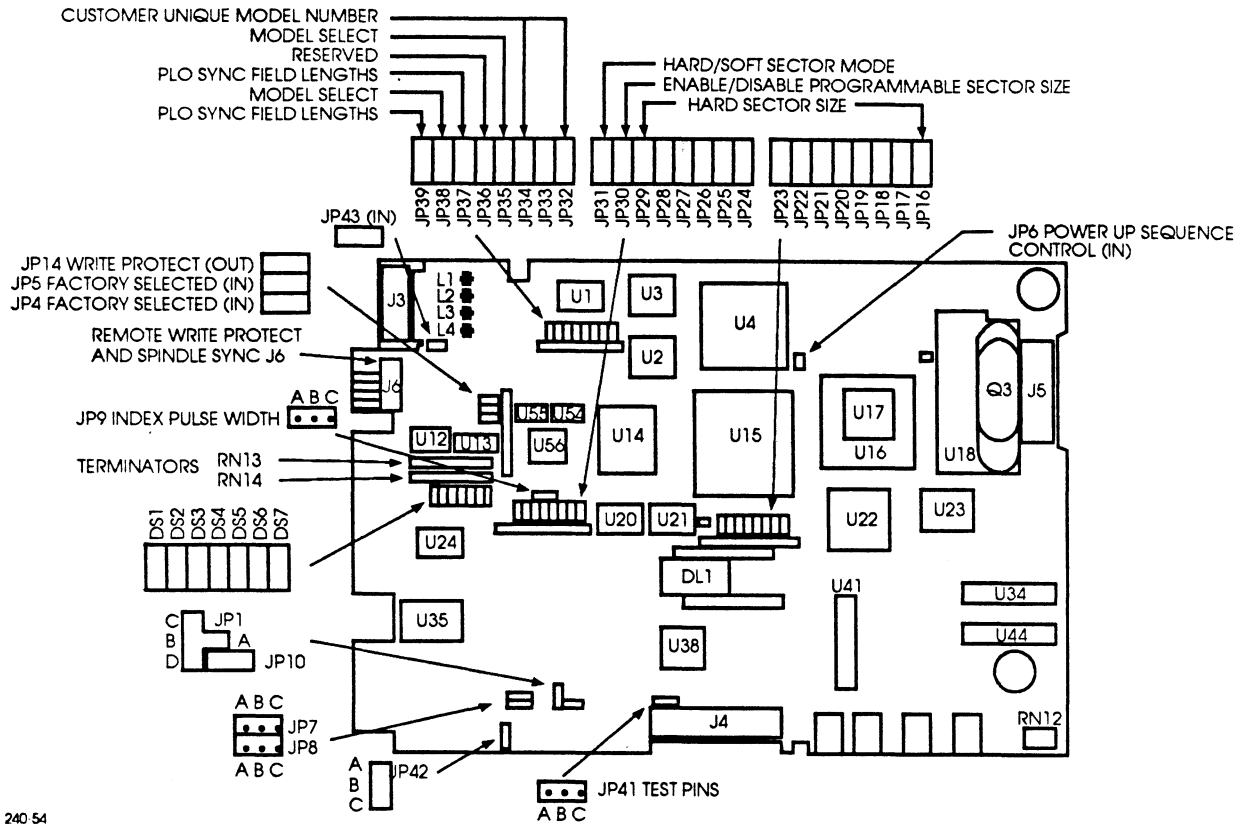

Figure F-4. MAXTOR PCBA #1023856 1

Table F-4. MAXTOR 765MB, PCBA #1023856 1 Jumper Settings

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	A-B	Encoded Write Data
JP2	N/A	
JP3	N/A	
JP4	Out	Out=1,7 Encoding
JP5	In	In=15Mbit/sec Transfer Rate (Hard Wired)
JP6	In	In=Motor Remote Spinup Option Disabled Out=Motor Spinup Option Enabled
JP7	B-C	Read Gate Delay Option
JP8	Out	Read Gate Delay Option
JP9	A-B	INDEX Width Selection. A-B=2.8µ sec. B-C=70µ sec.
JP10	In	Write Current Select (Hard Wired)

Table F-4. PCBA #1023856 1 Jumper Settings (Continued)

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP11	N/A	
JP12	N/A	
JP13	N/A	
JP14	Out	In=Write Protect
JP15	N/A	
JP16	Out	Hard Sector Size
JP17	Out	Hard Sector Size
JP18	In	Hard Sector Size
JP19	In	Hard Sector Size
JP20	In	Hard Sector Size
JP21	Out	Hard Sector Size
JP22	In	Hard Sector Size
JP23	Out	Hard Sector Size
JP24	Out	Hard Sector Size
JP25	In	Hard Sector Size
JP26	Out	Hard Sector Size
JP27	Out	Hard Sector Size
JP28	Out	Hard Sector Size
JP29	Out	Hard Sector Size
JP30	Out	Out=Disable ESDI Programmable Sector Size (Hard Sector Mode Only) In=Enable ESDI Programmable Sector Size (Hard Sector Mode Only)
JP31	Out	In=Soft Sector Mode;Out=Hard Sector Mode
JP32	In	Drive Model Selection
JP33	In	Drive Model Selection
JP34	In	Drive Model Selection
JP35	In	Model Select 0
JP36	Out	Reserved
JP37	In	Bytes per PLO Sync Field
JP38	Out	Model Select 1
JP39	In	Bytes per PLO Sync Field
JP40		Test Jumper
JP41	Out	Test Pins (Differential Data Read Signals)
JP42	B-C	Write Enable Select
JP43	In	Test Out Disables On-board RAM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

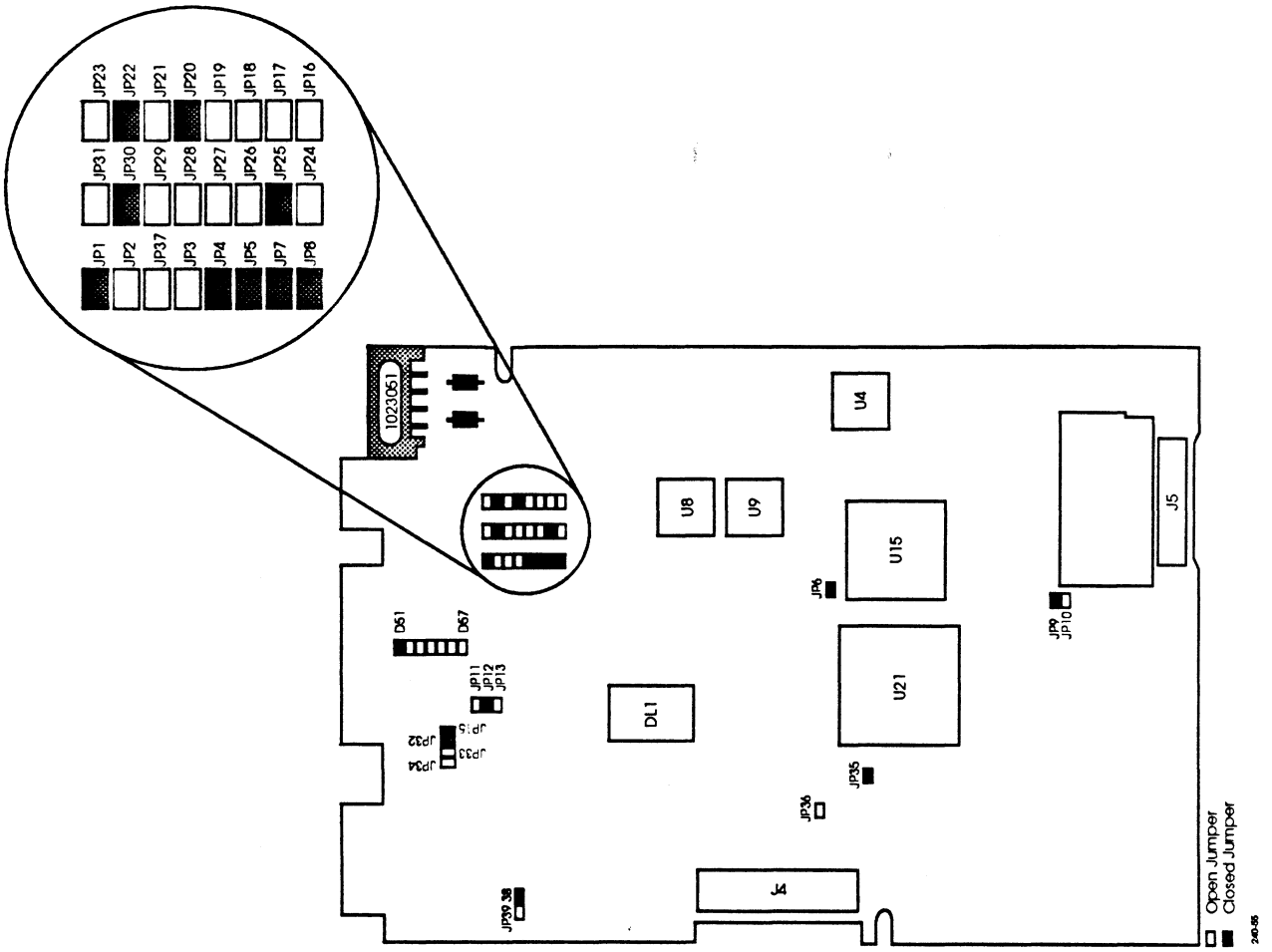

Figure F-5. MAXTOR PCBA #1023051

Table F-5. MAXTOR 765MB, PCBA #1023051 Jumper Settings

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	In	Bytes per PLO Sync Field
JP2	Out	RESERVED
JP3	Out	RESERVED
JP4	In	In for 8760 Out for 8380
JP5	In	Vendor ID
JP6	In	In = Auto spin-up Out = Remote spin-up
JP7	In	Vendor ID
JP8	In	Vendor ID
JP9	In	Short Index

Table F-5. PCBA #1023051 Jumper Settings (Continued)

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP10	Out	Long Index
JP11	Out	Delayed Write Current
JP12	In	Normal Write Current
JP13	Out	Hardware DC Erase
JP15	In	Read Gate Nominal Delay
JP16	Out	1 Byte per Sector
JP17	Out	2 Bytes per Sector
JP18	In	4 Bytes per Sector
JP19	In	8 Bytes per Sector
JP20	In	16 Bytes per Sector
JP21	Out	32 Bytes per Sector
JP22	In	64 Bytes per Sector
JP23	Out	128 Bytes per Sector
JP24	Out	256 Bytes per Sector
JP25	In	512 Bytes per Sector
JP26	Out	1024 Bytes per Sector
JP27	Out	2048 Bytes per Sector
JP28	Out	4096 Bytes per Sector
JP29	Out	8182 Bytes per Sector
JP30	In	In = Enable ESDI Programmable Sector Size Out = Disable ESDI Programmable Sector Size
JP31	Out	In = Soft Sector Mode Out = Hard Sector Mode
JP32	In	Read Gate Nominal Delay
JP33	Out	Read Gate Nominal Delay
JP34	Out	Read Gate Nominal Delay
JP35	In	In = Normal Write Current Out = Delay Write Current
JP36	Out	In = Write Unsafe Disable Out = Write Unsafe Enable
JP37	Out	Bytes per PLO Sync Field
JP38	In	Normal Write Current
JP39	Out	Delayed Write Current
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

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Incorporation of the attached pages into Revision A of the manual brings it up to Revision B

November 1990

Publications Update

TO: MARK 386S Users

FROM: Publications Department

DATE: November 29, 1990

SUBJ: MARK 386S INSTALLATION/OPERATION GUIDE, REVISION B UPDATE PACKAGE

The MARK 386S Installation/Operation Guide has been updated. The revised pages are attached. Incorporation of these pages into a Revision A document brings it up to Revision B. Remove and insert pages as indicated below.

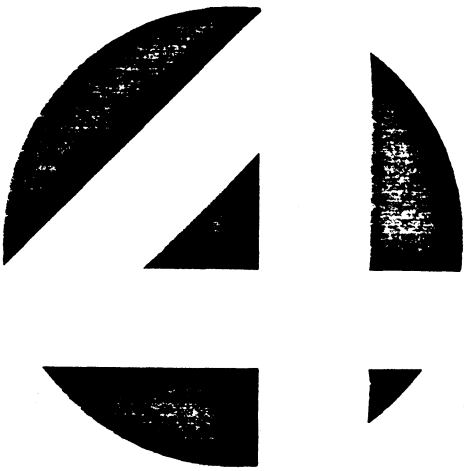
FILING INSTRUCTIONS

Remove	Insert
Title thru vii	Title thru ix
2-19/2-20	2-19/2-20
4-11/4-12 4-15	4-11/4-12 4-15 thru 4-18
none	D-1 thru D-11
none	E-1 thru E-8
Comment Sheet/Mailer	Comment Sheet/Mailer

MARK 386S

BUSINESS SYSTEM INSTALLATION/ OPERATION GUIDE

Revision B



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A	Initial Customer Release	04/20/90
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LIST OF EFFECTIVE PAGES

Changes, additions, and deletions to information in this manual are indicated by vertical bars in the margins or by a dot near the page number if the entire page is affected. A vertical bar by the page number indicates pagination rather than content has changed. The effective revision for each page is shown below.

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2.7 INSTALLING THE 8-PORT SERIAL CONTROLLER

Instructions for installing the 8-port Serial Controller are contained in the *8-Port Serial Controller User Guide*, dated November 1988 (Order Number HTP0076).

Using the Arnet driver, XENIX supports a maximum of two 8-port controllers, one as COM1 and the other as COM2. XENIX does not support chaining two or more boards on one interrupt.

2.7.1 Installing the 8-Port Serial Controller as COM1

1. JP1 must have a jumper across location 3.
2. JP2 must have a jumper across location 3 (IRQ4).
3. Set SW1, keys 1 through 4, to 1 0 1 1, where 1=ON or Closed (Address 100H).
4. Set SW2, keys 1 through 8 to 1 0 1 0 1 1 0 0.
5. On the 1P/2S Adapter change Port 1 to use COM3 instead of COM1 (see Table 2-8).
6. Run **mkdev serial** to install an 8-port card on COM1.

2.7.2 Installing a Second 8-Port Serial Controller as COM2

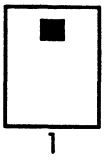
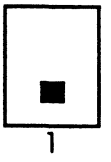
1. JP1 must have a jumper across location 3.
2. JP2 must have a jumper across location 2 (IRQ3).
3. Set SW1, keys 1 through 4, to 1 0 0 1, where 1=ON or Closed (Address 180H).
4. Set SW2, keys 1 through 8, to 1 0 0 0 1 1 0 0.
5. On the 1P/2S Adapter change Port 2 to use COM4 instead of COM2 (see Table 2-8).
6. Run **mkdev serial** to install an 8-port card on COM2.

2.8 INSTALLING THE ATI VIDEO ADAPTER

There are four switches in one assembly on the rear of the card.

Switch 1 (SW1) is used to select the mode of operation which will be in effect at power-on (see Table 2-4).

Table 2-4. Video Mode Select

Default Mode	Graphics Solution SW1 Switch Settings
Color/Graphics	 OFF/Closed ON/Open 1
Monochrome/Graphics	 OFF/Closed ON/Open 1
Color/Graphics – Selects for IBM Color/Graphics, Plantronics Color/Graphics and ATI 640 x 200 16 Color/Graphic modes. **Monochrome/Graphics** – Selects for Monochrome Text Mode (MDA), and Hercules Monochrome/Graphics Mode.	

Switches 2 and 3 are used to identify the type of monitor that is being used (see Table 2-5).

Table 4-3. MAXTOR 765MB, FAB #7 Jumper Settings (Continued)

PCBA: 1014150 10
TLA #: 1098068 2
FAB #: 7

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP31	Out	Hard/Soft Sector Mode; In=Soft Sector
JP32	In	Head Select Jumpers
JP33	In	Head Select Jumpers
JP34	In	Head Select Jumpers
JP35	In	Head Select Jumpers
JP36	Out	Head Select Jumper
JP37	Out	PLO Sync Field Lengths
JP38	Out	NOT USED
JP39	Out	NOT USED
JP40	Out	Factory Selected
JP41	Out	Test Pins Differential Data Signals
JP42	In (B-C)	Test Pin - Write Gate to Flex Circuit
JP43	In	Test Out Disables On-board RAM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

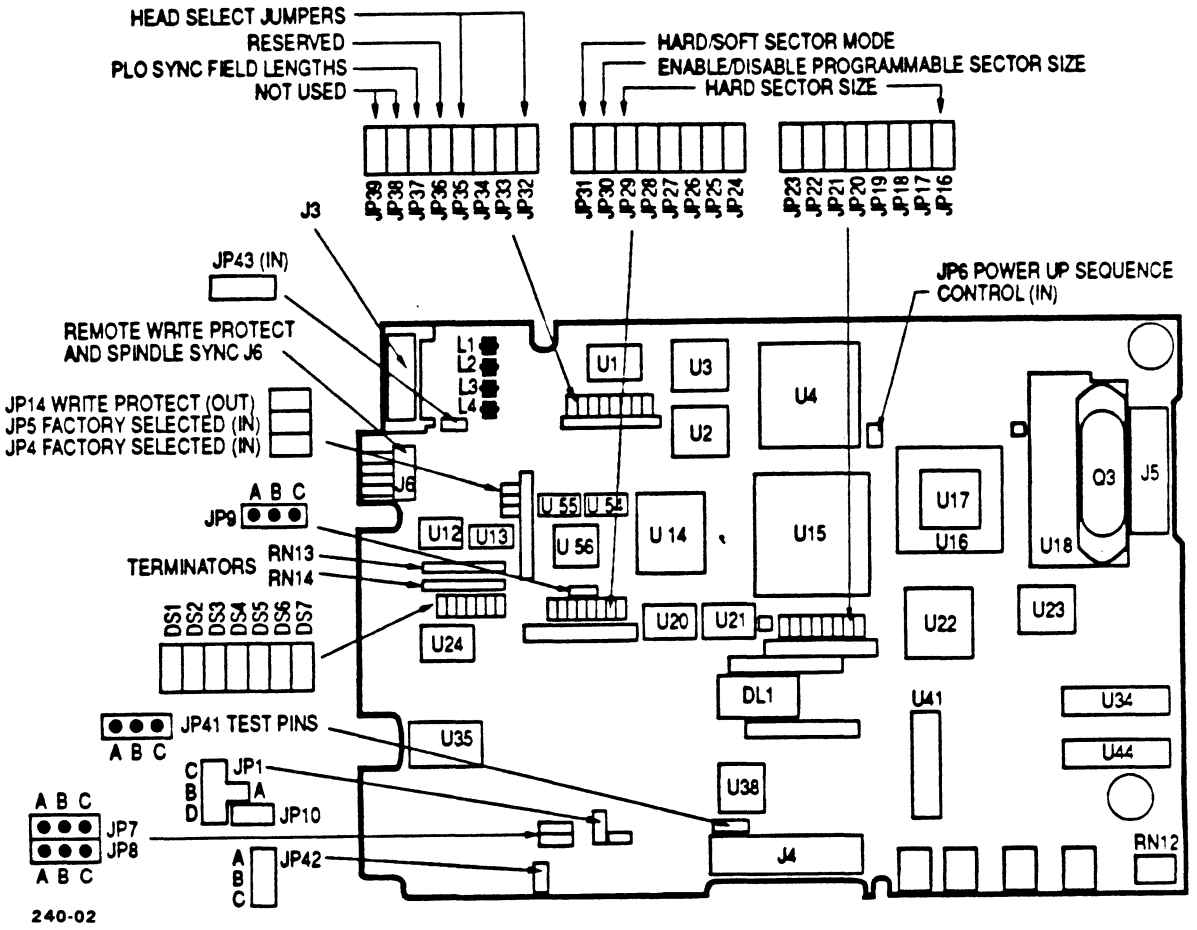


Figure 4-1. MAXTOR PCBA #1014520, FAB #9

MS-DOS then asks:

Format another? (Y/N)

Type "N" to stop the format process.

Table 4-4. MAXTOR 765MB Jumper Settings

PCBA: 1023856 1
TLA #: N/A
FAB #: N/A

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP1	A-B	Encoded Write Data
JP2	N/A	
JP3	N/A	
JP4	Out	Out=1,7 Encoding
JP5	In	In=15Mbit/sec Transfer Rate (Hard Wired)
JP6	In	In=Motor Remote Spinup Option Disabled Out=Motor Spinup Option Enabled
JP7	B-C	Read Gate Delay Option
JP8	Out	Read Gate Delay Option
JP9	A-B	INDEX Width Selection. A-B=2.8µsec. B-C=70µsec.
JP10	In	Write Current Select (Hard Wired)
JP11	N/A	
JP12	N/A	
JP13	N/A	
JP14	Out	In=Write Protect
JP15	N/A	
JP16	Out	Hard Sector Size
JP17	Out	Hard Sector Size
JP18	In	Hard Sector Size
JP19	In	Hard Sector Size
JP20	In	Hard Sector Size
JP21	Out	Hard Sector Size
JP22	In	Hard Sector Size
JP23	Out	Hard Sector Size
JP24	Out	Hard Sector Size
JP25	In	Hard Sector Size
JP26	Out	Hard Sector Size
JP27	Out	Hard Sector Size
JP28	Out	Hard Sector Size
JP29	Out	Hard Sector Size
JP30	Out	Out=Disable ESDI Programmable Sector Size (Hard Sector Mode Only) In=Enable ESDI Programmable Sector Size (Hard Sector Mode Only)

Table 4-4. MAXTOR 765MB Jumper Settings (Continued)

PCBA: 1023856 1
TLA #: N/A
FAB #: N/A

JUMPER ADDRESS	STATUS MK 386S	DESCRIPTION
JP31	Out	In=Soft Sector Mode;Out=Hard Sector Mode
JP32	In	Drive Model Selection
JP33	In	Drive Model Selection
JP34	In	Drive Model Selection
JP35	In	Model Select 0
JP36	Out	Reserved
JP37	In	Bytes per PLO Sync Field
JP38	Out	Model Select 1
JP39	In	Bytes per PLO Sync Field
JP40		Test Jumper
JP41	Out	Test Pins (Differential Data Read Signals)
JP42	B-C	Write Enable Select
JP43	In	Test Out Disables On-board RAM
DS1	In	DRIVE SELECT
DS2	Out	DRIVE SELECT
DS3	Out	DRIVE SELECT
DS4	Out	DRIVE SELECT
DS5	Out	DRIVE SELECT
DS6	Out	DRIVE SELECT
DS7	Out	DRIVE SELECT

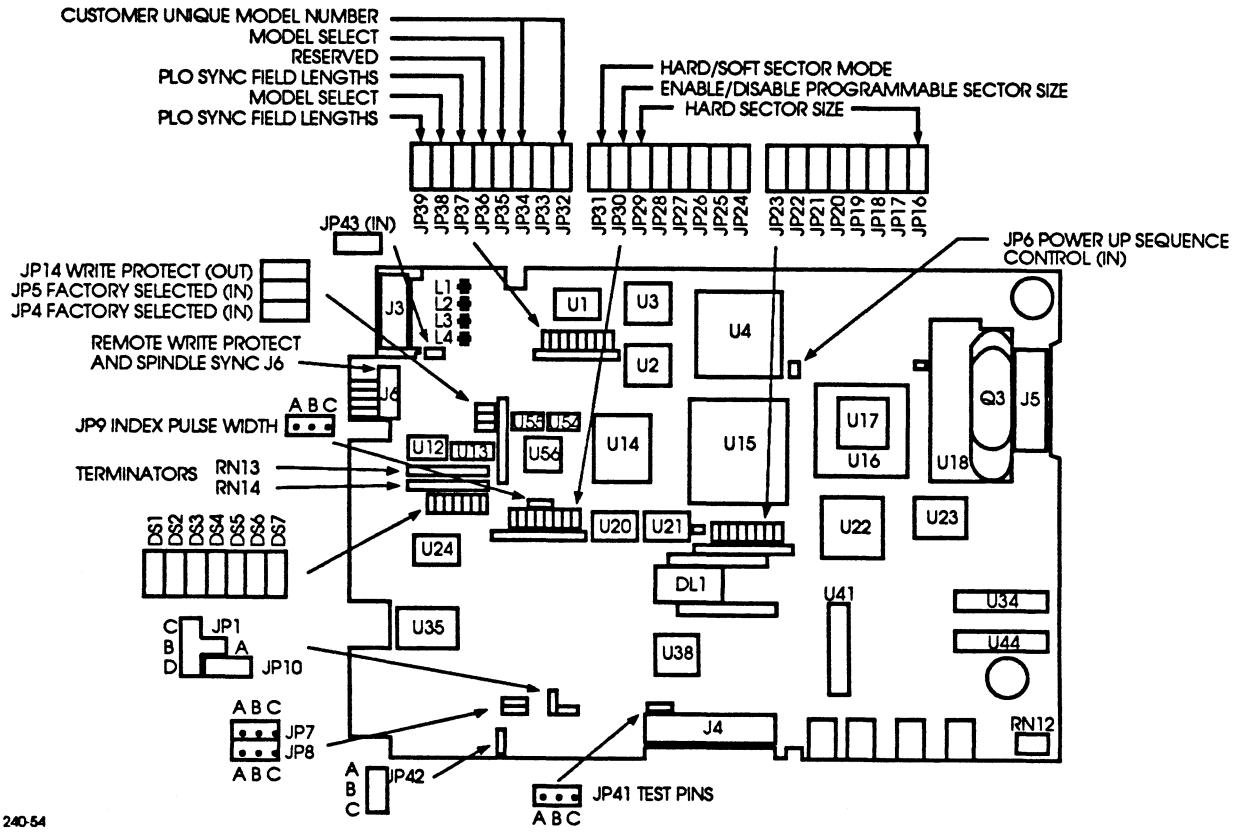


Figure 4-4. MAXTOR PCBA #1023856 1

Appendix D
80386DX-33 MOTHERBOARD CONFIGURATION

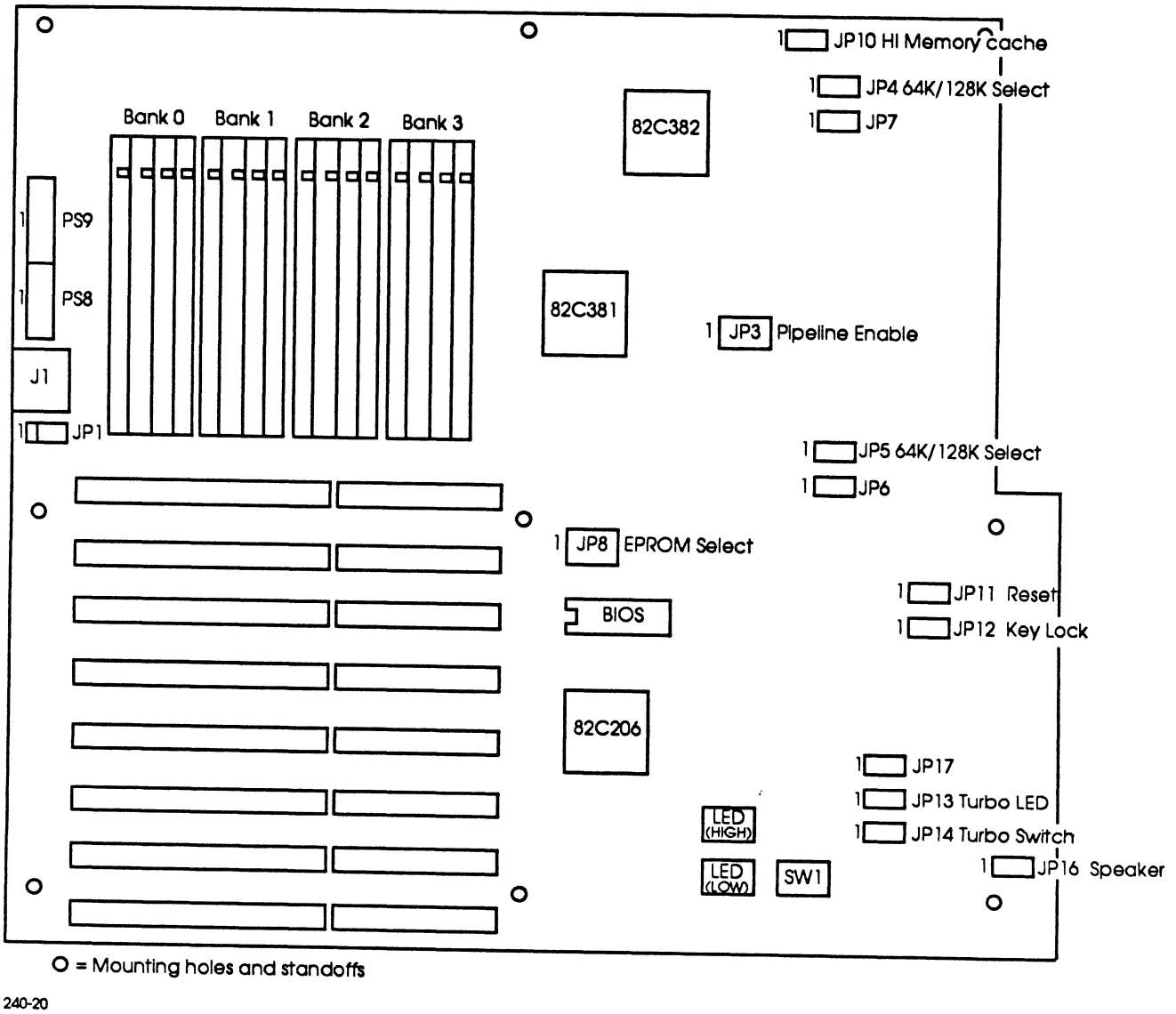
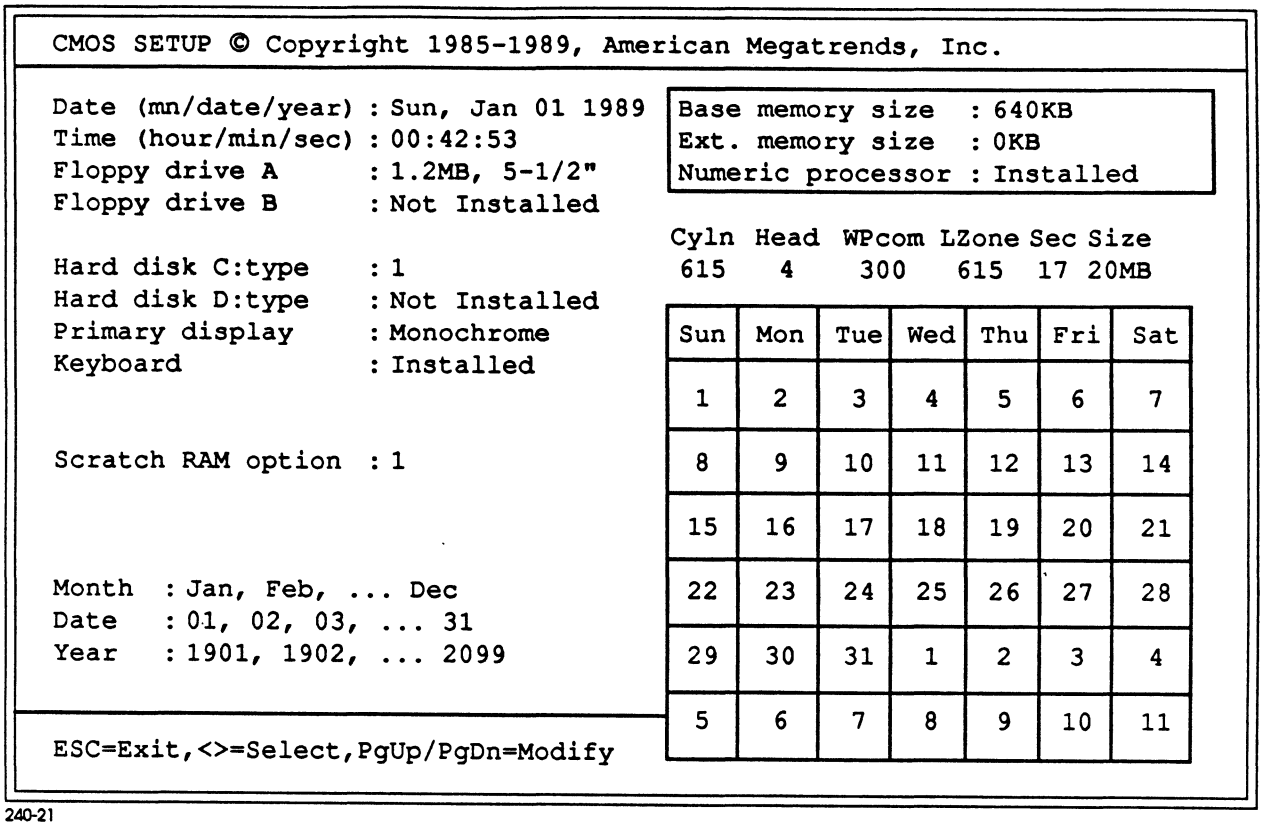


Figure D-1. 80386DX-33 Motherboard Layout

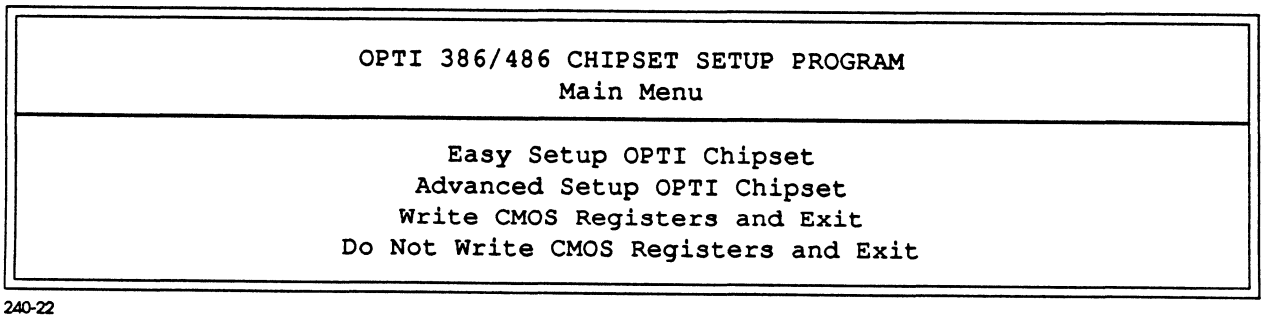
Table D-1. 80386DX-33 Jumpers and Switch Settings

PS8 and PS9	Power Connectors Plug In with Black Wires Together		
J1	Keyboard Connector		
JP1	Battery Connector (Red is Pin 1)		
JP3	Pipeline Select 1-2 turns OFF pipeline 2-3 turns ON pipeline Default is "OFF" with cache Default is "ON" without cache		
JP4 to JP7	64K/128K Cache Select 1-2 selects 128K 2-3 selects 64K		
JP8	EPROM Select 1-2 selects 512K EPROM 2-3 selects 256K EPROM Default is 512K		
JP10	High Memory Cache/Noncache 1-2 High Memory Noncacheable 2-3 High Memory Cacheable (default)		
JP11	RESET Connector		
JP12	Keylock Connector		
JP13	TURBO LED Connector		
JP14	TURBO Switch Connector		
JP16	Speaker Connector		
JP17	Emergency 206 RESET		
SW1	DIP Switch		
	1		"ON" for color "OFF" for mono
	2	3	
	ON	OFF	Speed change by keyboard (CTRL/ALT/+ for high speed, CTRL/ALT/– for low speed). (Also set CPU = CLKIN in setup – see Figure D-5B.)
	OFF	ON	Speed change by TURBO Switch (Also set CPU = ICLK in setup – see Figure D-5B.)



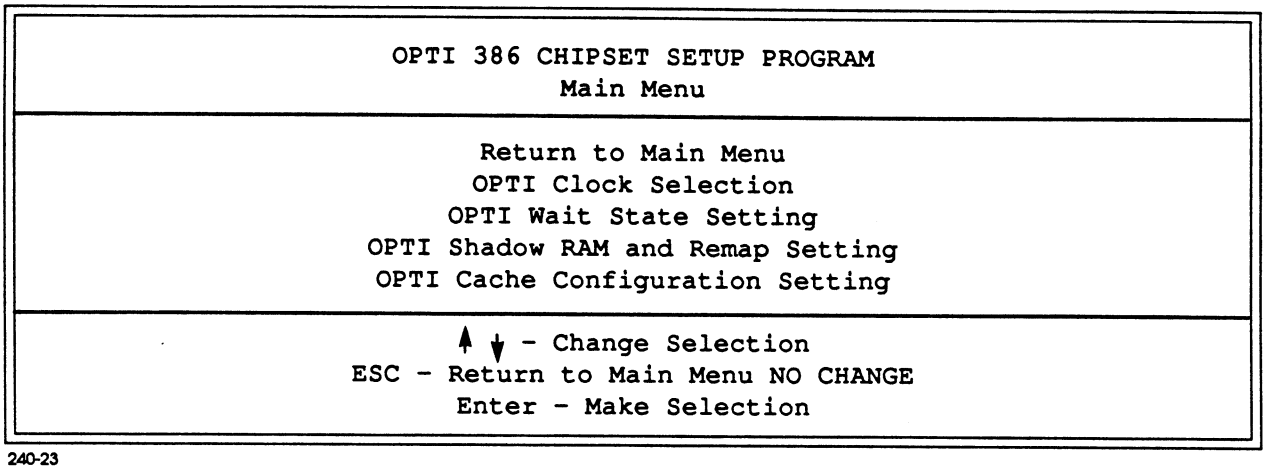
240-21

Figure D-2. 80386DX-33 CMOS SETUP Screen



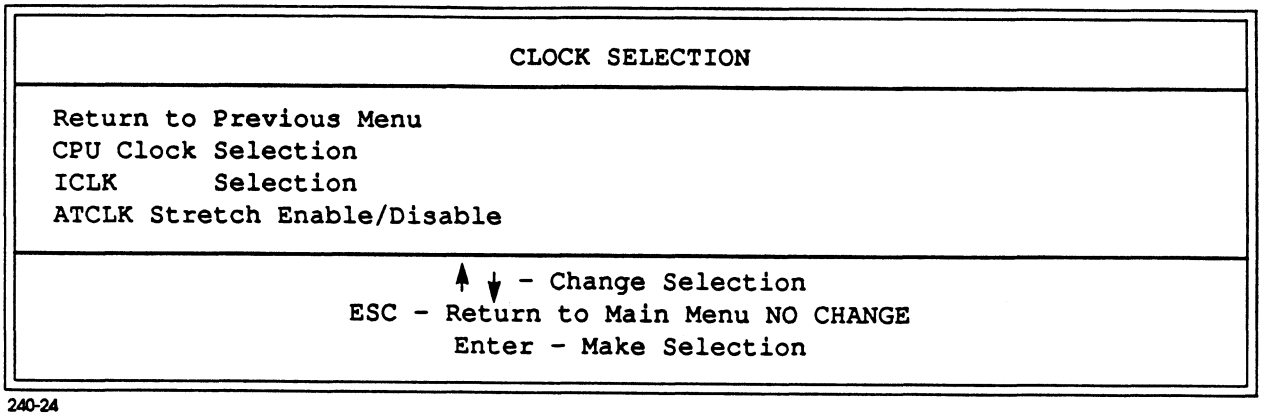
240-22

Figure D-3. XCMOS SETUP SCREEN



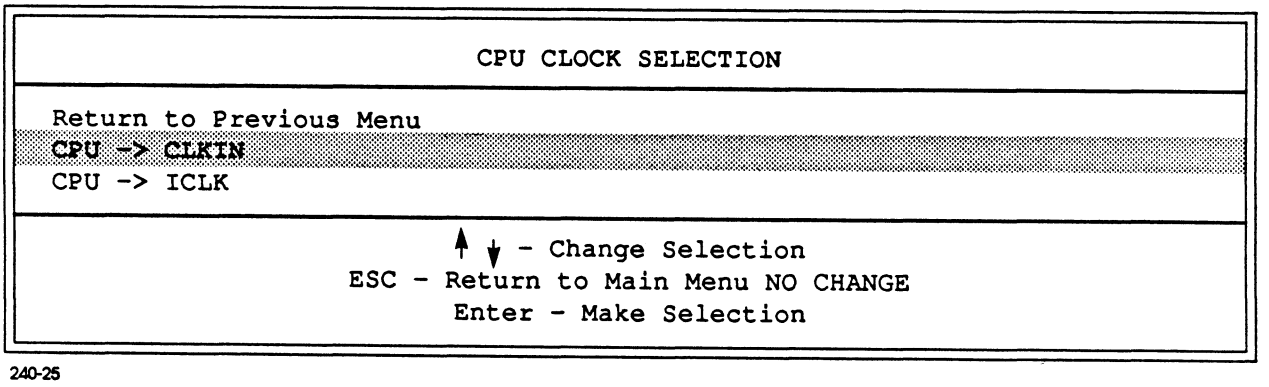
240-23

Figure D-4. EASY SETUP OPTI CHIPSET



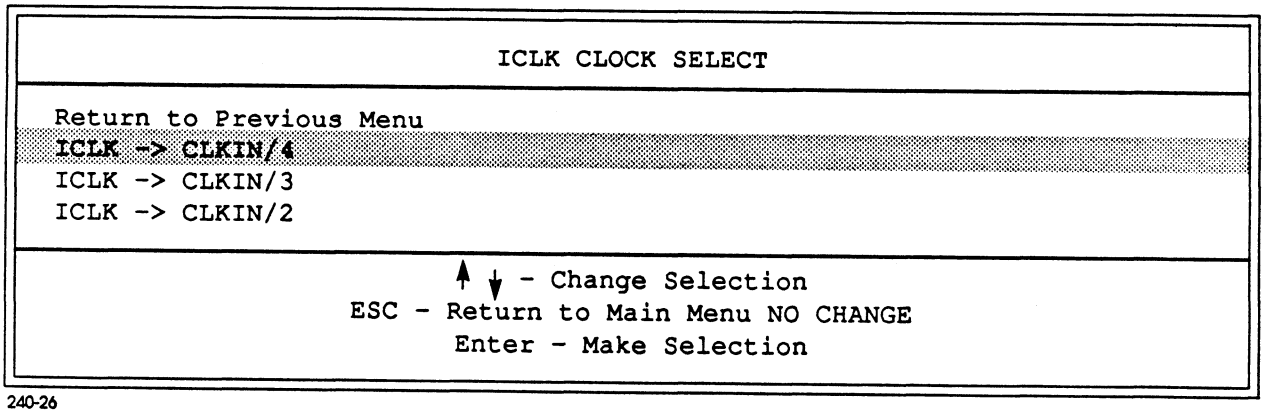
240-24

Figure D-5. OPTI Clock Selection



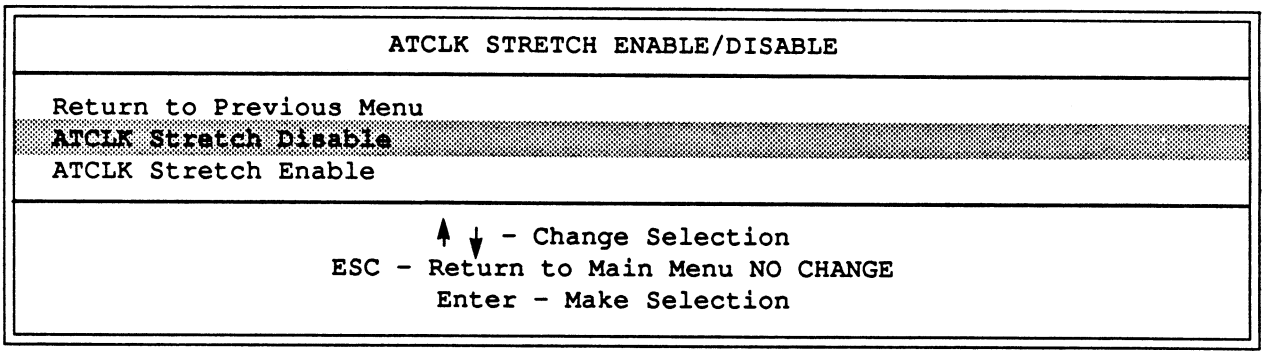
240-25

Figure D-5A. CPU Clock Selection



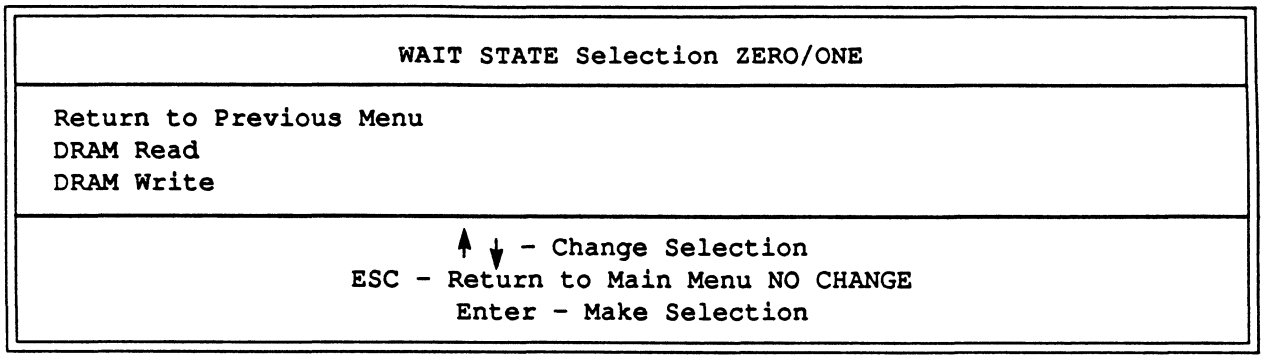
240-26

Figure D-5B. ICLK Selection



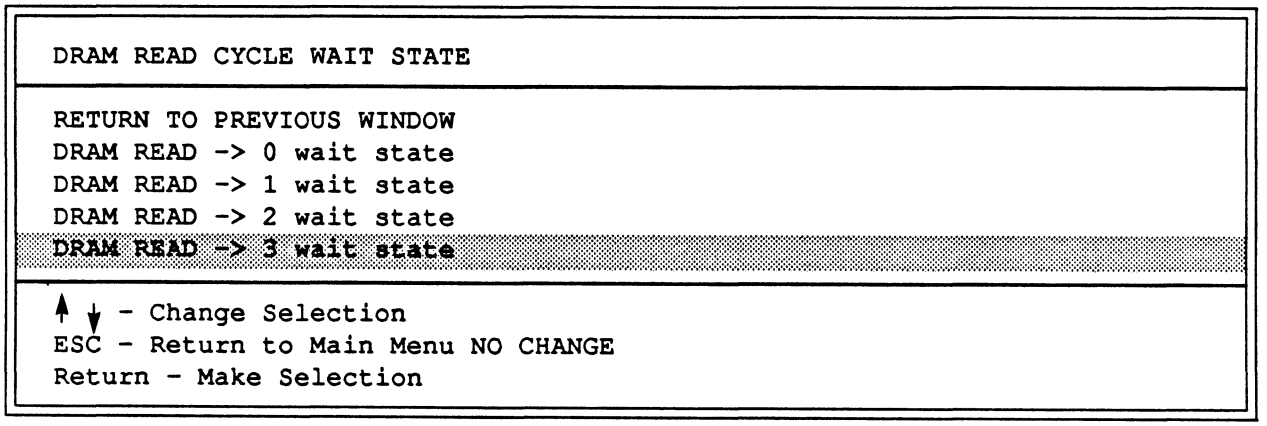
240-27

Figure D-5C. ATCLK Stretch Enable/Disable



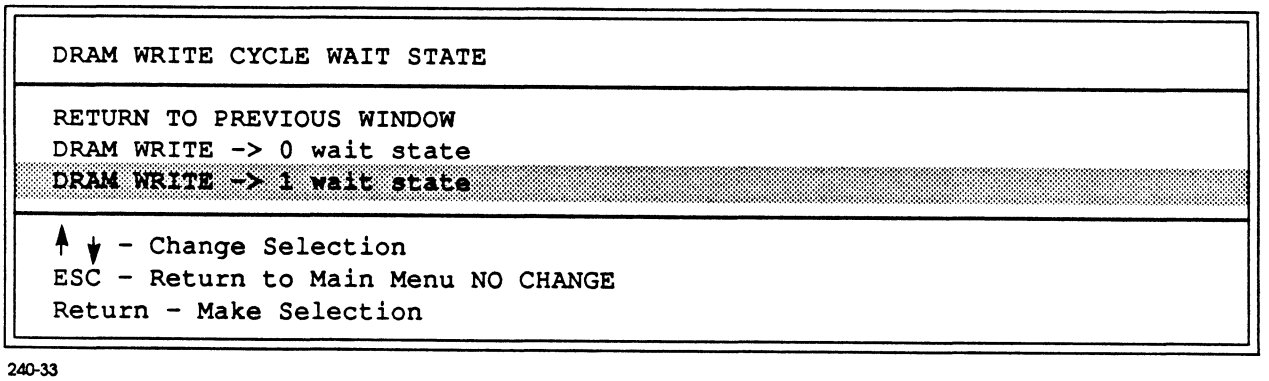
240-28

Figure D-6. OPTI Wait State Setting



240-32

Figure D-6A. DRAM READ Cycle Wait State



240-33

Figure D-6B. DRAM WRITE Cycle Wait State

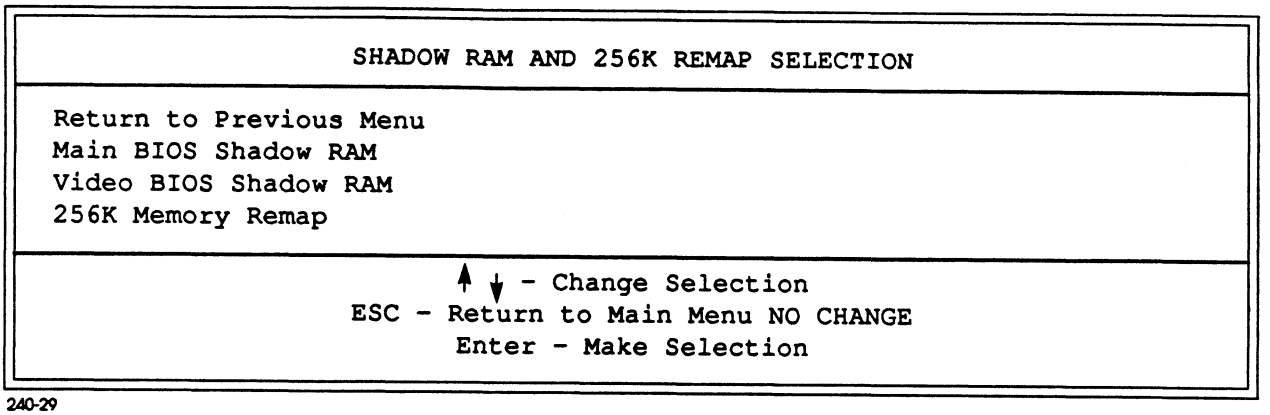


Figure D-7. OPTI Shadow RAM and REMAP Setting

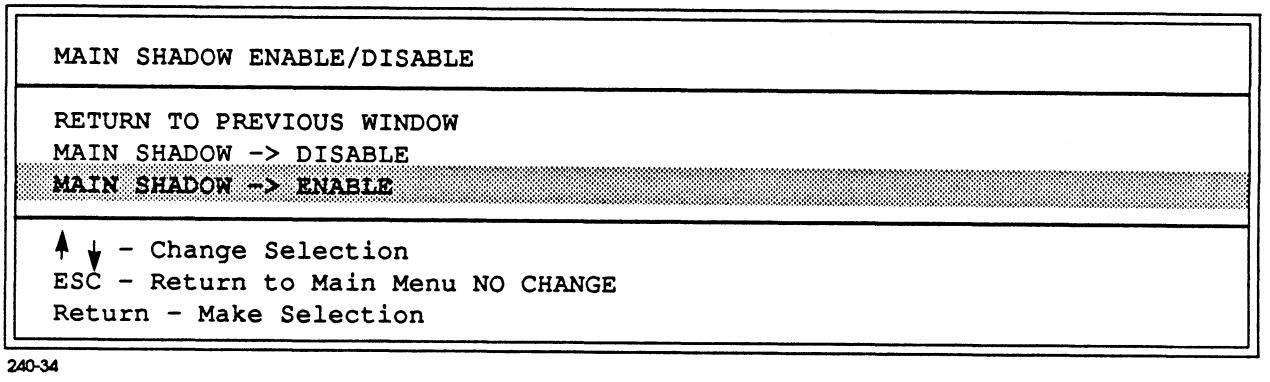


Figure D-7A. Main Shadow ENABLE/DISABLE

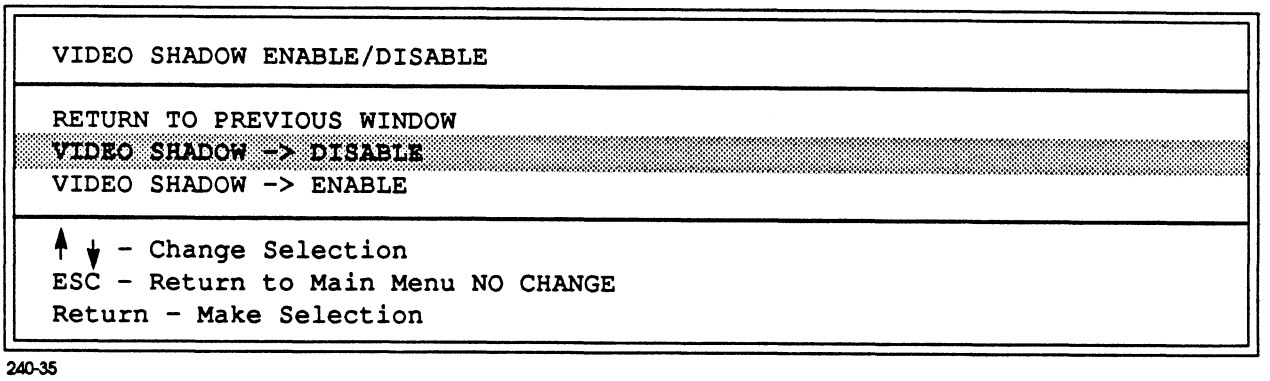
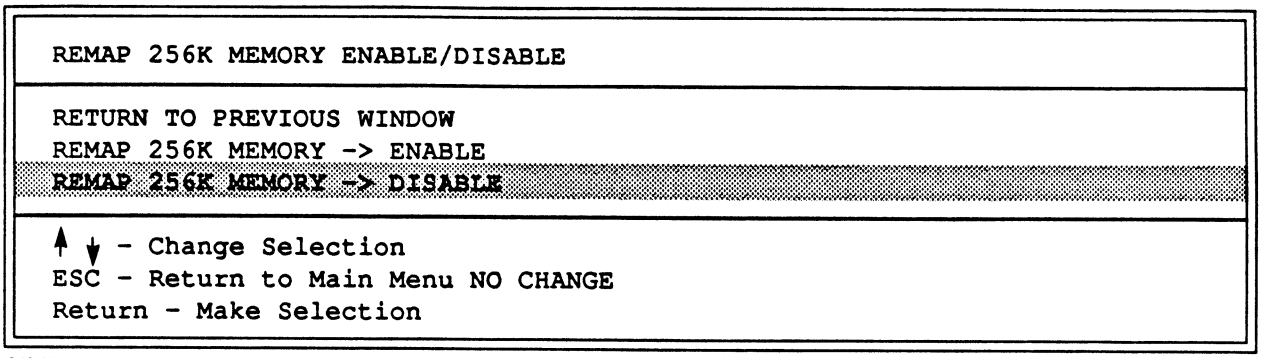
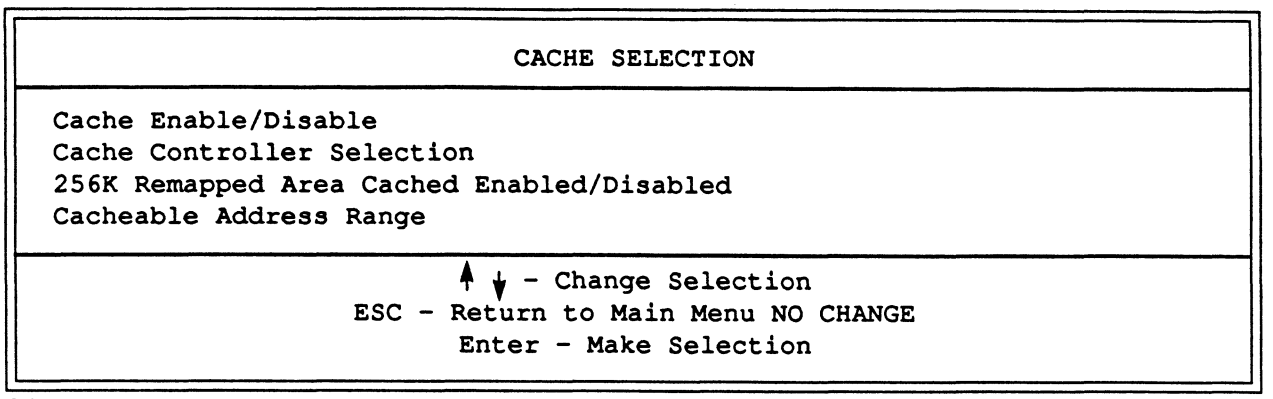


Figure D-7B. Video Shadow ENABLE/DISABLE



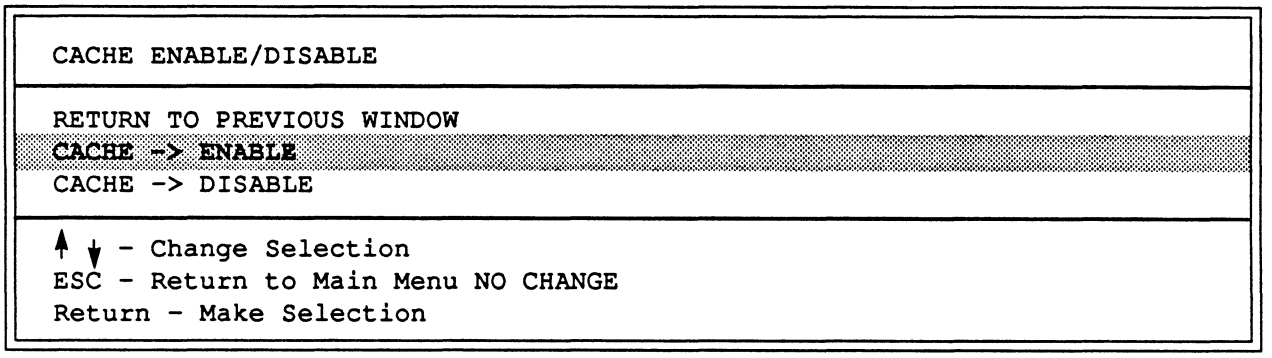
240-36

Figure D-7C. Remap 256K Memory ENABLE/DISABLE



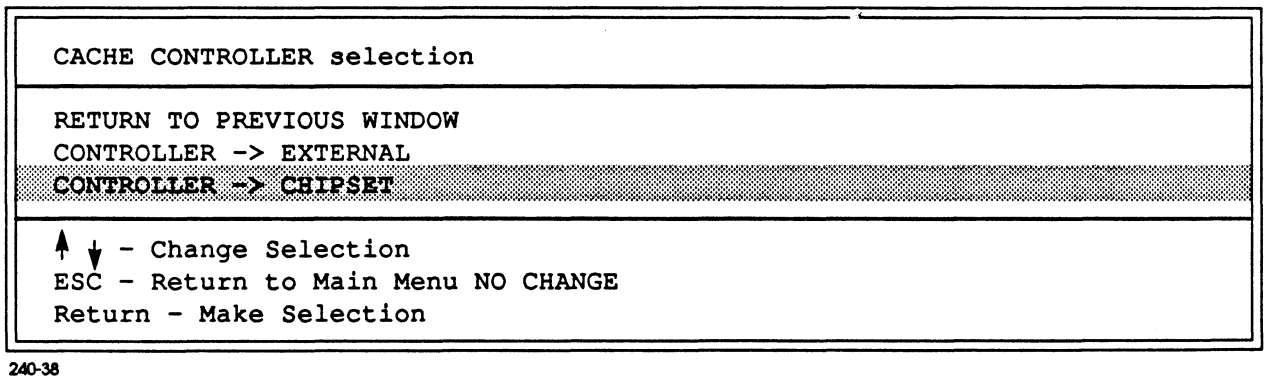
240-30

Figure D-8. OPTI Cache Configuration Setting



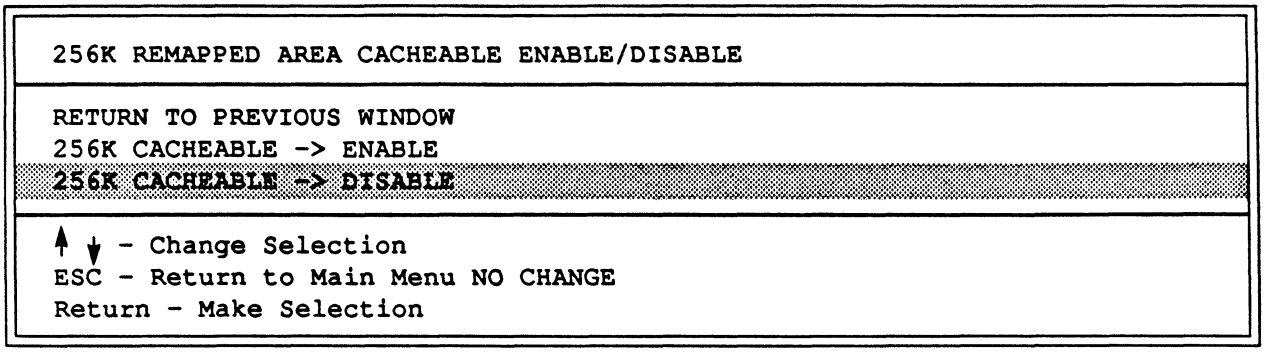
240-37

Figure D-8A. Cache ENABLE/DISABLE



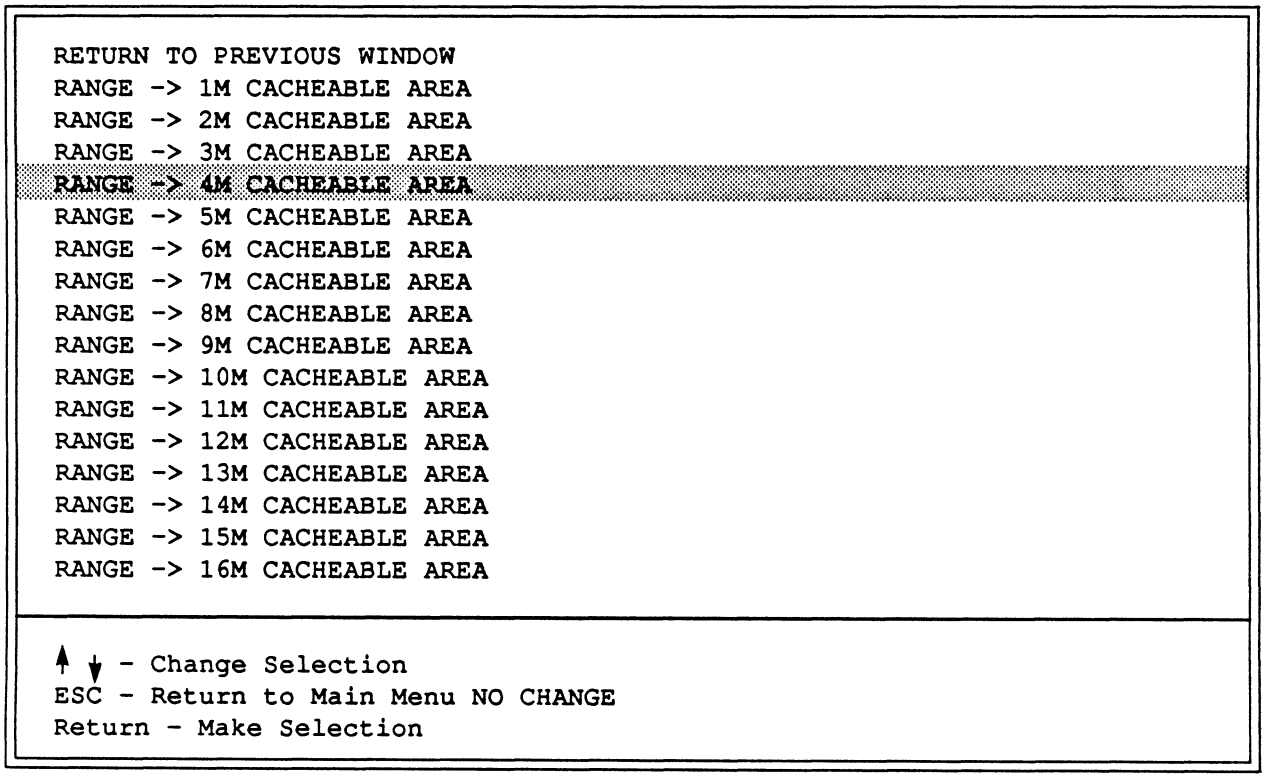
240-38

Figure D-8B. Cache Controller Selection



240-39

Figure D-8C. 256K Remapped Area Cacheable ENABLE/DISABLE



NOTE: Set the RANGE to the amount of memory installed in the system.

240-40

Figure D-8D. Cacheable Address Range

Appendix E
80486-25 MOTHERBOARD CONFIGURATION

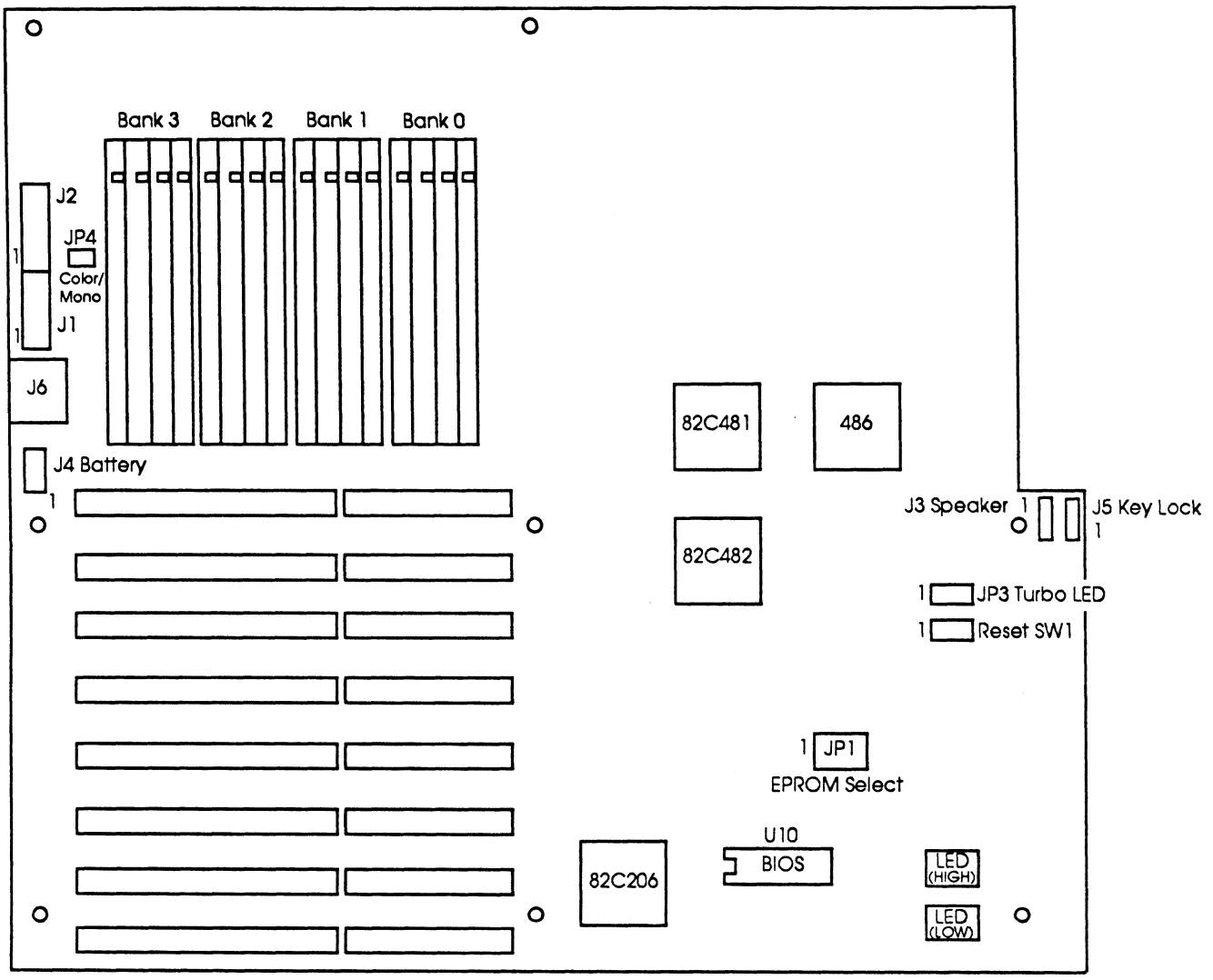


Figure E-1. 80486-25 Motherboard Layout

Table E-1. 80486-25 Jumpers and Switch Settings

J1	6-pin power connector
	Pin 1 – Orange Pin 2 – Red Pin 3 – Yellow Pin 4 – Blue Pin 5 – Black Pin 6 – Black
NOTE: Power connectors should be plugged in with black wires in middle of J1/J2 connector.	
J2	6-pin power connector
	Pin 1 – Black Pin 2 – Black Pin 3 – White Pin 4 – Red Pin 5 – Red Pin 6 – Red
J6	5-pin DIN socket keyboard connector
J4	Battery Connector
	Pin 1 – Battery positive Pin 2 – Key Pin 3 – Ground Pin 4 – Ground
U10	EPROM (BIOS) 512K
JP4	COLOR/MONO selection
	IN Color (eg. VGA/EGA) OUT MONO
JP1	256K/512K EPROM BIOS
	Connect JP1-1 and JP1-2 – 512K EPROM BIOS Connect JP1-2 and JP1-3 – 256K EPROM BIOS
JP3	TURBO LED
	JP3-1 and JP3-3 is VCC connecting to LED Anode. JP3-2 connecting to LED Cathode.
J3	Speaker
	J3-1 Speaker Data J3-2 Key (No connection) J3-3 Ground J3-4 VCC
J5	KEYLOCK LED
	J5-1 VCC J5-2 Key (No connection) J5-3 Ground J5-4 Key Board Lock J5-5 Ground
SW1	RESET SWITCH

```
Cache Computers Inc.  BAT486 BIOS                          Ver V1.04  Port CCI 402

 Summary   Clock    Video   Floppy   Fixed   Boot-Seq  Keyboard   More---

 CPU ....................80486-01      Floppy 0 (A:) ...........1.2M 6mS
 MHz ........................25.0      Floppy 1 (B:) ...............None
 NPX ....................Built-in      Fixed 80 (C:) .............Type 1
 CPU Speed ....................n/a      Fixed 81 (D:) ...............None

 RAM Cache ................Enable      Boot Sequence ............A:  1st
 Shadow RAM ................Enable      Cold-Boot Delay ............0 Sec
 Memory-Base ................640K
 Memory-Extended ...........15360K      Keyboard ......................AT
 Memory-System ..............384K      NumLock .......................On
 Memory-Total ..............16384K      Typematic ................Default

 COM1 ........................n/a      Video-Primary .........Monochrome
 COM2 ........................n/a      Video-Secondary .......CGA - Fast
 LPT1 ........................3BC
 LPT2 ........................n/a      Security .................Disable
 LPT3 ........................n/a

        F10 to Record and Exit              Home End Moves Cursor
```

240-42

Figure E-2. 80486-25 CMOS Setup Summary

```
Cache Computers Inc.  BAT486 BIOS                          Ver V1.04  Port CCI 402

            Clock

                  Time  hh:mm:ss t ...............11:28:20 a
                  Date  mm/dd/yyyy ...............09/06/1990
                  Daylight Savings ...................Enable

        Moves Cursor          DY to Edit
```

240-44

Figure E-3. 80486-25 CMOS Setup – Clock

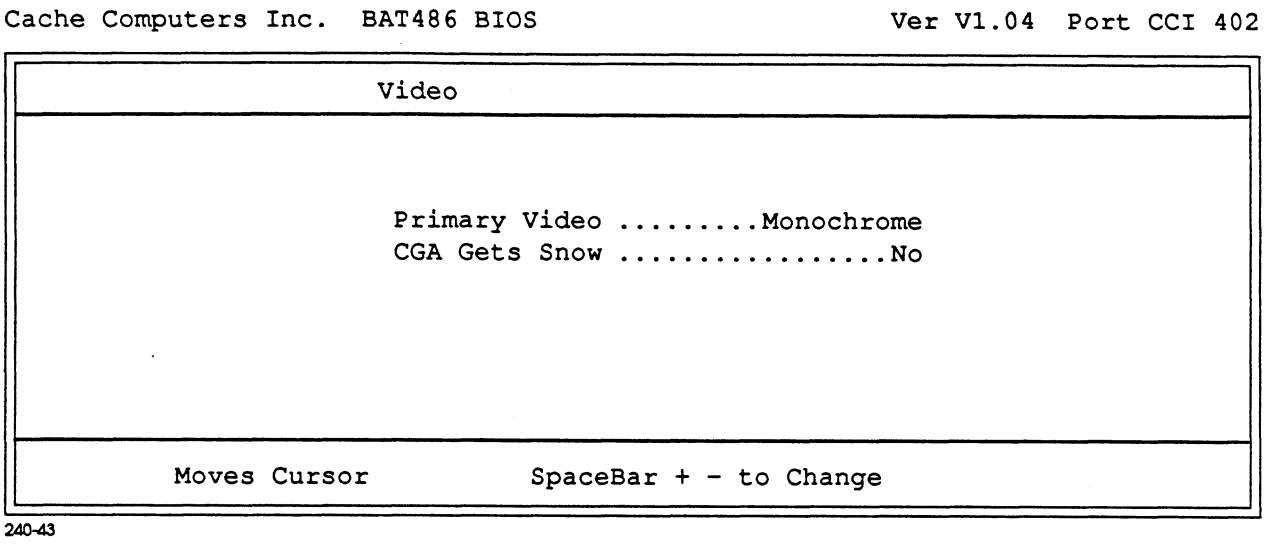


Figure E-4. 80486-25 CMOS Setup – Video

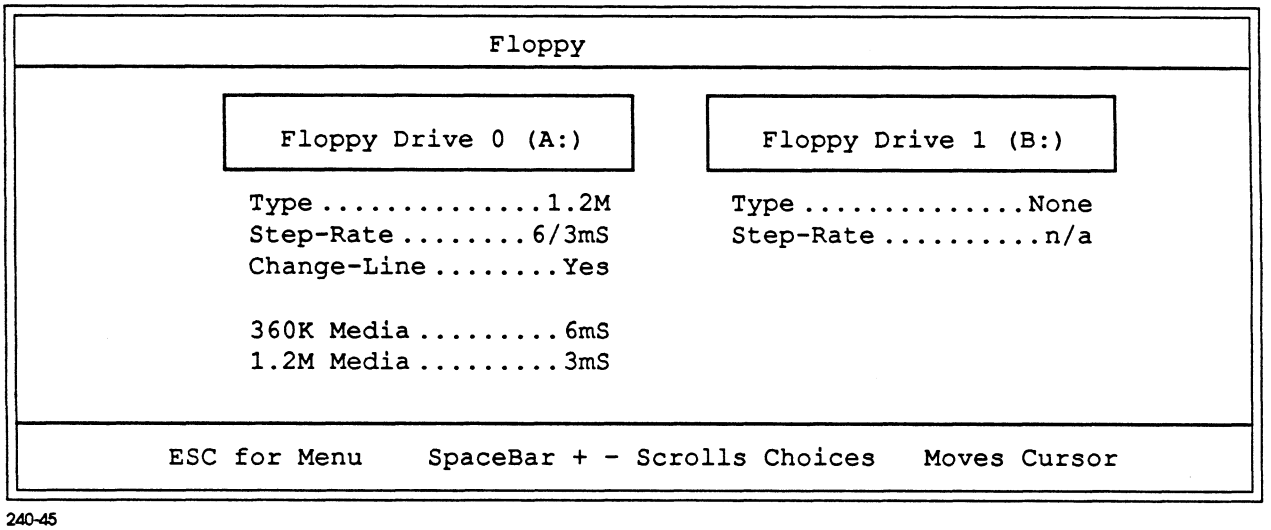
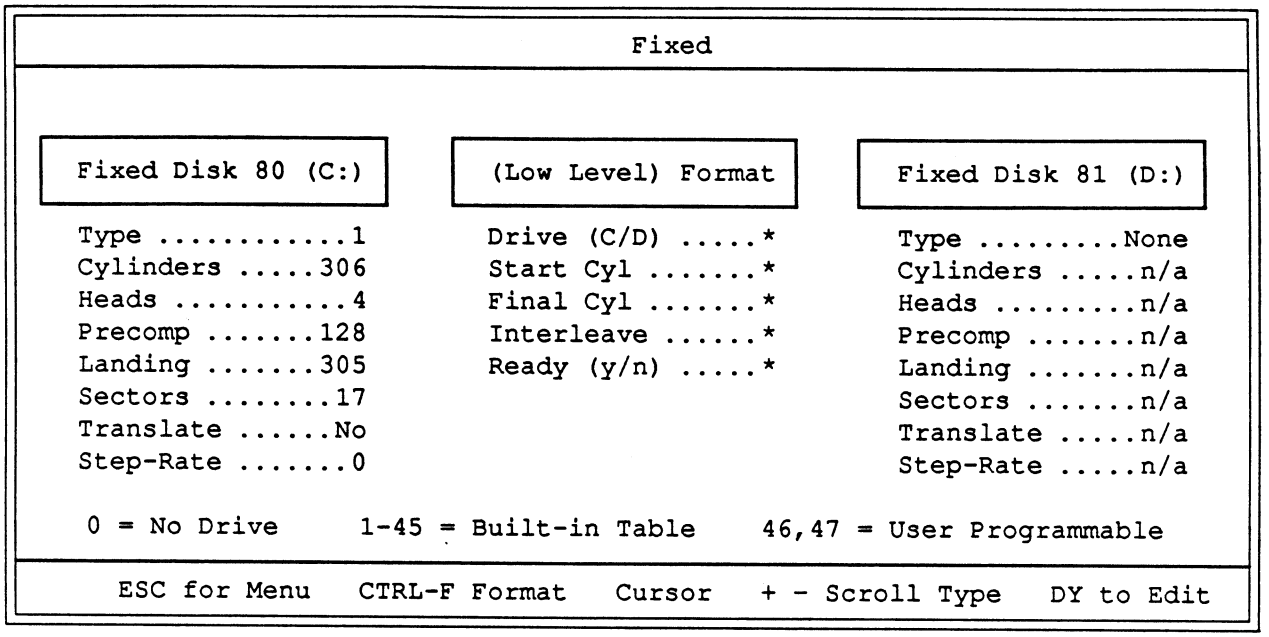
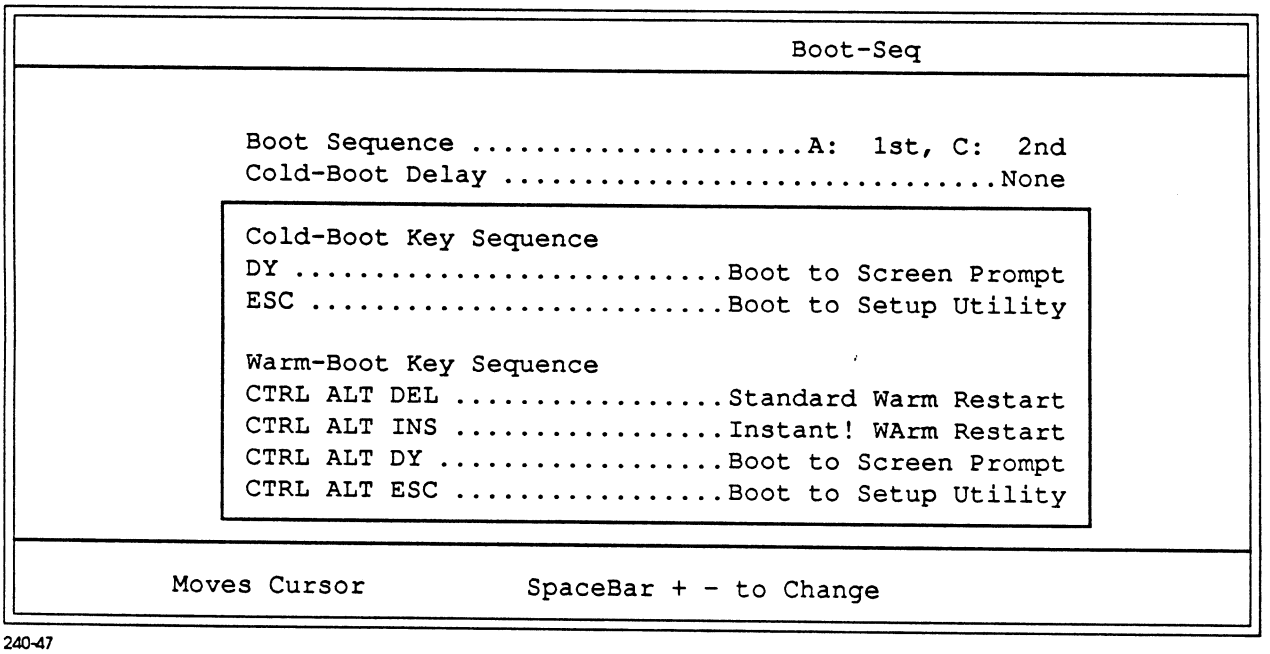


Figure E-5. 80486-25 CMOS Setup – Floppy



240-46

Figure E-6. 80486-25 CMOS Setup – Fixed



240-47

Figure E-7. 80486-25 CMOS Setup – Boot-Sequence

```
Cache Computers Inc.  BAT486 BIOS                    Ver V1.04  Port CCI 402

                                                          Keyboard

                 Powerup Numlock ......................Enable
                 Typematic Override ...................Disable
                 Delay Before Repeat ..................Default
                 Typematic Repeat Rate ................Default

        Moves Cursor          SpaceBar + - to Change
```

240-48

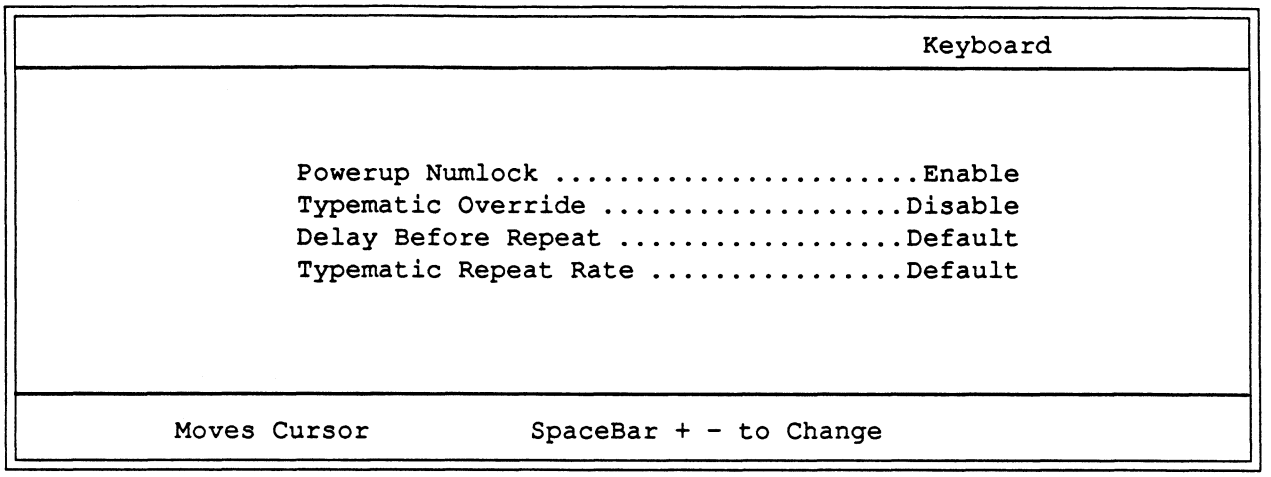


Figure E-8. 80486-25 CMOS Setup – Keyboard

```
Cache Computers Inc.  BAT486 BIOS                    Ver V1.04  Port CCI 402

                First-Aid

                 Novell Keyboard Problem ...................No

  Select the lowest numeric value allowing the keyboard to operate properly.

        ESC for Menu          SpaceBar + - Scrolls Choices
```

240-49

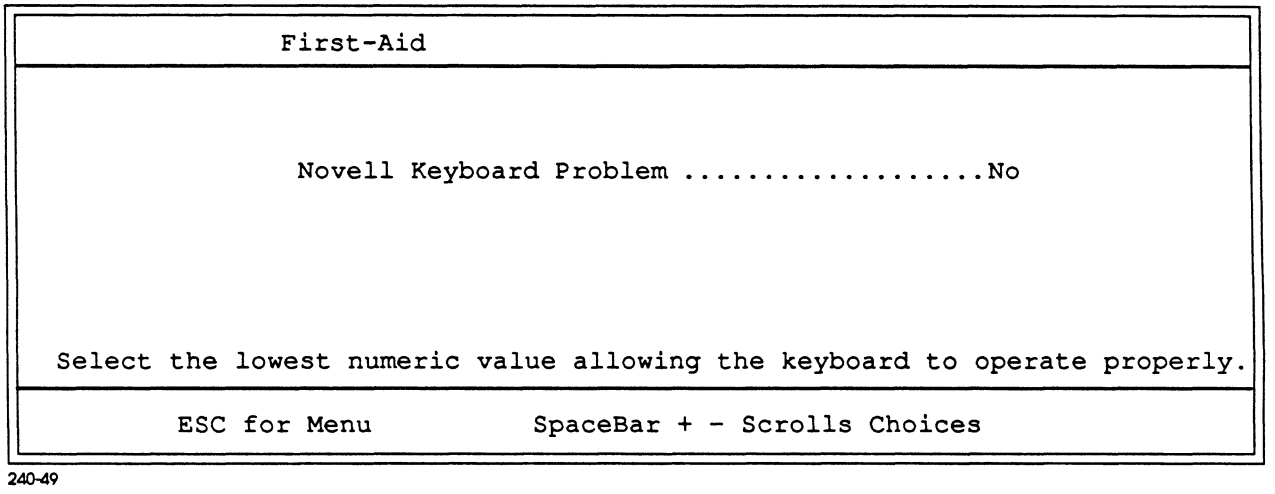
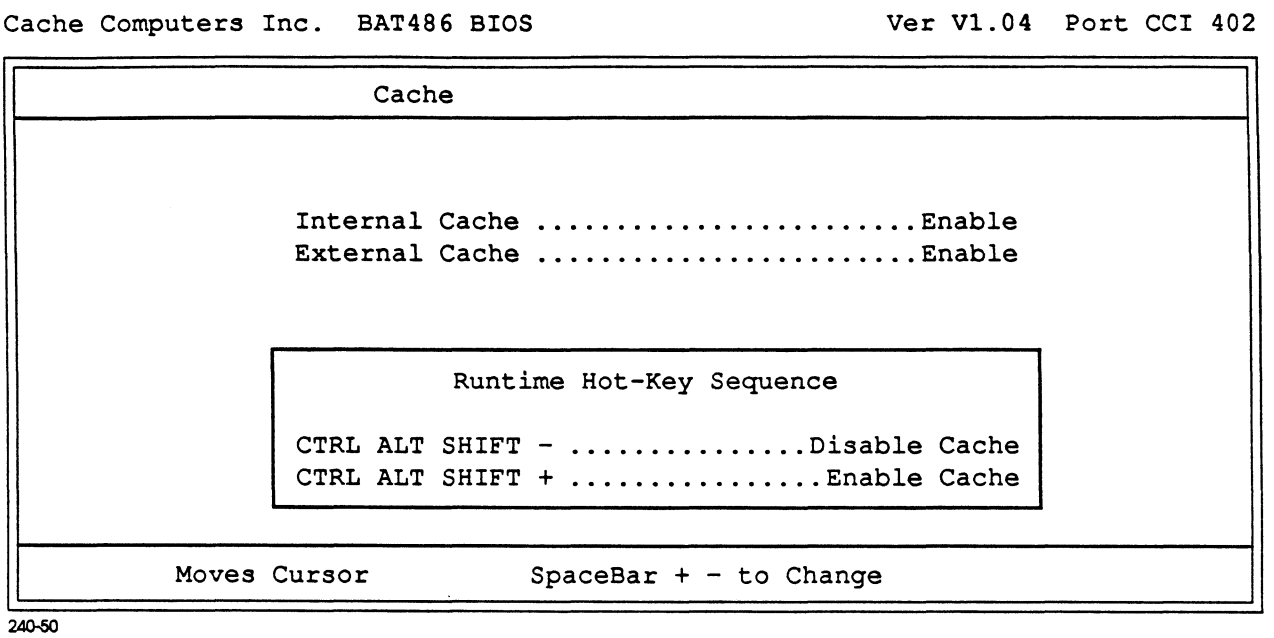


Figure E-9. First-Aid



```
Cache Computers Inc.  BAT486 BIOS                    Ver V1.04  Port CCI 402

                         Cache

                 Internal Cache ........................Enable
                 External Cache ........................Enable

                      Runtime Hot-Key Sequence

                 CTRL ALT SHIFT - ...............Disable Cache
                 CTRL ALT SHIFT + ................Enable Cache

        Moves Cursor          SpaceBar + - to Change
```

240-50

Figure E-10. Cache

```
Cache Computers Inc.  BAT486 BIOS                    Ver V1.04  Port CCI 402

                              Shadow

                 F000 BIOS ....................WP-Shadow

                 E000 SYSTEM ......................Vacant

                 DC00 ADAPTOR .....................Vacant
                 D800 ADAPTOR .....................Vacant
                 D400 ADAPTOR .....................Vacant
                 D000 ADAPTOR .....................Vacant

                 CC00 ADAPTOR .....................Vacant
                 C800 ADAPTOR .....................ROM #1
                 C400 VIDEO .......................Vacant
                 C000 VIDEO .......................Vacant

   WP = Write-Protect                                  RW = Read/Write

        Moves Cursor          SpaceBar + - to Change
```

240-51

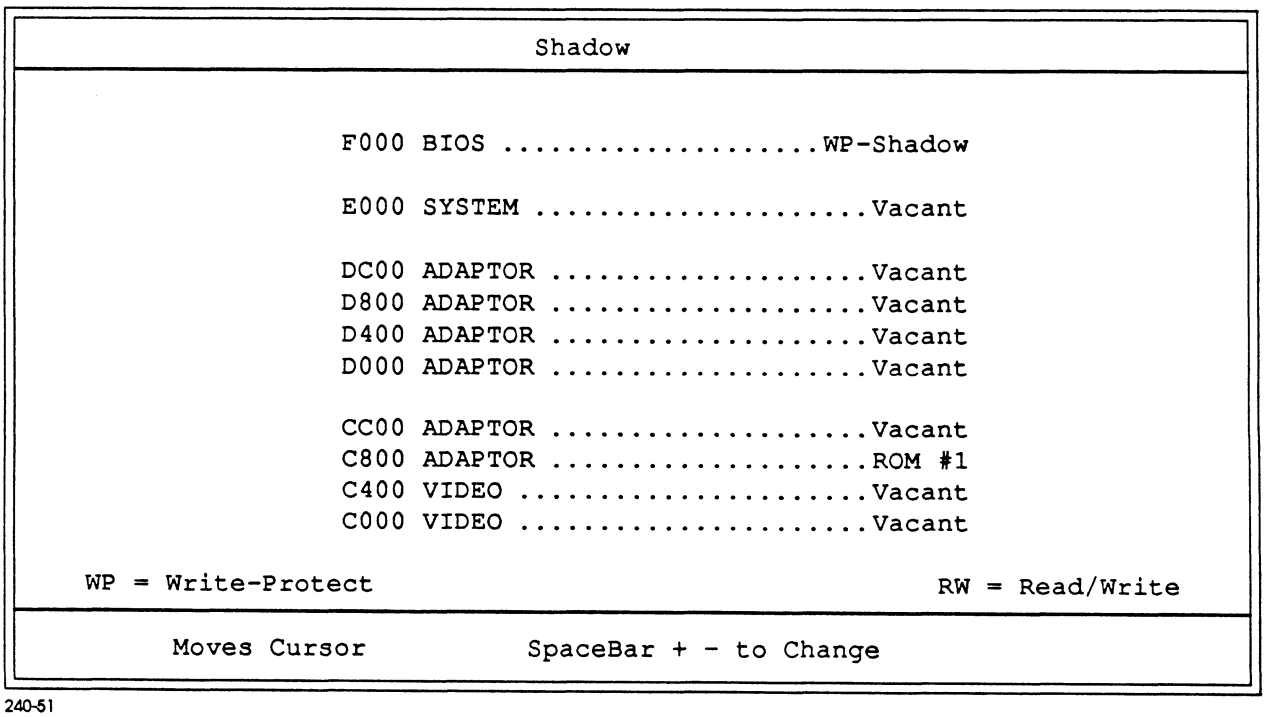
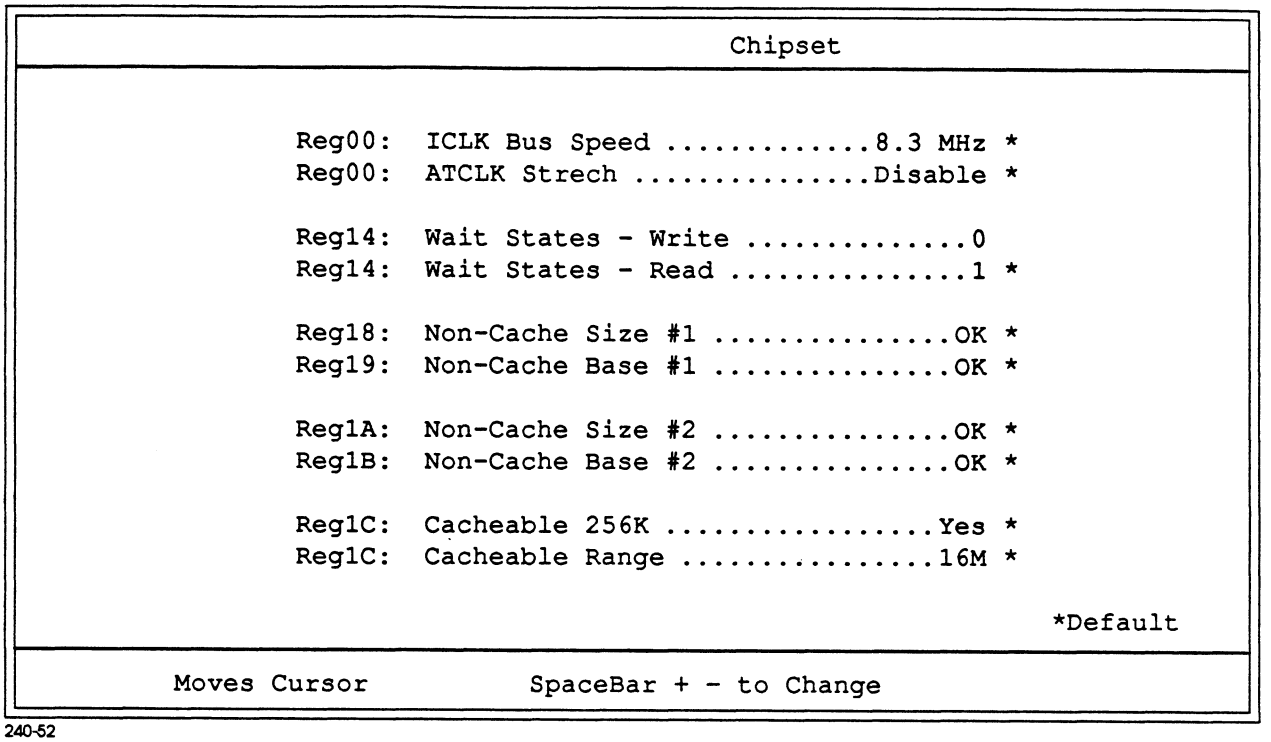
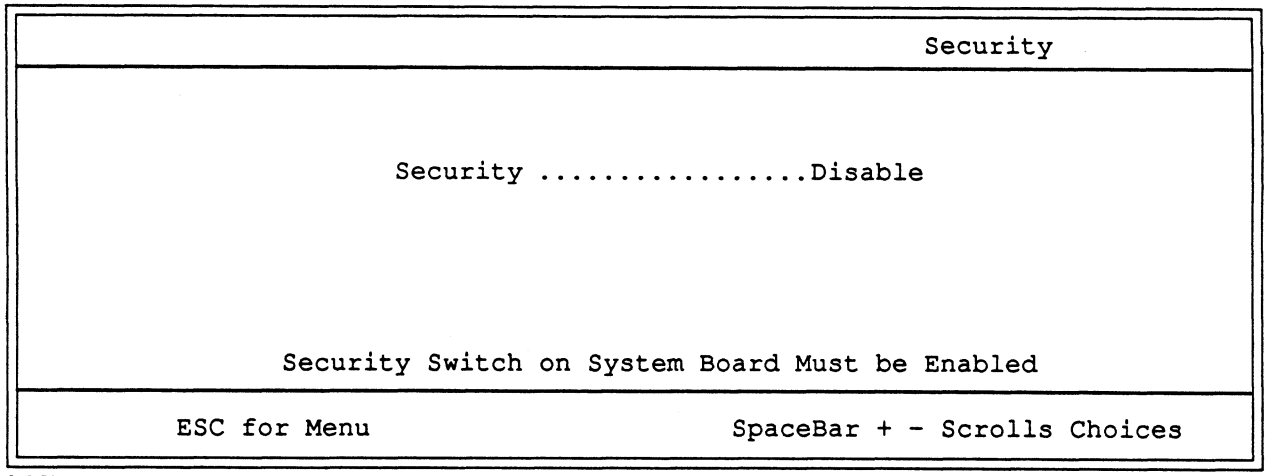


Figure E-11. Shadow



240-52

Figure E-12. Chipset



240-53

Figure E-13. Security

COMMENT SHEET

MANUAL TITLE: MARK 386S Business System Installation and Operations Guide

DOCUMENT ORDER NUMBER: HTP0091 REVISION: B

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BUSINESS ADDRESS: _____

CITY/STATE/ZIP: _____

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