

**MARK 386S  
Business System  
Installation/  
Operation  
Guide**

**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

<u>Remove</u>	<u>Insert</u>
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

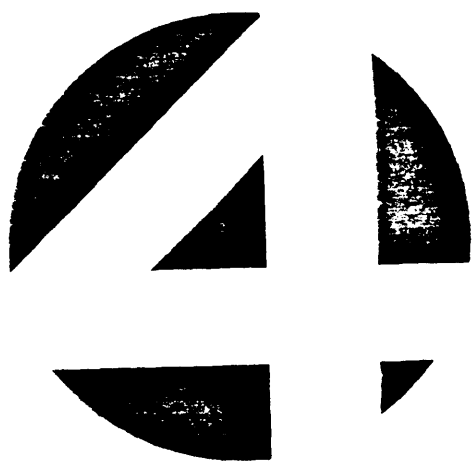




Lined area for notes or additional information.

**MARK 386S**  
BUSINESS SYSTEM  
INSTALLATION/  
OPERATION GUIDE

Revision B



## 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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# REVISION RECORD

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A	Initial Customer Release	04/20/90
B	Update including new Appendices D and E; changes to Section 4	11/29/90

## LIST OF EFFECTIVE PAGES

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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


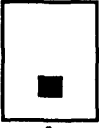
1. JP1 must have a jumper across location 3.
2. JP2 must have a jumper across location 2 (IRQ3).
3. Set SW1, keys 1 through 4, to 1 0 0 1, where 1=ON or Closed (Address 180H).
4. Set SW2, keys 1 through 8, to 1 0 0 0 1 1 0 0.
5. On the 1P/2S Adapter change Port 2 to use COM4 instead of COM2 (see Table 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	 <p style="text-align: center;">1</p> <p style="text-align: right;">OFF/Closed ON/Open</p>
Monochrome/Graphics	 <p style="text-align: center;">1</p> <p style="text-align: right;">OFF/Closed ON/Open</p>
<p><b>Color/Graphics</b> – Selects for IBM Color/Graphics, Plantronics Color/Graphics and ATI 640 x 200 16 Color/Graphic modes.</p> <p><b>Monochrome/Graphics</b> – Selects for Monochrome Text Mode (MDA), and Hercules Monochrome/Graphics Mode.</p>	

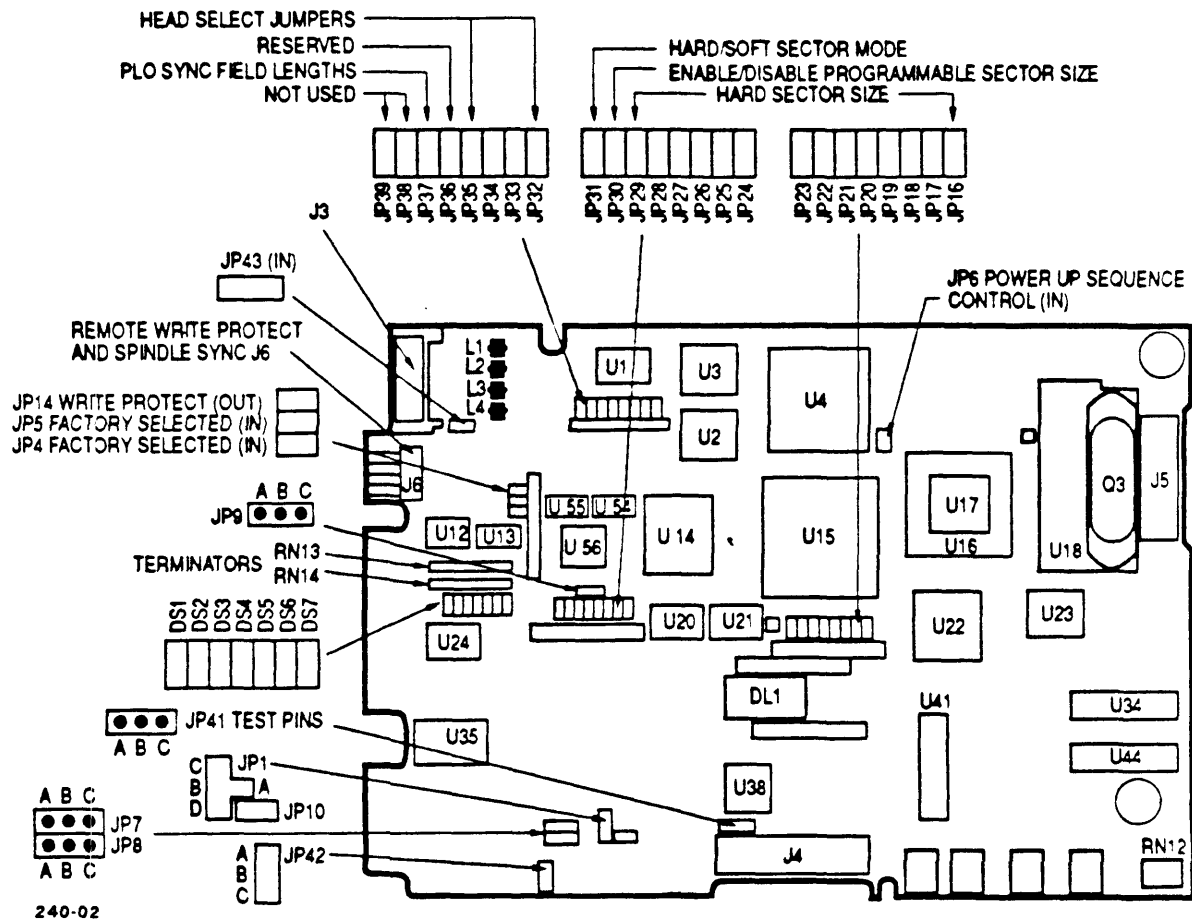
Switches 2 and 3 are used to identify the type of monitor that is being used (see Table 2-5).



**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**

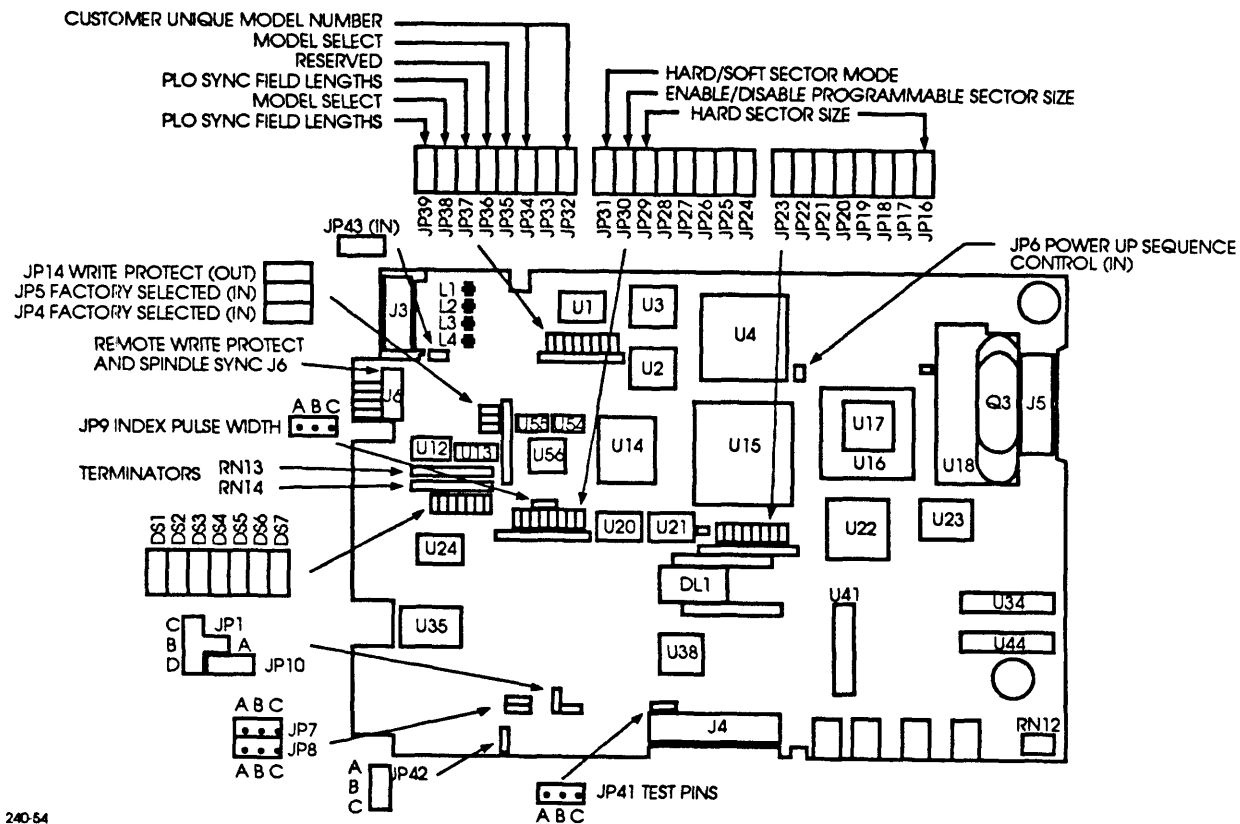
PCBA: 1023856 1  
 TLA #: N/A  
 FAB #: N/A

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

**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

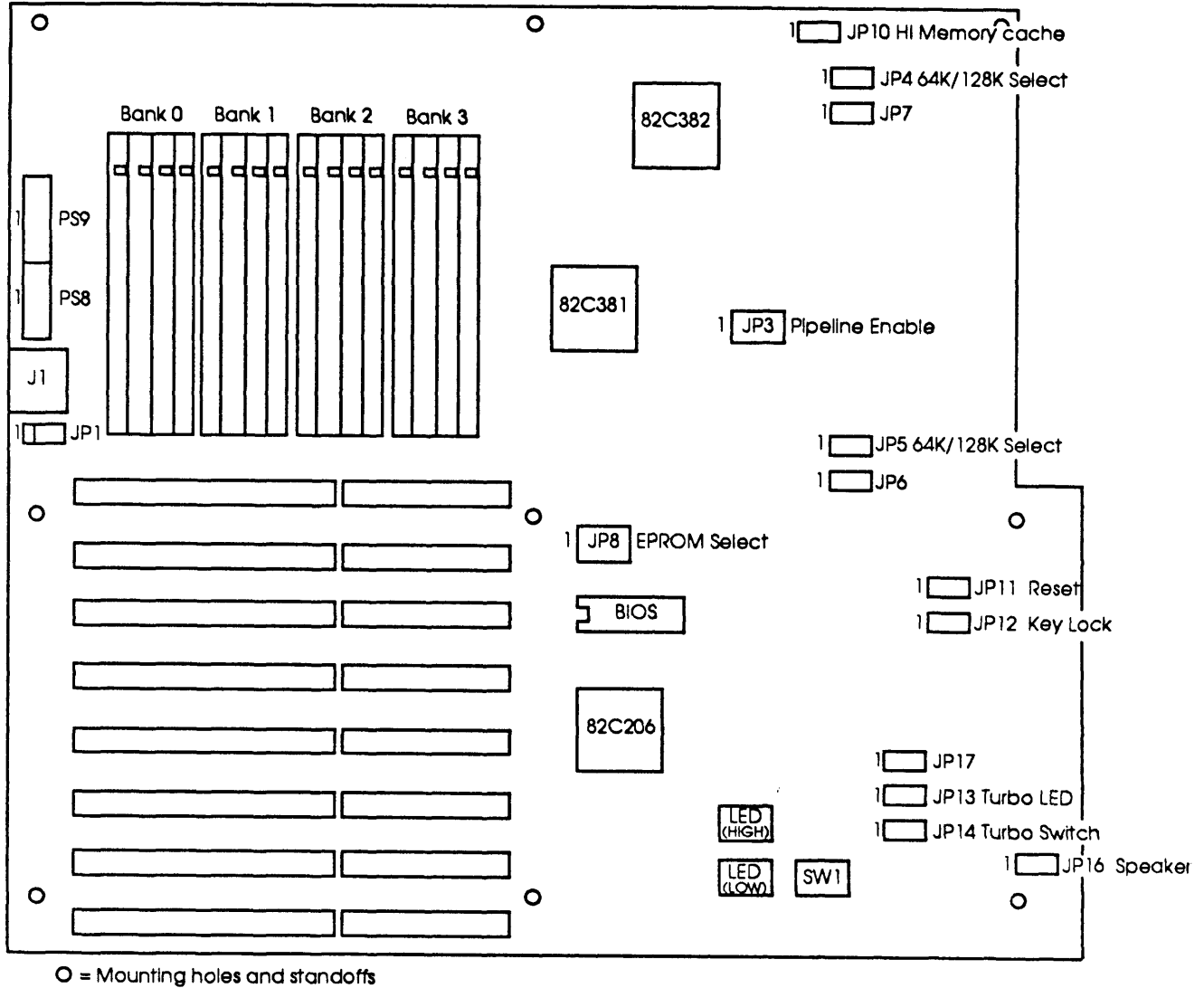


**Figure 4-4. MAXTOR PCBA #1023856 1**

# Appendix D

## 80386DX-33 MOTHERBOARD CONFIGURATION

---



240-20

**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.)



CMOS SETUP © Copyright 1985-1989, American Megatrends, Inc.

Date (mn/date/year) : Sun, Jan 01 1989  
 Time (hour/min/sec) : 00:42:53  
 Floppy drive A : 1.2MB, 5-1/2"  
 Floppy drive B : Not Installed

Base memory size : 640KB  
 Ext. memory size : 0KB  
 Numeric processor : Installed

Hard disk C:type : 1  
 Hard disk D:type : Not Installed  
 Primary display : Monochrome  
 Keyboard : Installed

Cyln Head WPcom LZone Sec Size  
 615 4 300 615 17 20MB

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

Scratch RAM option : 1

Month : Jan, Feb, ... Dec  
 Date : 01, 02, 03, ... 31  
 Year : 1901, 1902, ... 2099

ESC=Exit, <>=Select, PgUp/PgDn=Modify

240-21

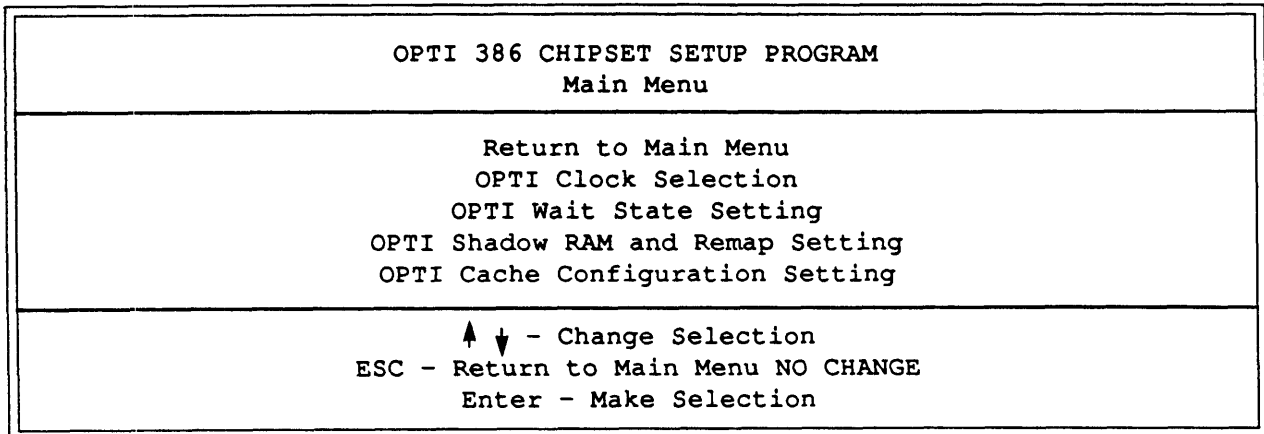
**Figure D-2. 80386DX-33 CMOS SETUP Screen**

OPTI 386/486 CHIPSET SETUP PROGRAM  
 Main Menu

Easy Setup OPTI Chipset  
 Advanced Setup OPTI Chipset  
 Write CMOS Registers and Exit  
 Do Not Write CMOS Registers and Exit

240-22

**Figure D-3. XCMOS SETUP SCREEN**



240-23

**Figure D-4. EASY SETUP OPTI CHIPSET**

CLOCK SELECTION
Return to Previous Menu CPU Clock Selection ICLK Selection ATCLK Stretch Enable/Disable
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-24

**Figure D-5. OPTI Clock Selection**

CPU CLOCK SELECTION
Return to Previous Menu <b>CPU -&gt; CLKIN</b> CPU -> ICLK
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-25

**Figure D-5A. CPU Clock Selection**

ICLK CLOCK SELECT
Return to Previous Menu <b>ICLK -&gt; CLKIN/4</b> ICLK -> CLKIN/3 ICLK -> CLKIN/2
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-26

**Figure D-5B. ICLK Selection**

ATCLK STRETCH ENABLE/DISABLE
Return to Previous Menu
<b>ATCLK Stretch Disable</b>
ATCLK Stretch Enable
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-27

**Figure D-5C. ATCLK Stretch Enable/Disable**

WAIT STATE Selection ZERO/ONE
Return to Previous Menu DRAM Read DRAM Write
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-28

**Figure D-6. OPTI Wait State Setting**

DRAM READ CYCLE WAIT STATE
RETURN TO PREVIOUS WINDOW DRAM READ -> 0 wait state DRAM READ -> 1 wait state DRAM READ -> 2 wait state DRAM READ -> 3 wait state
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

240-32

**Figure D-6A. DRAM READ Cycle Wait State**

DRAM WRITE CYCLE WAIT STATE
RETURN TO PREVIOUS WINDOW DRAM WRITE -> 0 wait state DRAM WRITE -> 1 wait state
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

240-33

**Figure D-6B. DRAM WRITE Cycle Wait State**

SHADOW RAM AND 256K REMAP SELECTION
Return to Previous Menu Main BIOS Shadow RAM Video BIOS Shadow RAM 256K Memory Remap
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-29

**Figure D-7. OPTI Shadow RAM and REMAP Setting**

MAIN SHADOW ENABLE/DISABLE
RETURN TO PREVIOUS WINDOW MAIN SHADOW -> DISABLE <b>MAIN SHADOW -&gt; ENABLE</b>
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

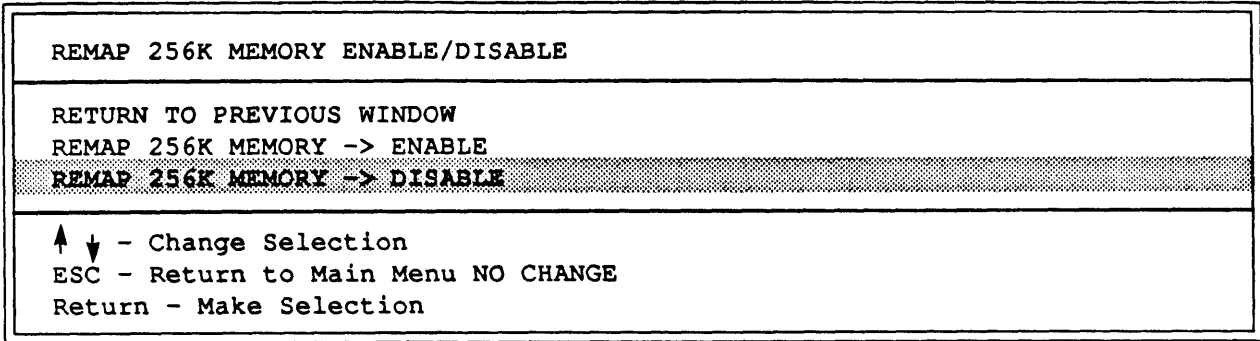
240-34

**Figure D-7A. Main Shadow ENABLE/DISABLE**

VIDEO SHADOW ENABLE/DISABLE
RETURN TO PREVIOUS WINDOW <b>VIDEO SHADOW -&gt; DISABLE</b> VIDEO SHADOW -> ENABLE
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

240-35

**Figure D-7B. Video Shadow ENABLE/DISABLE**



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

CACHE SELECTION
Cache Enable/Disable Cache Controller Selection 256K Remapped Area Cached Enabled/Disabled Cacheable Address Range
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Enter - Make Selection

240-30

**Figure D-8. OPTI Cache Configuration Setting**

CACHE ENABLE/DISABLE
RETURN TO PREVIOUS WINDOW CACHE -> <b>ENABLE</b> CACHE -> DISABLE
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

240-37

**Figure D-8A. Cache ENABLE/DISABLE**

CACHE CONTROLLER selection
RETURN TO PREVIOUS WINDOW CONTROLLER -> EXTERNAL CONTROLLER -> <b>CHIPSET</b>
↑ ↓ - Change Selection ESC - Return to Main Menu NO CHANGE Return - Make Selection

240-38

**Figure D-8B. Cache Controller Selection**



```
256K REMAPPED AREA CACHEABLE ENABLE/DISABLE

RETURN TO PREVIOUS WINDOW
256K CACHEABLE -> ENABLE
256K CACHEABLE -> DISABLE

↑ ↓ - Change Selection
ESC - Return to Main Menu NO CHANGE
Return - Make Selection
```

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

```
RETURN TO PREVIOUS WINDOW
RANGE -> 1M CACHEABLE AREA
RANGE -> 2M CACHEABLE AREA
RANGE -> 3M CACHEABLE AREA
RANGE -> 4M CACHEABLE AREA
RANGE -> 5M CACHEABLE AREA
RANGE -> 6M CACHEABLE AREA
RANGE -> 7M CACHEABLE AREA
RANGE -> 8M CACHEABLE AREA
RANGE -> 9M CACHEABLE AREA
RANGE -> 10M CACHEABLE AREA
RANGE -> 11M CACHEABLE AREA
RANGE -> 12M CACHEABLE AREA
RANGE -> 13M CACHEABLE AREA
RANGE -> 14M CACHEABLE AREA
RANGE -> 15M CACHEABLE AREA
RANGE -> 16M CACHEABLE AREA

↑ ↓ - Change Selection
ESC - Return to Main Menu NO CHANGE
Return - Make Selection
```

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

240-40

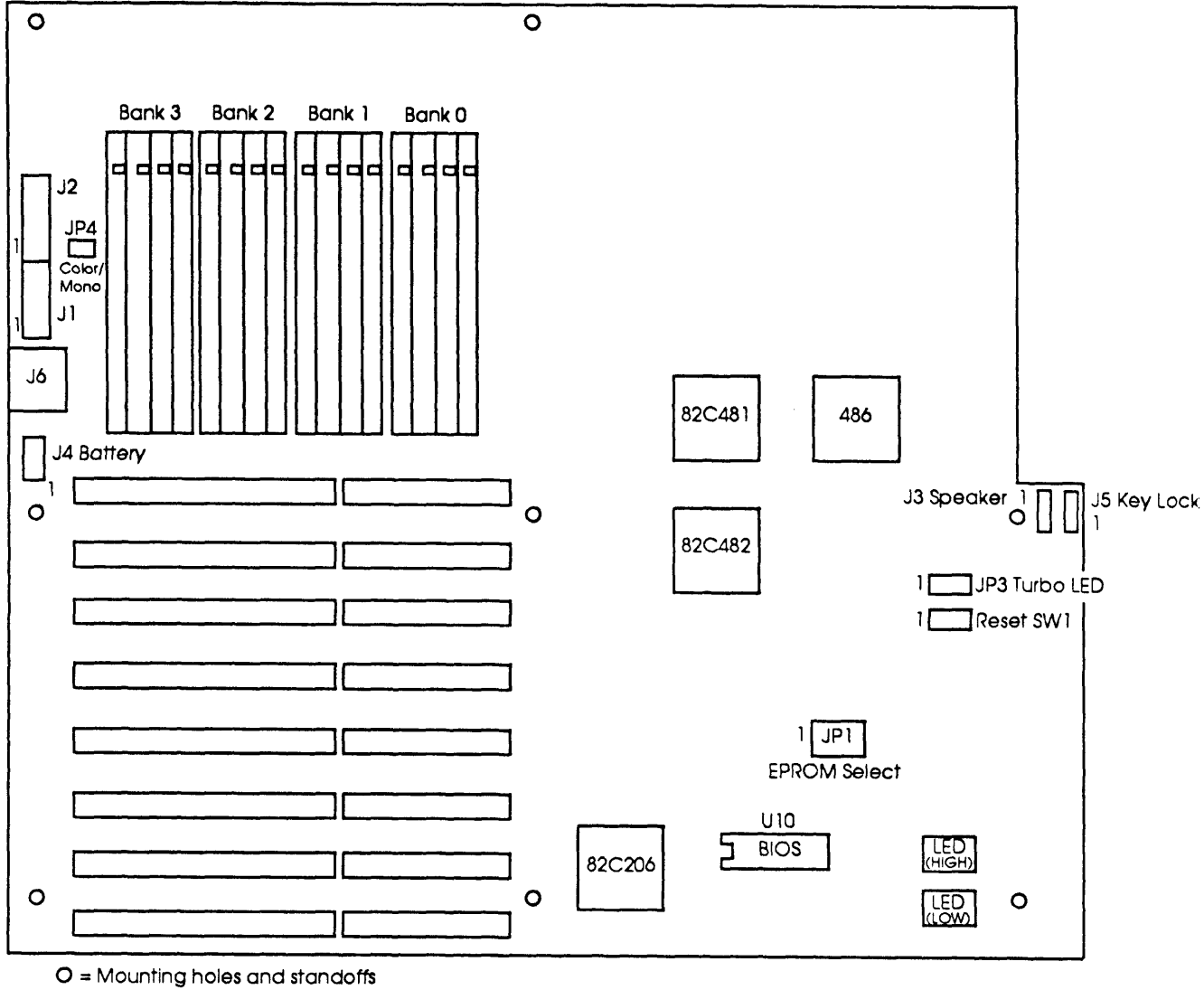
**Figure D-8D. Cacheable Address Range**



# Appendix E

## 80486-25 MOTHERBOARD CONFIGURATION

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240-41

**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

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			Keyboard .....	AT		
Memory-Extended .....	15360K			NumLock .....	On		
Memory-System .....	384K			Typematic .....	Default		
Memory-Total .....	16384K			Video-Primary .....	Monochrome		
COM1 .....	n/a			Video-Secondary .....	CGA - Fast		
COM2 .....	n/a			Security .....	Disable		
LPT1 .....	3BC						
LPT2 .....	n/a						
LPT3 .....	n/a						
F10 to Record and Exit				Home End Moves Cursor			

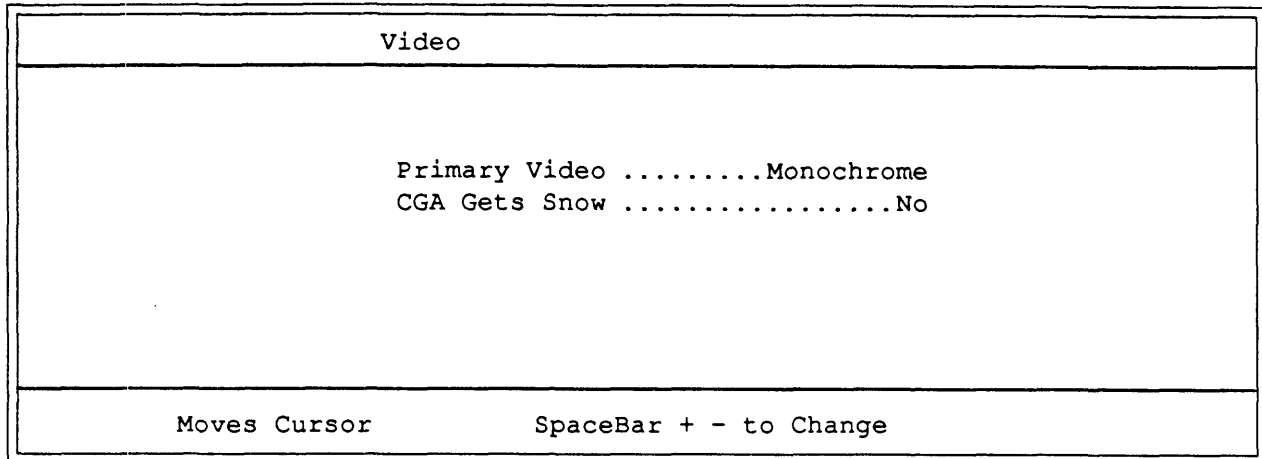
240-42

**Figure E-2. 80486-25 CMOS Setup Summary**

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

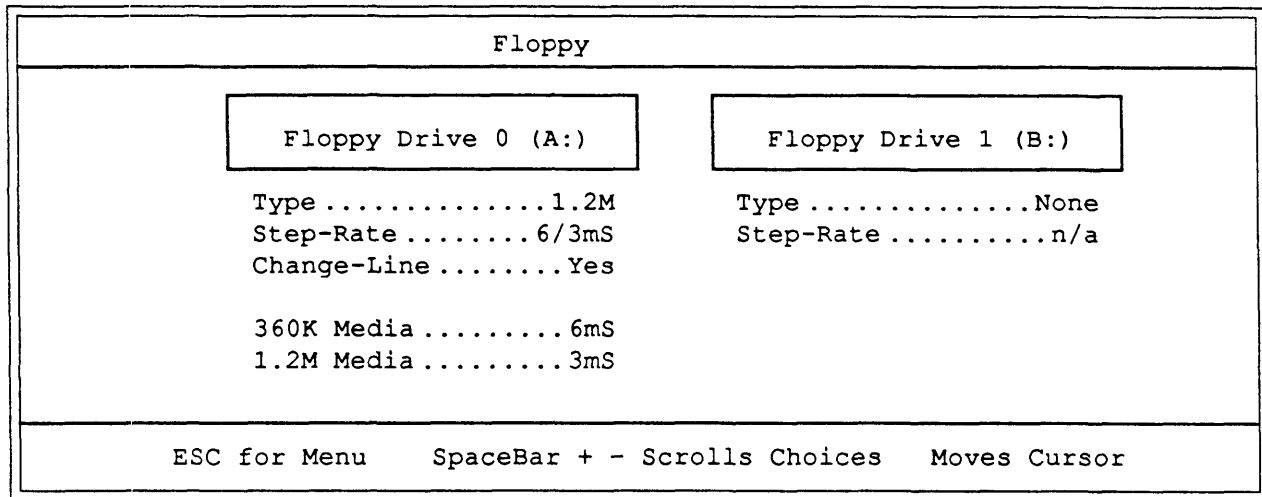
240-44

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



240-43

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



240-45

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

Fixed		
<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; text-align: center;">Fixed Disk 80 (C:)</div> Type .....1 Cylinders .....306 Heads .....4 Precomp .....128 Landing .....305 Sectors .....17 Translate .....No Step-Rate .....0	<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; text-align: center;">(Low Level) Format</div> Drive (C/D) .....* Start Cyl .....* Final Cyl .....* Interleave .....* Ready (y/n) .....*	<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px; text-align: center;">Fixed Disk 81 (D:)</div> Type .....None Cylinders .....n/a Heads .....n/a Precomp .....n/a Landing .....n/a Sectors .....n/a Translate .....n/a Step-Rate .....n/a
0 = No Drive      1-45 = Built-in Table      46,47 = User Programmable		
ESC for Menu    CTRL-F Format    Cursor    + - Scroll Type    DY to Edit		

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

Boot-Seq
Boot Sequence .....A: 1st, C: 2nd Cold-Boot Delay .....None
<div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Cold-Boot Key Sequence</p> <p>DY .....Boot to Screen Prompt</p> <p>ESC .....Boot to Setup Utility</p> </div>
<p>Warm-Boot Key Sequence</p> <p>CTRL ALT DEL .....Standard Warm Restart</p> <p>CTRL ALT INS .....Instant! WARM Restart</p> <p>CTRL ALT DY .....Boot to Screen Prompt</p> <p>CTRL ALT ESC .....Boot to Setup Utility</p>
<p>Moves Cursor                      SpaceBar + - to Change</p>

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

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**

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							
Internal Cache .....Enable External Cache .....Enable							
<table border="1" style="margin: auto; padding: 5px;"> <tr> <td colspan="2" style="text-align: center;">Runtime Hot-Key Sequence</td> </tr> <tr> <td>CTRL ALT SHIFT -</td> <td>.....Disable Cache</td> </tr> <tr> <td>CTRL ALT SHIFT +</td> <td>.....Enable Cache</td> </tr> </table>		Runtime Hot-Key Sequence		CTRL ALT SHIFT -	.....Disable Cache	CTRL ALT SHIFT +	.....Enable Cache
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**

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**

Chipset	
Reg00:	ICLK Bus Speed .....8.3 MHz *
Reg00:	ATCLK Strech .....Disable *
Reg14:	Wait States - Write .....0
Reg14:	Wait States - Read .....1 *
Reg18:	Non-Cache Size #1 .....OK *
Reg19:	Non-Cache Base #1 .....OK *
Reg1A:	Non-Cache Size #2 .....OK *
Reg1B:	Non-Cache Base #2 .....OK *
Reg1C:	Cacheable 256K .....Yes *
Reg1C:	Cacheable Range .....16M *
*Default	
Moves Cursor	SpaceBar + - to Change

240-52

**Figure E-12. Chipset**

Security	
Security .....Disable	
Security Switch on System Board Must be Enabled	
ESC for Menu	SpaceBar + - Scrolls Choices

240-53

**Figure E-13. Security**

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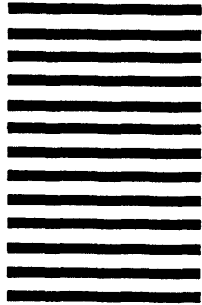
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