



LPX30WB VL-Bus System Board Manual

Document Number: 06-00226-01, Rev. 3A
February 1995
221 Warren Ave., Fremont, CA 94539-7085

Copyright Notices

Micronics Computers, Inc.

The information contained in the LPX30WB system board manual has been carefully checked and is believed to be accurate. Micronics assumes no responsibility for any inaccuracies that may be contained in this document. Micronics makes no commitments to update or to keep the information in this manual at a current level when changes are made to the product.

Micronics reserves the right to make improvements to this document and/or product at any time and without notice.

All Rights Reserved. No part of this document may be photocopied, reproduced, translated, or reduced to any medium or machine form without prior, written consent from Micronics.

COPYRIGHT (C) 1994, 1995 Micronics Computers, Inc.

Portions of the Manual

Portions of this manual were copied (with permission) from Phoenix Technologies, Ltd. Copyright 1994. All rights reserved.

Trademarks

IBM is a registered trademark of International Business Machines. Microsoft, Microsoft Word, Windows are registered trademarks of Microsoft Corporation. Intel and PCI are registered trademarks of Intel Corporation. UNIX is a registered trademark of AT&T Corporation. Lotus 1-2-3 is a registered trademark of Lotus Development Corp. All other product names mentioned herein are used for identification purposes only and may be the trademarks of their respective companies.

Micronics Quick Installation

We know many experienced people prefer to read as little of the documentation as possible. If this sounds like you, here's the short form:

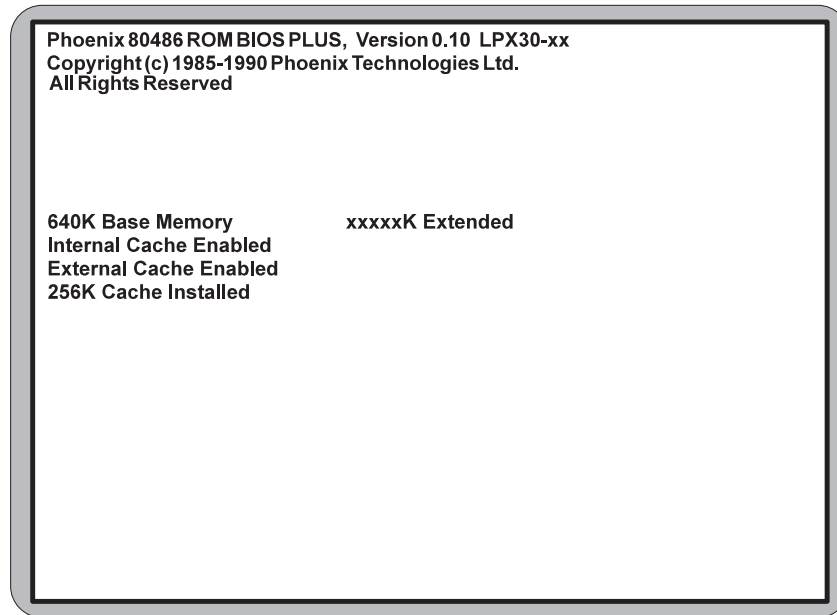
1. Ground yourself to prevent damaging static discharge, then remove the LPX30WB from its packaging.
2. Check the voltage of your CPU and install a Power Module, if necessary. See Chapter 2 for information on whether or not you will need a Power Module.

Warning:

This system board has been factory set to support 5.0V processors. If using a 3.3V or 4.0V processor, you must install a Power Module (Appendix E). Failure to install a Power Module could result in damage to the CPU.

3. Configure and verify the system board's jumper settings. (See Jumper Settings in Chapter 2)
4. Install the CPU and the system memory. (Chapter 3)
5. Install the motherboard into the system case and make all of the necessary case connections.
6. Install any peripherals (Chapter 3). Do not replace the computer cover until you have verified the system is working properly.

7. Turn the computer on and press the <Ctrl>, <Alt>, and <Esc> keys simultaneously after you see the screen below:



8. Set the time and date. Adjust the BIOS settings to match what is installed in your system. If installing an IDE drive, select the IDE device you wish to configure. Press <Enter> with AUTO CONFIG selected and the BIOS will automatically configure the drive for you. (See Chapter 4)
9. After you have configured the BIOS Settings, press the <Esc> key followed by the <F4> key to save the changes and exit. The system will reboot.
10. Install the video drivers provided with the system (Chapter 5).
11. The system is ready for use.

Contents

Introduction	1-1
Features	1-2
Configuring the LPX30WB	2-1
Static Electricity	2-1
Office Environment	2-1
LPX30WB Components	2-2
Jumper Settings.....	2-3
Installing the LPX30WB, System Memory, CPUs and Peripherals.....	3-1
Installation of the LPX30WB	3-2
Tools Required	3-2
Equipment Required.....	3-2
System Memory	3-3
SIMMs Supported	3-3
Memory Configurations	3-4
Installing the SIMMs.....	3-5
Removing SIMMs	3-5
Installing a CPU.....	3-5
Installing 128K of Cache Memory	3-6
Installing 256K of Cache Memory	3-7
Video Memory- Upgrading to 1 MB	3-8
Video Memory- Upgrading to 2 MB	3-9
Installing an ISA Riser Card.....	3-10
Installing a VL-Bus Peripheral Card	3-11
Installing an ISA Peripheral Card.....	3-12
The BIOS Setup Utility	4-1
Configuration.....	4-1
Initial Boot Up	4-1
Setup	4-2
Running the Setup Procedure	4-2

Setting the CMOS Parameters	4-3
Setting the CMOS Main Screen	4-4
System Time and Date	4-4
Diskette Drive A or B	4-4
Hard-Disk Drive 1-4 (IDE Drives Only)	4-4
Base Memory and Extended Memory	4-4
Video Card	4-4
System Speed	4-4
CPU Type	4-4
Cache	4-5
External Cache Mode	4-5
Setting the CMOS Extended Screen	4-5
System BIOS	4-5
Video BIOS	4-6
On Board Floppy	4-6
Primary IDE	4-6
Master Speed	4-6
Slave Speed	4-6
Secondary IDE	4-6
Serial Port 1	4-6
Serial Port 2	4-6
Parallel Port	4-6
Parallel Port Mode	4-7
Energy Saving Timer	4-7
Non-Cacheable Area	4-7
Keyboard	4-7
System Password	4-7
Setup Password	4-8
Re-Configuring Your Computer	4-8
Installing Video Drivers	6-1
Installation	6-1
Microsoft Windows 3.1	6-2
SCREEN CONTROL	6-3
Advanced Features (Virtual Screen Control)	6-5
DPMS (Display Power Management SIGNALING)	6-8
Display Driver UNinstallation	6-11
Microsoft Windows NT	6-12
Microsoft Windows NT 3.1	6-12
Microsoft Windows NT 3.5	6-12
Utilities Installation	6-13
Installation Procedures	6-13

Utilities Summary	6-14
Driver Installation	6-18
Lotus 1-2-3, versions 2.1 and 2.2	6-18
Symphony 2.x	6-19
GEM Desktop 3.xx	6-20
Ventura Publisher	6-20
WordPerfect	6-21
WordPerfect 5.1	6-21
WordPerfect 6.0	6-22
Microsoft Word for DOS	6-24
MS Word 5.0	6-24
MS Word 5.5	6-24
Panacea AutoCAD TurboDLD Driver	6-25
AutoCAD/386 Release 10 and 11	6-25
AutoCAD/386 Release 12	6-26
Quattro Pro 2.x for DOS	6-28
POST Messages	A-1
Beep Codes	B-1
Hard Disk Drive Types	C-1
Specifications	D-1
Environmental Specifications	D-2
Temperature Range	D-2
Relative Humidity	D-2
Battery Disposal	D-3
Installing a Power Module	E-1
FCC Warning Statement	F-1
Glossary	G-1
Limited Warranty	W-1
Non-Warranty Service	W-2

1 Introduction

The LPX30WB is an integrated, low-profile, LPX system board, featuring VESA Local bus architecture, a Mode 3 IDE controller, and 64-bit graphics. The Micronics LPX30WB system board represents Micronics' third generation of VESA Local Bus system boards and makes an excellent foundation for an advanced personal computer or workstation.

Micronics is a forerunner in VESA Local Bus technology. The VESA Local Bus Architecture provides high performance for Graphical User Interfaces (GUIs) and peripherals that perform high speed data transfers, such as disks and multimedia.

The LPX30WB is also a **“Green Board”** which means it adheres to the Environmental Protection Agency's strict Energy Star efficiency guidelines. **The Green features are not available when a DX4-100MHz is installed.** See Chapter 4 for information and instructions on how to set up the “Green Section” of the BIOS.

Features

The LPX30WB includes the following features:

- ⊕ LPX form factor system board.
- ⊕ Micronics' X30 chipset with an on-chip external level 2 cache controller.
- ⊕ One proprietary slot built onto the system board. Slot will accommodate a riser card which supports up to one VESA and four ISA peripheral cards.
- ⊕ On-board local bus graphics accelerator, using the Trident TGUI9440AG video controller. Will accommodate 512K, 1MB, or 2MB of video memory.
- ⊕ On-board feature connectors accept:
 - 14,400 Faxmodem module (optional).
 - Ethernet network adapter module (optional).
 - 3.3V and 4.0V power modules for low voltage CPU's.
- ⊕ Accepts up to 128MB of DRAM.
- ⊕ Accepts up to 256K of external cache.
- ⊕ VESA Mode 3 IDE controller (supports two drives).
- ⊕ Secondary ISA IDE controller (supports two drives).
- ⊕ Floppy controller (Supports 1.44MB, 1.2MB, 720K, and 360K drives).
- ⊕ Two high speed 16550 compatible serial ports.
- ⊕ Bi-directional parallel port that is EPP and ECP compatible.
- ⊕ Battery-backed real-time clock.
- ⊕ Supports the following processors:
 - 486SX, 25 or 33MHz
 - 486SX2, 50MHz
 - 486DX, 33MHz
 - 486DX2, 50 or 66MHz
 - 486DX4, 75 or 100MHz
 - Cyrix 486DX, 40MHz
 - ¹⁻² - Cyrix 486DX2, 80MHz

2 Configuring the LPX30WB

Although the LPX30WB system board is packaged in protective materials, it is important to use care while unpacking and setting up.

Static Electricity

The LPX30WB is shipped from the factory in an antistatic bag. To reduce the possibility of damage, it is important to neutralize any accumulated static charges on your body before handling the board. The best way to do this is to ground yourself using a special wrist or ankle strap. If you do not have a strap, you should touch both of your hands to a safely grounded object. After you have grounded yourself, ground the LPX30WB via the solder pads surrounding one of its mounting holes.

Once the LPX30WB is removed from its packaging, place it on top of the antistatic bag. Carefully inspect the board for damage which may have occurred during shipment.

Office Environment

Make sure the finished computer system is in an area with good ventilation. The system should not be in direct sunlight, near heaters, or exposed to moisture, dust, or dirt.

LPX30WB Components

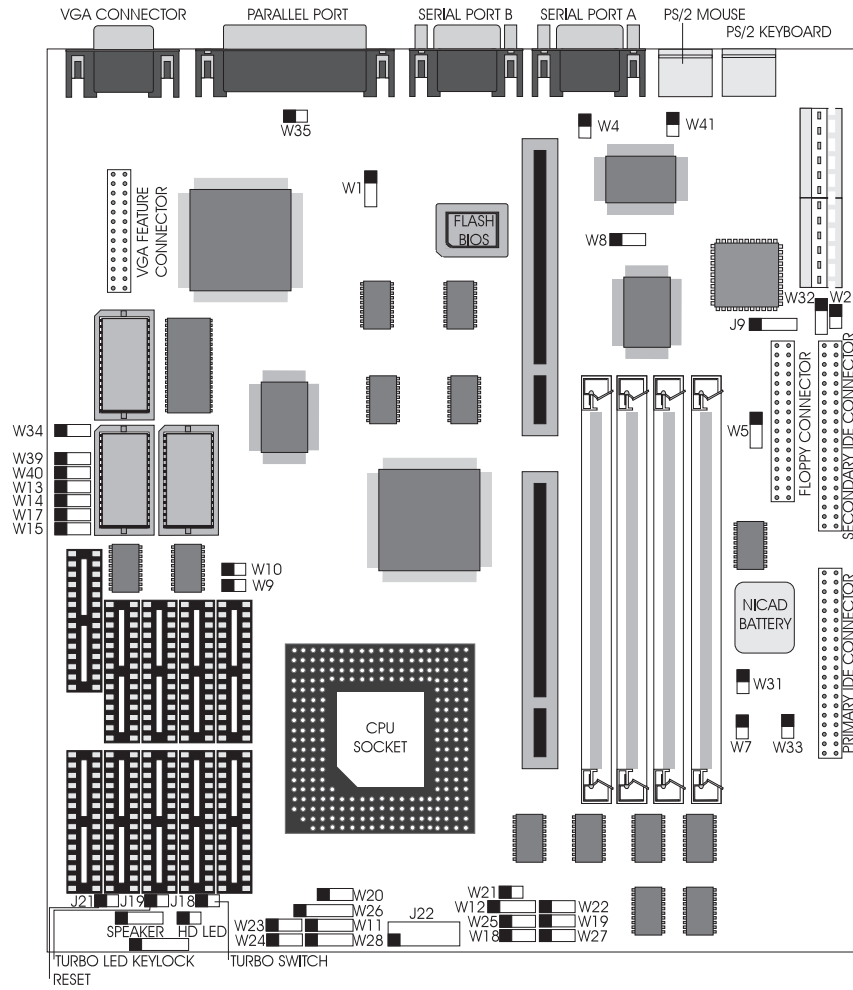


Figure 2-1 LPX30WB System Board

CPU Voltage

Warning:

This system board has been factory set to support 5.0V processors. If using a 3.3V or 4.0V processor, you must install a Power Module (Appendix E). Failure to install a Power Module could result in damage to the CPU.

Table 2-1 lists the voltage requirements for CPUs supported by this system board.

CPU	Manufacturer(s)	Voltage
486SX	Intel, AMD	5.0V
486DX	Intel, AMD	5.0V
486DX2	Intel	5.0V
486DX2	AMD	3.3V or 5.0V
486SL-series	Intel	5.0V
Write-Back Enhanced 486DX2	Intel	5.0V
486DX4	Intel, AMD	3.3V
Pentium OverDrive	Intel	5.0V
Cyrix 486DX/DX2	Cyrix	5.0V
Cyrix 486DX2V-80	Cyrix	4.0V

Table 2-1 CPU Voltage Requirements

Jumper Settings

Table 2-2 and 2-3 list the jumper settings to select the CPU installed in your system.

CPU	W11	W12	W18	W19	W20	W21	W22
486SX	2-3	open	open	2-3	open	open	open
486DX/DX2	1-2, 3-4	3-4	open	2-3	open	open	open
SL Enhanced DX2	1-2, 3-4	3-4	open	2-3	2-3	open	open
Write-Back Enhanced 486DX2	1-2, 3-4	3-4	open	1-2	2-3	short	2-3
486DX4	1-2, 3-4	3-4	open	2-3	2-3	open	open
Pentium OverDrive	1-2, 3-4	2-3	open	1-2	2-3	open	open
Cyrix 486DX/DX2	1-2, 3-4	3-4	open	2-3	1-2	open	open
AMD 486DXL2	1-2, 3-4	3-4	open	2-3	open	open	open

Table 2-2 CPU Jumper Settings

CPU	W23	W24	W25	W26	W27	W28
486SX	1-2	2-3	open	open	open	open
486DX/DX2	1-2	2-3	open	open	open	open
SL Enhanced DX2	1-2	2-3	open	4-5	open	3-4
Write-Back Enhanced 486DX2	1-2	1-2	1-2	4-5	1-2	1-2, 3-4
486DX4	1-2	2-3	open	4-5	open	3-4
Pentium OverDrive	1-2	1-2	1-2	1-2	1-2	3-4
Cyrix 486DX/DX2	2-3	1-2	2-3	2-3	2-3	2-3
AMD 486DXL2	1-2	2-3	open	open	open	open

Table 2-3 CPU Jumper Settings (Cont'd.)

Note:

If you are using a 3.3V or 4.0V processor, you will need to install a special Power Module. See Appendix E for more information.

The maximum external clock frequency for a DX4 is 33 MHz.

Table 2-4 lists the jumper settings to select the speed of the CPU installed in your system.

Jumper	Speed	25MHz	33MHz	40MHz
W9		open	close	open
W10		open	close	close

Table 2-4 CPU Speed Selection

Table 2-5 lists the jumper settings to select the size of the external cache.

Jumper	Function	Setting
W13	0K	open
	128K	1-2
	256K	2-3
W14	0K	open
	128K	1-2
	256K	2-3
W15	0K	open
	128K	1-2
	256K	2-3
W17	0K	open
	128K	1-2
	256K	2-3

Table 2-5 External Cache Size Selection

Table 2-6 lists the jumper settings to enable or disable the VL IDE controller.

Jumper	Function	Setting
W7	Enable VL IDE controller (default)	1-2
	Disable VL IDE controller	2-3

Table 2-6 VL IDE Selection

Table 2-7 lists the jumper settings to set the VL IDE hard disk controller for IRQ14. Leave this set to IRQ14 unless you are using a SCSI controller and need to free up an unnecessary IRQ, or if you want to use the ISA IDE controller as the primary IDE controller.

Jumper	Function	Setting
W33	IRQ14 (default)	1-2
	IRQ15	2-3

Table 2-7 VL IDE IRQ14 Selection

Table 2-8 lists the jumper settings to enable or disable the IDE controller.

Jumper	Function	Setting
W8	Enable IDE controller (default)	2-3
	Disable IDE controller	1-2

Table 2-8 ISA IDE Selection

Table 2-9 lists the jumper settings to set the ISA IDE controller for IRQ14 or IRQ15.

Jumper	Function	Setting
W32	IRQ14 (default)	2-3
	IRQ15	1-2

Table 2-9 IDE Controller IRQ Selection

Table 2-10 lists the jumper settings to select the type of video installed.

Jumper	Function	Setting
W2	Color monitor (default)	close
	Monochrome monitor	open

Table 2-10 Video Selection

Table 2-11 lists the jumper settings to enable or disable the on-board VGA controller

Jumper	Function	Setting
W34	On-board VGA enabled (default)	2-3
	On-board VGA disabled	1-2
W39	On-board VGA enabled (default)	2-3
	On-board VGA disabled	1-2

Table 2-11 VGA Controller Selection

Table 2-12 lists the jumper settings to set the VGA controller for IRQ9.

Jumper	Function	Setting
W35	On-board VGA IRQ9 disabled (default)	open
	On-board VGA IRQ9 enabled	close

Table 2-12 VGA IRQ9 Selection

Table 2-13 lists the jumper settings to program the Flash BIOS.

Jumper	Function	Setting
W4	Flash BIOS write protected (default)	open
	Flash BIOS programmable	close

Table 2-13 BIOS Operation Selection

Table 2-14 lists the jumper settings to enable or disable the optional buzzer.

Jumper	Function	Setting
W31	Buzzer enabled (default)	close
	Buzzer disabled	open

Table 2-14 Buzzer Selection

Table 2-15 lists the jumper setting to reset the CMOS. With the computer's power off, move the jumper to pins 2 and 3 for about five seconds and place the jumper back on pins 1 and 2.

Jumper	Function	Setting
W5	Normal Operation (default)	1-2
	Reset CMOS	2-3

Table 2-15 CMOS Reset Jumper

Table 2-16 lists the jumper settings for case and peripheral connections.

Jumper	Function	Notes
J13	Primary IDE Connector	Can be disabled in CMOS.
J14	Secondary Connector	Can be disabled in CMOS.
J15	Floppy Connector	
J31	VGA Connector	
J12	Parallel Port Connector	Can be disabled in CMOS.
J10	Serial Port (Com 1)	Can be disabled in CMOS.
J11	Serial Port (Com 2)	Can be disabled in CMOS.
J5	PS/2 Keyboard	
J6	PS/2 Mouse	
J1 & J2	Power Supply Connectors	
J19	Turbo LED	1-5V DC; 2- Ground
J18	Turbo Switch	
J21	Reset	
J23	IDE LED	1-5V DC; 2- Ground
J20	Keylock/ Power LED	1-Power; 2-N/C; 3-Ground; 4-5V DC
J17	Speaker Connector	1-Speaker; 2-N/C; 3-Ground; 4-5V DC
J22	Power Module Connector	See Appendix E

Table 2-16 Case and Peripheral Connections

2 Chapter 2 addendum

Table 2-5 lists the jumper settings to enable or disable the VL IDE controller.

Jumper	Function	Setting
W7	Enable VL IDE controller (default)	1-2
	Disable VL IDE controller	2-3

Table 2-5 VL IDE Selection

Table 2-6 lists the jumper settings to set the VL IDE hard disk controller for IRQ14. Leave this set to IRQ14 unless you are using a SCSI controller and need to free up an unnecessary IRQ, or if you want to use the ISA IDE controller as the primary IDE controller.

Jumper	Function	Setting
W33	IRQ14 (default)	1-2
	IRQ15	2-3

Table 2-6 VL IDE IRQ14 Selection

Features

The LPX30WB includes the following features:

- ⊗ LPX form factor system board.
- ⊗ Micronics' X30 chipset with an on-chip external level 2 cache controller.
- ⊗ Zero Insertion Force (ZIF) socket.
- ⊗ One proprietary slot built onto the system board. Slot will accommodate a riser card which supports up to five ISA peripheral cards.
- ⊗ On-board local bus video adapter, using the Chips and Technologies 64300 video controller.
- ⊗ Local bus IDE controller with Mode 3 local bus IDE support.
- ⊗ Floppy controller (Supports 2.88MB, 1.44MB, 1.2MB, 720K, and 360K floppy drive).
- ⊗ Two high speed NS16550 compatible serial ports.
- ⊗ Bi-directional parallel port that is EPP and ECP compatible.
- ⊗ Battery-backed real-time clock.
- ⊗ Supports the following processors in the CPU ZIF socket:
 - 486SX, 25 or 33MHz
 - 486SX2, 50MHz
 - 486DX, 33MHz
 - 486DX2, 50 or 66MHz
 - 486DX4, 75 or 100MHz

3 Installing the LPX30WB, System Memory, CPUs, and Peripherals

This section explains how to install the LPX30WB system board, SIMMs, CPUs, and peripherals.

Warning:

Before installing or removing any peripherals or components, make sure you have a clear work space and that you adhere to all anti-static precautions described on page 2-1. Micronics recommends that only trained technicians operate on the system board. Damage which occurs to the board while adding or removing peripherals or components may void the warranty.

If problems arise while installing peripherals, contact the computer outlet where you purchased the peripheral or Micronics' Technical Support Department.

Installation of the LPX30WB

The installation of the LPX30WB system board depends on the type of case you use. The LPX30WB is an integrated, low profile LPX system board and should be limited to installation in a low profile chassis.

Prior to installing the LPX30WB, make sure you have a clear work space available and adhere to all anti-static precautions.

If you are unfamiliar with installing a system board, Micronics highly recommends you read the computer user's manual or contact your dealer's technical support department.

Tools Required

Micronics recommends using the following tools to install the LPX30WB:

- ⊗ Small Phillips screwdriver.
- ⊗ Tweezers or a pair of needle-nose pliers.
- ⊗ Tray (to hold loose screws).

Equipment Required

Micronics recommends using the following equipment with the LPX30WB for a typical configuration:

- ⊗ LPX or Low Profile Chassis.
- ⊗ A high quality power supply capable of providing continuous power within a 5 volt range, plus or minus 5% (eg., 4.75 to 5.25). A power filter may be used with a noisy AC power source..
- ⊗ PS/2 style keyboard and mouse.
- ⊗ Eight ohm speaker.
- ⊗ Standard ribbon cables for internal connections.
- ⊗ Standard power cord (grounded).
- ⊗ Heat sink with cooling fan.

System Memory

System memory devices, commonly known as SIMMs (Single Inline Memory Modules), are necessary to operate the LPX30WB system board. The LPX30WB has four SIMM sockets and can be upgraded to 128 Megabytes of RAM. This section will explain the type of SIMMs supported, list the memory configurations supported, and show how to physically install the new SIMMs.

SIMMs Supported

The LPX30WB supports the following 72 pin, 60 or 70ns SIMMs:

4MB (1Mx36 or 1Mx32)
8MB (2Mx36 or 2Mx32)
16MB (4Mx36 or 4Mx32)
32MB (8Mx36 or 8Mx32)

The LPX30WB supports both parity (XMx36) and non-parity SIMMs (XMx32). However, these modules cannot be mixed. If your system has parity SIMMs, you can only add parity SIMMs. If your system has non-parity SIMMs, you can only add non-parity SIMMs.

Note:

For long term reliability, Micronics recommends using SIMMs with tin-plated contacts. The use of gold-plated contacts may conflict with the tin alloy of the SIMM socket.

Memory Configurations

The following table (Figure 3-1) lists the most common memory configurations supported.

Memory	Bank 0	Bank 1	Bank 2	Bank 3
4MB	1MBx36			
8MB	2MBx36			
8MB	1MBx36	1MBx36		
12MB	1MBx36	1MBx36	1MBx36	
16MB	1MBx36	1MBx36	1MBx36	1MBx36
16MB	4MBx36			
16MB	2MBx36	2MBx36		
24MB	2MBx36	2MBx36	2MBx36	
24MB	2MBx36	2MBx36	1MBx36	1MBx36
32MB	8MBx36			
32MB	4MBx36	4MBx36		
32MB	2MBx36	2MBx36	2MBx36	2MBx36
40MB	4MBx36	4MBx36	1MBx36	1MBx36
48MB	4MBx36	4MBx36	2MBx36	2MBx36
48MB	4MBx36	4MBx36	4MBx36	
64MB	8MBx36	8MBx36		
64MB	4MBx36	4MBx36	4MBx36	4MBx36
72MB	8MBx36	8MBx36	1MBx36	1MBx36
80MB	8MBx36	8MBx36	2MBx36	2MBx36
96MB	8MBx36	8MBx36	8MBx36	
96MB	8MBx36	8MBx36	4MBx36	4MBx36
128MB	8MBx36	8MBx36	8MBx36	8MBx36

Table 3-1 Common Memory Configurations

Installing the SIMMs

To install the SIMMs, locate the SIMM sockets on the system board.

Start with bank 0 and perform the following steps to install the SIMMs:

1. Hold the SIMM so that the notched edge is aligned with the notch on the SIMM socket (Figure 3-1).
2. Insert the SIMM at a 45 degree angle.
3. Gently push the SIMM into an upright position until it locks into place (past the release tabs).

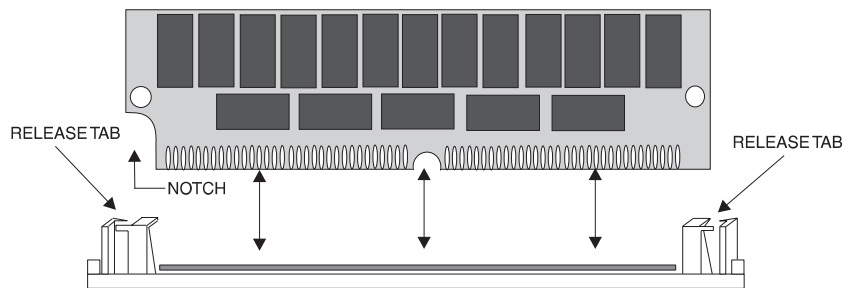


Figure 3-1 Installing a 72-Pin SIMM

Removing SIMMs

Perform the following steps to remove SIMMs, if necessary:

1. With both thumbs (or fingers), press the release tabs away from the socket.
2. With the SIMM free from the release tabs, lift the module up and place in an anti-static bag or package.

Installing a CPU

The LPX30WB is designed to support a large variety of 486 processors. If you want to upgrade your processor, it is recommended you bring your system and this manual to your local dealer or a qualified repair center.

Installing 128K of Cache Memory

In addition to the internal (L1) cache built into the CPU, the LPX30WB also supports external (L2) cache. The LPX30WB is available with 128K or 256K external cache.

To install 128K of external cache, carefully install five 32Kx8-15ns SRAM chips into SRAM sockets U47, U48, U49, U50, and U23. (Figure 3-2) After installing the cache upgrade, refer to Table 2-2 for the correct external cache jumper settings.

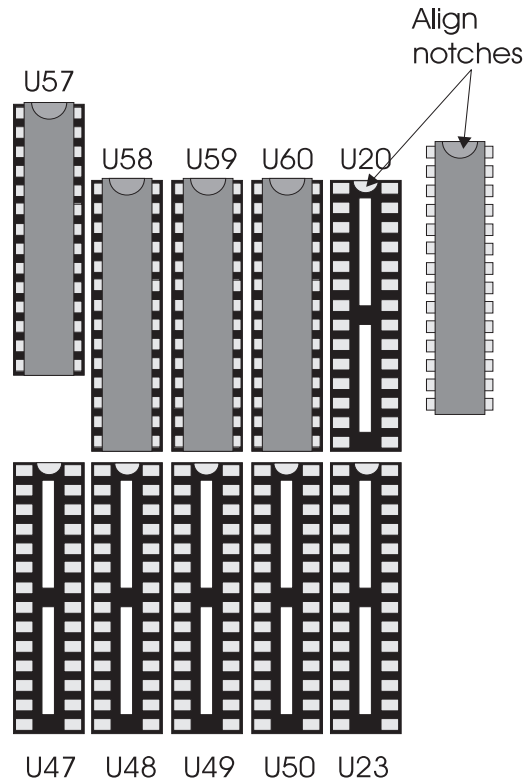


Figure 3-2 Upgrading to 128K External Cache

Installing 256K of Cache Memory

To upgrade to 256K cache, carefully install five (or ten) 32Kx8-15ns SRAMs into the open SRAM sockets (Figure 3-3). After installing the cache upgrade, refer to Table 2-2 for the correct external cache jumper settings.

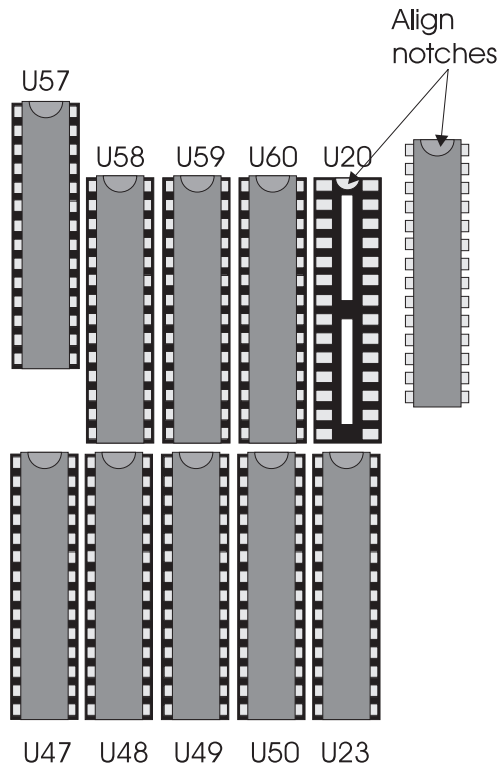


Figure 3-3 Upgrading to 256K External Cache

Video Memory- Upgrading to 1 MB

The LPX30WB is available with 512K, 1MB, or 2MB of video memory. To upgrade to 1MB from 512K, install one 256K x 16-60ns video memory chip into socket U303 (Figure 3-3).

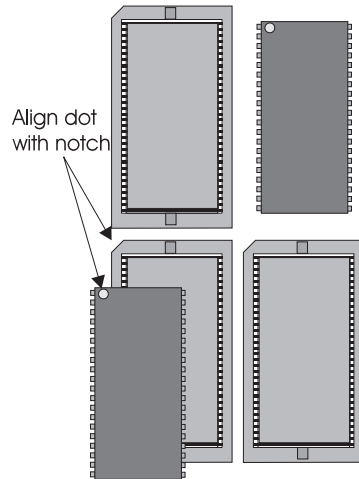


Figure 3-3 Upgrading to 1MB of Video RAM

Note:

Make sure the notches on the video memory match the notches on the sockets.

Only use 256Kx16-60ns (2CAS) Wide DRAMs.

Video Memory- Upgrading to 2 MB

To upgrade to 2MB of video memory, install one 256K x 16-60ns video memory chip into each of the open sockets (Figure 3-4).

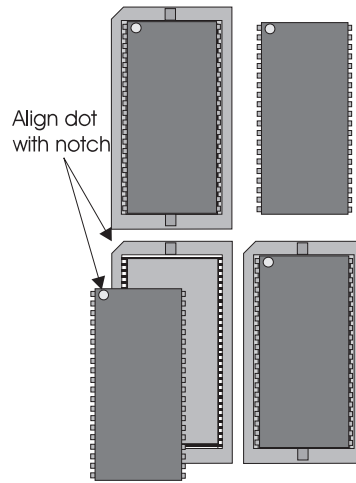


Figure 3-4 Upgrading to 2MB of Video RAM

Note:

Make sure the notches on the video memory match the notches on the sockets.

Only use 256Kx16-60ns (2CAS) Wide DRAMs.

Installing an ISA/VL Riser Card

The LPX30WB includes a riser card which is required for proper system operation. If the system board is not installed in a chassis, perform the following steps to install the riser card:

1. Locate the LPX30WB's slot (refer to Figure 2-1).
2. Make sure no peripherals are installed on the riser card.
3. Insert the card with the bottom edge level. **Never insert the card at an angle.**
4. Holding the card at the center of the top edge, gently push straight in. Do not force the card. If it does not fit, take it out and try again.
5. Make sure the card is fully inserted and use the case screws to secure the riser card in place.

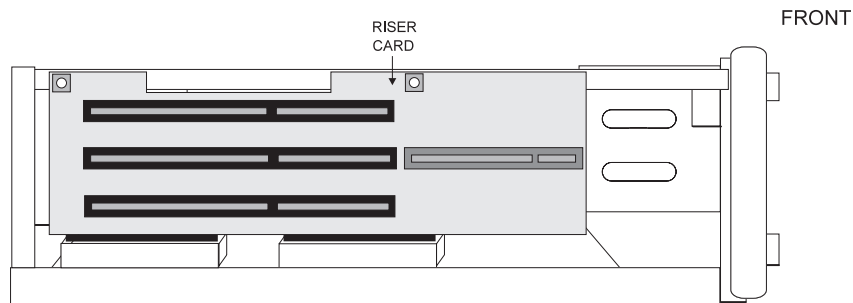


Figure 3-5 Inserting the LPX30WB Riser Card

Installing a VL-Bus Peripheral Card

Micronics VL-Bus slots accommodate all VL-Bus cards which meet the VESA specifications. Complete the following steps to install a VL-Bus card:

1. Turn the computer system off and remove the cover.
2. Choose an unused VL-Bus slot on the riser card and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. **Never insert the card at an angle!**
4. Carefully push the card straight in while securing the other side of the riser card with your free hand. Make sure the card is fully inserted.
5. Replace the screw which holds the card into place.
6. Replace the cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.

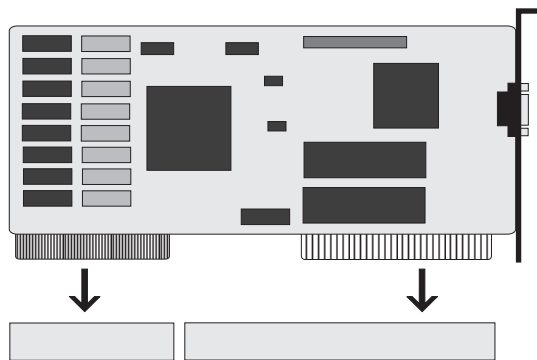


Figure 3-6 Installing a VL-Bus Card

Installing an ISA Peripheral Card

Micronics ISA slots accommodate all standard ISA peripherals. Complete the following steps to install a ISA card:

1. Turn the computer system off and remove the cover.
2. Choose an unused ISA slot on the riser card and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. **Never insert the card at an angle!**
4. Carefully push the card straight in while securing the other side of the riser card with your free hand. Make sure the card is fully inserted.
5. Replace the screw which holds the card into place.
6. Replace the cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.

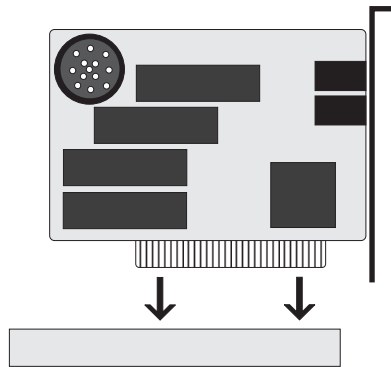


Figure 3-7 Installing a ISA Card

4 The BIOS Setup Utility

Configuration

After the LPX30WB system board and all hardware is installed, the system is ready for configuration. Before turning on the computer, make sure all cables are correctly connected and all jumpers are correctly set.

It is recommended you keep the computer cover off the first time you boot the system. If you have any difficulties, they will be easier to correct.

Initial Boot Up

Power up the LPX30WB. If the system doesn't properly boot, check all your cables and peripherals for bad connections. You may also get error messages or beep codes. If this occurs, consult Appendices A and/or B for a guide to possible solutions.

After the system properly boots, it is ready to be configured. The following pages explain the proper procedures for BIOS configuration.

Setup

The Setup procedure is built into the system. Setup begins after the completed system is powered up. Once the system is powered up and goes through a memory test, the following screen appears on your monitor:

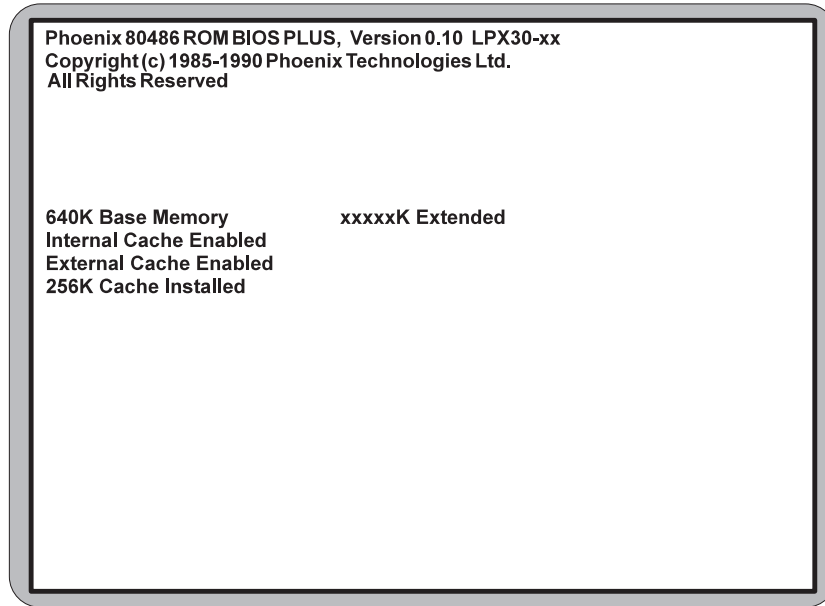


Figure 4-1 Power-Up Screen

If the system detects a configuration error, it displays an error message. After the error message, another message displays indicating the choice to “press <F1> to continue (boot up), or <F2> to run the Setup procedure.” Normally, you will press <Ctrl>, <Alt>, and <Esc> simultaneously to begin the Setup procedure.

Running the Setup Procedure

Upon pressing <F2>, the CMOS Main Screen (Figure 4-2) should appear and the prompt should be on the time line. If the Power-Up Screen does not appear but a DOS prompt does (i.e., A:\ or C:\), press the <Ctrl>, <Alt>, and <Esc> keys simultaneously to begin the Setup procedure.

The LPX30WB system board has two CMOS configuration screens: the Main Screen (Figure 4-2) and the Extended Screen (Figure 4-3). To toggle between the screens, press the PgUp/PgDn keys.

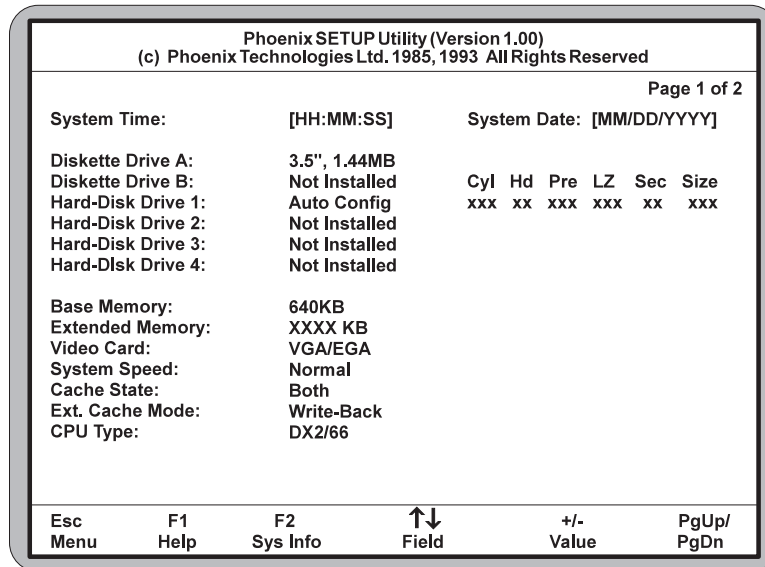


Figure 4-2 CMOS Main Screen

Now, configure the parameters to match your specific requirements. See the following pages for procedures on how to set the computer's parameters.

To return to the CMOS configuration screens at any time to change or view any of these parameters, press <Ctrl>, <Alt>, and <Esc> simultaneously.

Setting the CMOS Parameters

Before running the computer, certain parameters on the CMOS configuration screens must be set so the computer properly operates. First, set the parameters on the CMOS Main Screen, then press the PgUp/PgDn key, and set the parameters on the CMOS Extended Screen.

Note:

Some of the parameters are already set and should not be changed. Only change the settings if necessary.

Setting the CMOS Main Screen

System Time and Date

To set the time, use the minus <-> key to decrease the number and the plus <+> key to increase the number. To move the prompt forward, use the right arrow <-> key; to move the prompt backward, use the left arrow <-> key. Follow the same procedure for the date.

Diskette Drive A or B

This allows you to configure a diskette drive added or removed from your computer. Use the <+/-> keys to toggle between the options.

Hard-Disk Drive 1-4 (IDE Drives Only)

This selection allows you to configure a hard disk installed in your system. Use the <+/-> keys to toggle between the options. See Appendix C for a complete listing of all possible hard drive types.

To install most SCSI hard drives, select NOT INSTALLED. To manually configure the hard drive, select USER CONFIG. Press the down arrow <↓> key and type in the appropriate parameters. To automatically configure an IDE hard drive, select AUTO CONFIG. Drives that can be Auto-Configured report parameters to the BIOS.

Base Memory and Extended Memory

Both of these memory settings are automatically configured. Press the down arrow <↓> key to move to the next selection.

Video Card

This sets the type of monitor required for your computer. The display peripheral supports VGA/EGA, CGA80, CGA40, Monochrome (MONO), or no monitor at all. Use the <+/-> keys to toggle between the options.

Note:

If you set the video card option to Not Installed, it will automatically support a VGA card, if installed. If no video card is installed, there will be no error beeps and the system will perform normally.

System Speed

This parameter selects two speeds on the computer. When set to NORMAL, the system operates at full speed. When set to SLOW, it runs at about half of the normal speed.

CPU Type

This option selects the CPU installed and has auto detection with corresponding jumper settings on board. You must choose the correct CPU selection with the corresponding CPU. This selection is for user-upgradeable CPUs.

Cache

This category allows you to enable both the internal and the external cache, enable the internal cache only, or disable both caches. For optimal performance, select BOTH.

External Cache Mode

This selection sets the secondary cache scheme. Setting the scheme to WRITE-BACK will improve performance up to 4%.

Setting the CMOS Extended Screen

You can toggle between the Main screen and the Extended screen (Figure 4-3) using the PgUp and PgDn key.

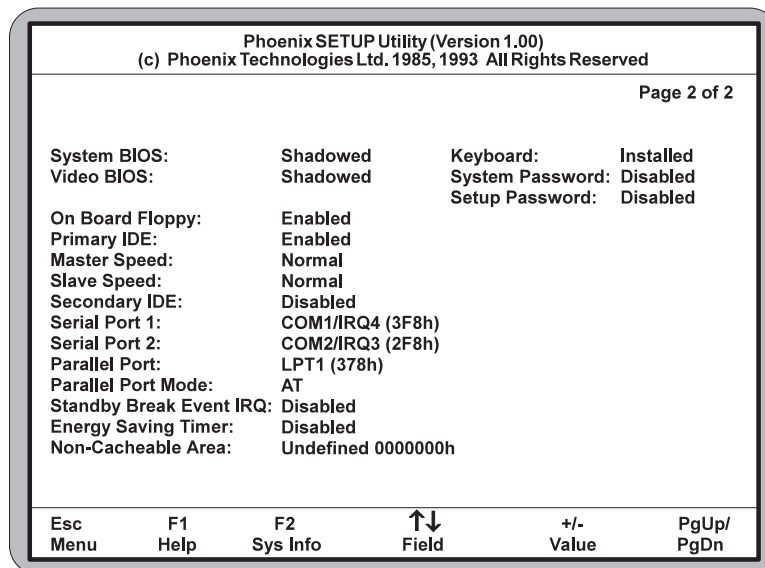


Figure 4-3 CMOS Extended Screen

System BIOS

The System BIOS Option allows you to Shadow, Shadow & Cache, or Disable the BIOS Shadow on the system board. Choosing SHADOWED copies the system's BIOS into RAM for faster execution. Choosing SHADOWED & CACHED caches the shadowed system BIOS for even higher performance. This allows you to take advantage of the high-speed 32-bit bus and the 70 nanosecond RAM. Use the <+/-> key to toggle between the options.

Video BIOS

The Video BIOS Option allows you to Shadow, Shadow & Cache, or Disable the BIOS Shadow on the system board. Choosing SHADOWED copies the system's video BIOS into RAM for faster execution. Choosing SHADOWED & CACHED caches the shadowed video BIOS for even higher performance. Use the <+/-> key to toggle between the options. The System BIOS Shadow option must be set to SHADOW or SHADOW & CACHE before enabling the Video BIOS Shadow options.

On-Board Floppy

The On Board Floppy controller can be set to ENABLED or DISABLED.

Primary IDE

The ISA IDE controller can be set to ENABLED or DISABLED.

Master Speed

The speed can be set for SLOW, NORMAL, or ENHANCED. To improve the performance of your system, see the manufacturer's specifications to determine the optimal setting. The default setting is NORMAL.

Slave Speed

The speed can be set for SLOW, NORMAL, or ENHANCED. To improve the performance of your system, see the manufacturer's specifications to determine the optimal setting. The default setting is NORMAL.

Secondary IDE

The ISA IDE controller can be set to ENABLED or DISABLED.

Serial Port 1

Serial Port 1 may be set for COM1 (default), COM3, or may be disabled. Be sure this setting does not conflict with any other peripherals.

Serial Port 2

Serial Port 2 may be set for COM2 (default), COM4, or may be disabled. Be sure this setting does not conflict with any other peripherals.

Parallel Port

The parallel port may be set for LPT1 (default), LPT2, or may be disabled. Be sure this setting does not conflict with any other peripherals.

Parallel Port Mode

The parallel port may be set for AT mode (output only), PS/2 mode (bidirectional), or may be disabled.

Energy Saving Timer

The Energy Saving Timer conserves energy by putting the system into a “sleep mode.” When the system is in sleep mode, it consumes less energy.

If a specified time elapses and no keystrokes are performed, the computer goes into sleep mode. The timer recognizes keyboard activity and mouse movements.

This category can be set for one minute or in increments of fifteen minutes (up to 120 minutes). After the allotted time, the CPU will reduce its speed to 8MHz. The Scroll Lock light will flash to indicate reduced speed. To return to full processing speed, press any key.

Non-Cacheable Area

This category allows a block of 32-bit memory to be set as NON-CACHEABLE. The size and address can be selected. The sizes include: 64K, 128K, 256K, 512K, 1M, 2M, and 4M.

To select the memory to be Non-Cacheable, use the <+/-> keys to change the first three zeros to the appropriate address (only these zeros can be changed). It must start from 0000000h to 0FF0000h (15.94MB). The default setting for this category is UNDEFINED.

Keyboard

If the keyboard category is set to INSTALLED, the computer will test the keyboard during boot. If set for NOT INSTALLED, the system will ignore any keyboard errors and always attempt to boot. Set this for INSTALLED unless using the system board in an application which does not require a keyboard.

System Password

When enabled, a password will be required to enter the system.

To set a system password, set this category to ENABLED. After you have finished configuring the BIOS, press the <Esc> key to exit followed by the <F4> key to save the changes and reboot. When the system reboots, it will ask you to enter a new password. After you enter the new password, the System Password feature will be in effect.

Warning:

If you forget your password, it cannot be changed without discharging the CMOS.

Setup Password

When enabled, a password will be required to enter Setup.

To activate the Setup Password, set this category to ENABLED. After you have finished configuring the BIOS, press the <Esc> key to exit followed by the <F4> key to save the changes and reboot. After the system reboots, press <Ctrl>, <Alt>, and <Esc> simultaneously to re-enter the setup program. On re-entering the Setup program, you will be asked to enter a new password. After entering the new password, the Setup Password feature will be in effect.

Re-Configuring Your Computer

Press the <Esc> key to reach the Exit Pop-Up Screen. Now select <F4> to save and initialize the new Setup.

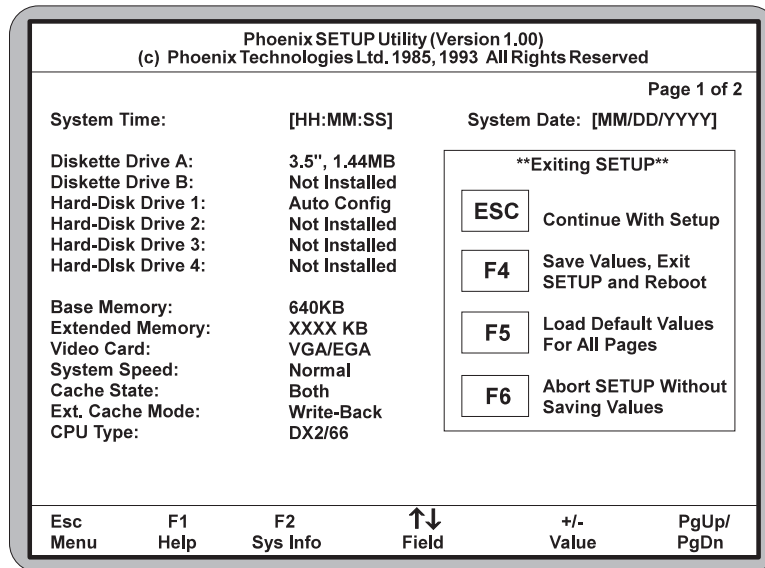


Figure 4-4 Exit Pop-up Screen

5 Installing Video Drivers

A README file is provided for each application driver in the Trident installation disks. These files summarize the latest product revisions, contain directions for installation, and use of enhanced drivers. After their corresponding drivers are installed, you may load and print their README files using any word processor.

Installation

This chapter provides instructions on the installation of the software drivers supplied with the graphics accelerator board. These software drivers offer performance and quality improvements over the standard graphics software drivers supplied with the computer system. Drivers extend the graphics capability for selected applications by offering options such as increased screen size, color depth and monitor refresh rates, as well as improving overall graphic performance.

Note:

To conserve hard disk space, install only the drivers you use. You may require application software disks during driver installation.

Microsoft Windows 3.1

The graphic installation program (TINSTALL) supports a simple 6 step installation procedure for the display driver setup program, the power management program and the UNinstall program.

To use TINSTALL, follow the 6 steps below:

1. Ensure MS Windows 3.1 is up and running properly, using the standard VGA driver.
2. Select the MAIN group in Program Manager.
3. Click on FILE or press the <Alt> and <F> keys simultaneously.
4. Click on RUN or press <R> to select command line.
5. Type in A:TINSTALL (if the display driver disk is in the B drive then type in B:TINSTALL) and then press <Enter> (Figure 5-1).

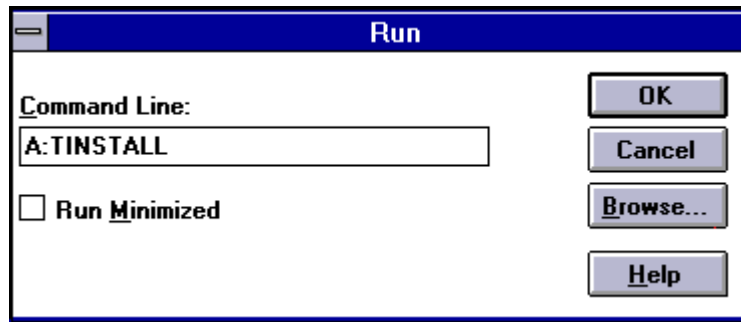


Figure 5-1 Running the TINSTALL Program

6. A menu will appear, offering a choice of Express or Custom Installation.

Express Installation

Express Installation is quick and decision free. Display drivers will be copied into the TRIDENT.AGI directory and Utility files will be copied into the TRIDENT.UTL directory. Once all files are copied, a program group called DISPLAY DRIVER AND UTILITIES will be created.

Custom Installation

Custom Installation allows control over file storage and placement of icons. The first dialog box which appears shows the where the drivers will be copied. Click the CONTINUE button. The next dialog box displays a summary of where files are stored. Select CONTINUE to copy the drivers and utilities files. When all files are copied, the program will present a choice of program groups where the icons will be created. Create a new group to place the utility icons or select from preexisting groups (e.g. main, applications, accessories, etc.).

When all necessary files are copied and a group name is selected, the Tinstall program will create three icons:

- a. Screen Control (used to configure display drivers).
- b. DPMS (used for power management configurations).
- c. UNinstall (used to delete the installed TRIDENT drivers).

Note:

Different "display driver set" versions cannot be installed to the same directory name. "Display driver sets" of the same version number (e.g. UA6.0) will replace the existing one.

SCREEN CONTROL

The Screen Control panel contains controls for setting screen resolution, color depth, font size, refresh rates. Not all combinations of screen resolution, color depth, font size and refresh rate are attainable.

Screen Resolution

Screen resolutions of 640x480, 800x600, 1024x768, 1280x1024 or 1600x1200 can be selected by clicking next to the available options. The virtual screen size is automatically adjusted to be at least as large as the selected screen resolution.

Color Depth

Color depths of 16, 256, 64K, or 16.7M colors can be selected by clicking next to the desired option. Color depth determines the number of colors that may be simultaneously displayed on the screen. The selected color depth determines the possible resolutions.

Font-size

You may choose between small, large, and extra large on-screen font sizes. Depending on the resolution and monitor type, this option may not be available.

Refresh Rates

Available refresh rates are dependent on the selected color depth and resolution. The “Back to Default” option is used to reset the refresh rate to the factory default value.

Configuring the Display Driver

1. Select the color depth first (Figure 5-2). If the current driver does not support the selected color depth, restart Windows.
2. Select the resolution.
3. Select the font size (if option is available).
4. Select the refresh rate.
5. Click on OK. If the current driver does not support the selected configuration, restart Windows.

Note:

Hot Key Control should be enabled before going into advanced setup. There is no virtual screen support for 16 colors. 1280x1024 is only available for 16 colors.

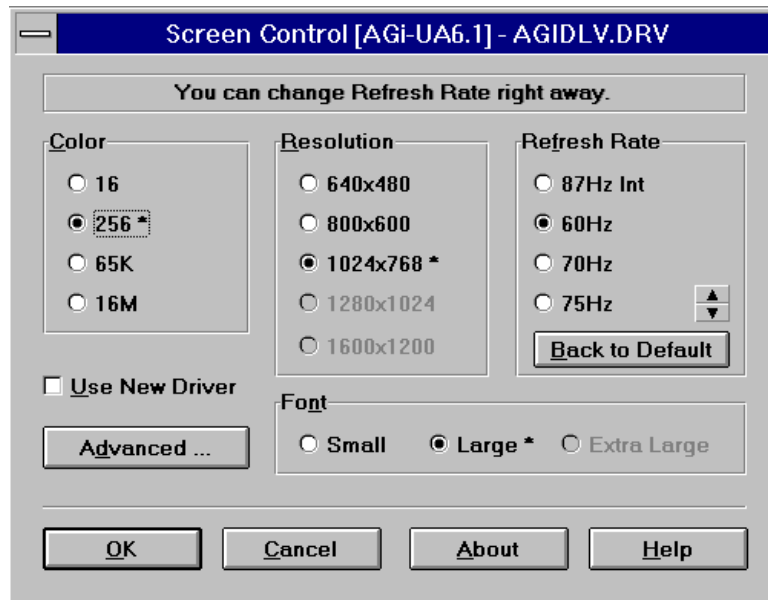


Figure 5.2 Screen Control Menu

Advanced Features (Virtual Screen Control)

The advanced features of the program is accessed by pressing ALT + D or by clicking on the box marked Advanced.

This action opens up an extension of the Main Panel which presents the following features:

1. Hot Key selection. Enabling this function allows setting up predefined key strokes achieve specific virtual screen related actions.
2. Turn On virtual screen. This function allows the use of the predefined virtual screen sizes. The predefined virtual screen sizes are selected by clicking next to available options. The size of the available predefined virtual screen is dependent on the selected color depth and resolution.
3. Customize Virtual screen area. Selecting this feature opens up a new screen titled Virtual Screen Advanced Settings. The features presented through this screen are as follows:

Standard display resolutions are 640x480, 800x600, 1024x768 or

1280x1024. The amount of display memory used depends on the selected resolution and color depth. For resolutions of 640x480, 800x600, and 1024x768, there is a substantial amount of display memory left unused. The Virtual Screen features take advantage of this unused memory by “expanding” the display area into the off-screen area.

Virtual Screen Control allows the user to make effective use of a display screen larger than the standard 640x480, 800x600 or 1024x768, and the standard resolution is the center of the screen. The user can “pan” around the larger Virtual Screen area by the using a standard mouse or a set of “HOT KEYS.” For example, it is possible to select a resolution of 640x480 and set the Virtual Screen size to 800x600. Thus, the 640x480 screen sits at the center of a 800x600 matrix, and the user can “pan” through the entire 800x600 matrix in a 640x480 window (Figure 5-3).

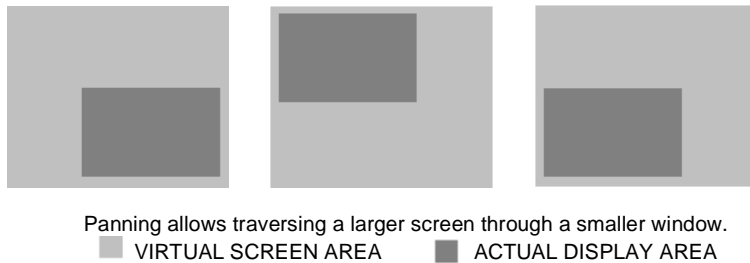


Figure 5-3 Virtual Screen Control

The advanced features provide functions to customize the virtual screen, as shown in Figure 5-4:

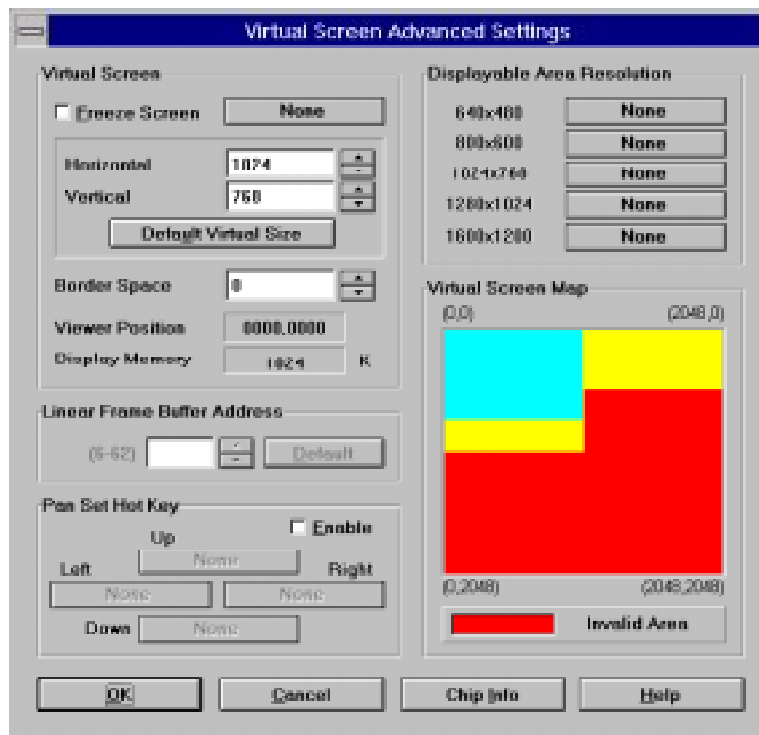


Figure 5.5 Virtual Screen Control Menu

Freeze Screen

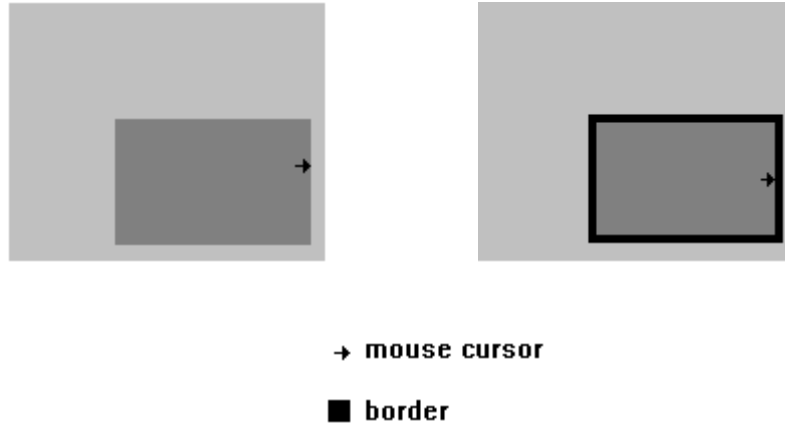
The Freeze Screen option is used to disable the panning feature, giving the illusion of a frozen screen but maintaining other virtual screen functions. Hot key functions are available for this feature.

Linear Frame Buffer Address

The Linear Addressing driver will automatically detect the system's memory size and sets the frame buffer to an unused area above the system memory. The Linear Frame Buffer Address setting is useful in avoiding conflicts with Windows applications which use the same linear frame buffer address as the Display Driver. Addresses between 18 and 63 megabytes may be selected. If there is no conflict, the default setting is highly recommended.

Border Space

The Border Space option is used to set up a border (thickness measured in pixels) within the displayable Area, which is used as a marker for panning the screen, i.e. when the cursor hits against this border, screen panning occurs (Figure 5-5).



Border space sets up a transparent border (black area) on the display area, that is used as a threshold to start panning the virtual screen.

Figure 5-5 Border Space

Pan Set Hot Key

Hot keys may be set up to pan the virtual screen left, right, up and down. The feature has to be enabled first by clicking on the ENABLE box, before hot keys can be selected.

Once all selections are made, click on OK or press ALT + O to exit the advanced setup.

DPMS (Display Power Management SIGNALING)

The Power Management program is designed for energy-saving monitors which conform to the VESA Display Power Management Signaling (DPMS) standard.

Warning:

The use of this program is not recommended for monitors that do not support the VESA DPMS standard.

The program offers three power-down modes (Figure-5-6):

1. Standby (minimum power savings)
2. Suspend (substantial power savings)
3. Off state (maximum power savings)

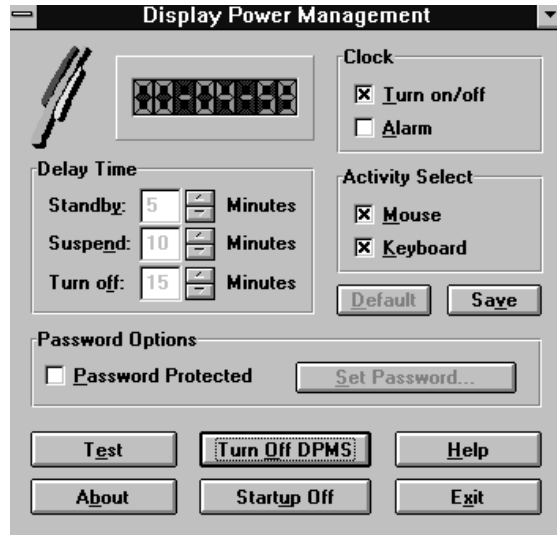


Figure 5-6 DPMS Menu

The program monitors for mouse and/or keyboard activity. When activity is not detected for a specified delay period (controlled by the Delay Time parameter), the program signals the TGUI9440AGi to enter the selected power-down modes.

The Display Power Management program offers several options to customize the DPMS operation:

Delay Time

The delay time to enter each mode may be set by entering the value (in minutes) in the Delay Time parameters. Values can be entered by either clicking on the count-up or count-down button, or by clicking on the number, deleting it, and typing in the desired time in minutes (Figure 5-7).

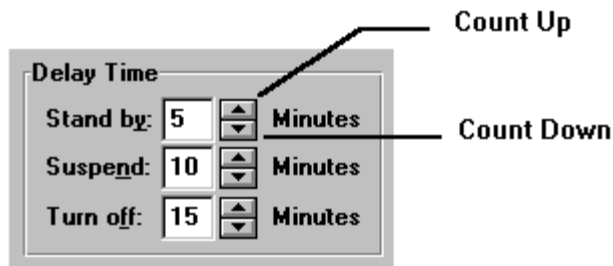


Figure 5-7 Setting the Delay Time

Activity Select

The Activity Select option may be set to sense mouse movement, keyboard activity, or both. For example: if both mouse and keyboard are selected, then either activity will reestablish the powered down signals.

Password Option

The Password Option sets up a password to get back onto the screen.

A password is set up by first clicking on the box marked PASSWORD PROTECTED or by pressing ALT + P (this is confirmed by the presence of an "X" in the box).

Press ALT + S or click on the box marked SET PASSWORD.

Type in the selected password (twice) and select OK, or press <Enter>.

Clock

Turning on the clock enables the digital count down display.

Alarm

If the Alarm option is enabled, then the last 5 seconds of countdown to stand by mode is synchronized with beeps from the PC speaker.

Startup On/Off

This option installs the Display Power Management program onto the Windows Startup file, so DPMS is active upon entering Windows.

Default

The default button sets all parameters back to the factory default values.

Test

The test feature is used to give a demonstration of the DPMS power down function.

Save

This feature is used to save all the current settings. Once all settings are selected, the program is activated by pressing ALT + O or by clicking on the box marked Turn On DPMS.

Display Driver UNInstallation

The UNInstall program enables the user to safely delete specific display drivers or an entire display driver set.

To remove an entire Display Driver Set, complete the following steps:

1. Using the arrow keys or mouse, select the desired Display Driver Set to be removed (the set to be deleted should be highlighted).
2. Once the desired Driver Set is selected, click on the Delete button or press <Enter>.

Note:

The UNInstall program will not permit the deletion of a Display Driver Set that is currently used.

To remove an individual driver from a Display Driver Set, complete the following steps:

1. Using the arrow keys or mouse, select the desired Display Driver Set to be removed (the set to be deleted should be highlighted).
2. Once the desired Driver Set is selected, click on the Enter button. This will pull up a list of available display drivers.
3. Select the display driver to be deleted by using the mouse or the up/down arrow keys to scroll through the list.
4. Click on the Delete button or press ALT + D to delete the selected display driver.

Microsoft Windows NT

Microsoft Windows NT 3.1

Installation

1. Run the Microsoft Windows NT Setup program located in the Main group of Program Manager.
2. Select "Change System Settings" from the "Options" pull-down menu.
3. Select "Other" from the display options.
4. Microsoft Windows NT 3.1 will prompt you for the path where the Trident drivers are located. Enter the path "X:\TVGAUTIL\NTDRV\NT31\" where X is the drive where Disk 2 of the Trident Utility is located.
5. A list of all Trident drivers will appear, select the resolution and color depth desired.
6. Restart Microsoft Windows NT. The desired Trident driver will then be in effect.

Note:

If you select a color depth or resolution, not supported by your card, NT will substitute 640x480, 256 color for the display.

Microsoft Windows NT 3.5

Installation

1. Run the Microsoft Windows NT display Setup program located in the Control Panel of the Main group.
2. Select "Change Display Type..." button from the Display Settings options.
3. Select "Change..." button from the Display Type options.
4. Select "Other..." button from the Select Device options.
5. Microsoft Windows NT 3.1 will prompt you for the correct path where the Trident drivers are located. Enter the path "X:\TVGAUTIL\NTDRV\NT31\" where X is the drive where Disk 2 of the Trident Utility is located.

6. A list of all Trident drivers will appear, select the resolution and color depth desired.
7. Restart Microsoft Windows NT. The desired Trident driver will be in effect.

Note:

If you select a color depth or resolution, not supported by your card, NT will substitute 640x480, 256 color for the display.

Utilities Installation

Installation Procedures

The Utility Installation program is used to install and retrieve instructions on utility programs and non-Windows applications display drivers.

To run the utility programs, follow the steps below:

1. Insert the UA 6.0 disk # 2 in the floppy drive.
2. Type in README at the floppy drive prompt.
3. A numbered list of available destination drives will be displayed on the screen. Select the destination drive by typing in the corresponding number, e.g. to select drive C, type in 1.
4. Files and subdirectories will be expanded into the newly created directory TVGAUTIL. A new menu will be displayed on the screen, showing a list of on-line instructions.
5. Selecting A will display the contents of all drivers in the list.
6. Selecting B will display instructions on the available utility programs.
7. Selecting C will display instructions on how to install display drivers for non-Windows applications.

Utilities Summary

SVM. EXE

SVM is a menu-driven program designed to select and test all video modes available to the adapter.

How To Use SVM

The SVM program may be executed in either of two ways: by calling up the menu and selecting from the menu choices, or by entering the desired mode directly with a specific command line.

How To Use SVM From The Menu

1. Switch directory to "X:\TVGAUTIL\UTILITY" where X is the drive where Disk 2 of the Trident Utility is located.
2. Type SVM to pull up the menu.

The top bar shows the available color depths. This is traversed through by use of the right/left arrow keys.

The program provides all the different resolutions supported by the chip under each color depth. These resolutions are traversed by the up/down arrow keys.

The graphics adapter can be tested for each resolution/ mode by first highlighting the selection by use of the arrow keys, then pressing the <F5> key.

The graphics adapter can be run at a selected mode by first selecting the mode and then pressing <Enter>.

How to Use SVM From The Command Line

The SVM program may be used to select a mode directly from the command line following two steps:

1. Switch directory to "X:\TVGAUTIL\UTILITY" where X is the drive where Disk 2 of the Trident Utility is located.
2. Type in SVM [mode number]<Enter>.

For example, to run the graphics adapter in mode 62H, the command for item 2 above would be:

svm 62 <Enter>.

SMONITOR

SMONITOR is designed to set the monitor group and the monitor type:

```
smonitor <group|option> <Enter>
```

Set Monitor Group

The graphics extended modes set by the graphics card's BIOS are sorted into six groups categorized by the monitor's refresh rate. The group setting as below:

Resolution	Group							
	0	1	2	3	4	5	6	7
640X400	70	70	70	70	70	70	70	70
640x480	60	60	75	85	95	95	95	95
800x600	56	60	75	75	85	85	95	95
1024x768	87i	87i	60	70	75	85	95	95
1280x1024	87i	87i	87i	87i	60	60	60	60
1600x1200	87i	87i	87i	87i	87i	87i	87i	87i

OPTION:

C SET COLOR MONITOR
M SET MONOCHROME MONITOR

Figure 5-8 Setting the Monitor Group

The default group number is 4.

If you want set the monitor group, type:

```
smonitor <group>
```

where <group> is one of the group number listed above.

Set Monitor Color

Switches between color and monochrome display. Some monitors (most notably Samsung monitors manufactured before 2/8/91) do not adhere to the standard IBM pinout definitions, which causes the VGA card to boot up in monochrome instead of color. This utility may be used to correct the problem.

To set the monitor as color, type:

```
smonitor c
```

To set the monitor as monochrome, type:

```
smonitor m
```


TVGACRTC

The TVGACRTC program allows the adjustment of video display parameters so images are optimally sized and centered on the screen. Adjustable parameters include:

- Horizontal size and position.
- Vertical size and position.
- Pixel frequency.

The program is started from the DOS prompt by typing in TVGACRTC from the C:\TVGAUTIL\UTILITY directory.

The first section of the program is used to define a given name for the adjustments to be made (Figure 5-9).

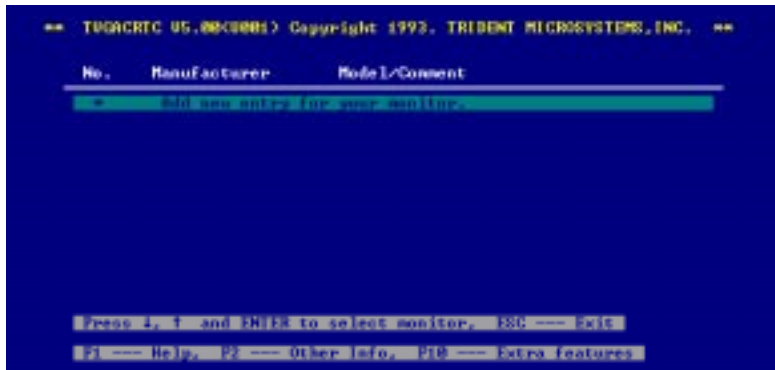


Table 5-9 TVGACRTC Menu

1. Press <Enter> to add a new monitor entry and type in the name of the manufacturer, followed by <Enter> keystroke. The program will allow any name to be typed in.
2. Type in the associated comments for the monitor settings and press <Enter>.
3. A mode table is displayed, presenting all the adjustable modes as shown in Figure 5-10.

```

== TVGACRTC 05.00(0000) Copyright 1993, TRIDENT MICROSYSTEMS, INC. ==
MONITOR:
Mode  Type  Col.  Row  Resolution  Colors  Interface  Loaded  Support  Adjust
-----
5b  Graph 1080  75  800x600    16     NO         YES
5c  Graph 1080  37  800x600    256    NO         YES
5f  Graph 128  48  1024x768   16     YES        YES
5f  Graph 128  48  1024x768   16     NO         YES
62  Graph 128  48  1024x768   256    YES        YES
62  Graph 128  48  1024x768   16     YES        YES
63  Graph 168  64  1280x1024   16     YES        YES
63  Graph 168  64  1280x1024   16     NO         YES
6c  Graph 88  38  640x480    168    NO         YES
70  Graph 64  38  512x384    128    NO         YES
71  Graph 64  38  512x384    648    NO         YES
74  Graph 88  38  640x480    128    YES        YES
75  Graph 88  38  640x480    648    NO         YES

Press J, K and ENTER to select mode.
ESC --- Returns to previous menu, F1 --- Help.

```

Figure 5-10 TVGACRTC Mode Table

4. This table is traversed through the use of the up/down arrow keys. The mode highlighted is the selected mode for adjustment.
5. Select the mode to be adjusted and press <Enter> (Figure 5-10).
6. Select the desired pixel rate by scrolling the list (Figure 5-11) using the up/down arrow keys and press <Enter> twice.

```

== TVGACRTC 05.00(0000) Copyright 1993, TRIDENT MICROSYSTEMS, INC. ==
Mode 62 (Graphics: 1024x768-256, Non-interlaced).
Freq. From Clock Chip (MHz)  Divide By  Result
-----
25.175 = 72.0  2  11.5875
26.0 = 75.0  2  13.0
40.0 = 77.0  4  10.0
44.0 = 48.0  1.5  29.3333
50.0 = 18.0
57.72 = 104.0
65.0 = 118.80

Press J, K, +, - and ENTER to select clock chip frequency.
Press PGUP and PGDN to select 'Divide by'.
ESC --- Returns to previous menu.
F1 --- Help.

```

Figure 5-11 TVGACRTC Pixel Rate Table

7. The screen alignment test pattern will be displayed. The up/down arrow keys are used to adjust the vertical positioning of the screen. The left/right arrow keys are used for horizontal alignment of the screen. The home/end keys are used for horizontal screen sizing and the page up/down keys are used for vertical screen sizing. Once the screen position and size is adjusted, press <Enter>, followed by the ESC keystroke.
8. To save the settings, type Y and press <Enter>. The program will modify the config.sys file.
9. Press ESC and reboot the system to enable the parameter changes.

Driver Installation

After selecting Drivers from the Main Menu, you are presented with a list of possible drivers to install. Select the desired driver. A list of application versions will appear. Pick the appropriate version. Once you have selected the desired driver, the installation program will either provide you with further instructions or guide you through the installation. The following pages give details for installing each available driver.

Lotus 1-2-3, versions 2.1 and 2.2

1. Copy the Lotus 1-2-3 driver into your Lotus directory by running SET123 from the \TVGUTIL directory. For example, if the driver/utility is installed in the D: drive and Lotus 1-2-3 is installed in the C: drive with directory name \LOTUS, type:

```
d:\tvgautil\set123 c:\lotus <Enter>
```

2. Change to the LOTUS 1-2-3 directory and type: LOTUS to open the main menu.
3. Select Install from the main menu.
4. Select Advanced options from the Install menu.
5. Select Add new driver to library from the Advanced Options menu.
6. Select Modify current driver set from the menu.
7. Select either text or graphics display. For the text mode, choose one of the following command lines to indicate the number of rows for your display:

```
TVGA 132x25 Version x.x  
TVGA 132x30 Version x.x  
TVGA 132x43 Version x.x  
TVGA 132x60 Version x.x  
TVGA 80x30 Version x.x  
TVGA 80x43 Version x.x  
TVGA 80x60 Version x.x
```

Example:

Enter TVGA 132x25 Version 1.0 for 132 column by 25 row display. The following row values may be used: 25, 30, 43, or 60.

For graphics mode, select the following command line:
TVGA 640x480 for Release 2.x

8. Return to the Lotus 1-2-3 main menu and choose Save Change to record the changes, then exit the Lotus 1-2-3 installation program.
9. Installation is complete for Lotus 1-2-3. To reconfigure for a different resolution (i.e. 132x25 to 132x30 in text mode), follow steps 3 through 8, then run Lotus 1-2-3 as usual.

Symphony 2.x

1. Copy the Symphony driver to the \SYMPHONY directory by running the SETSYMPH utility found in the \TVGAUTIL directory. For example, if the driver/utility is installed in the D: drive and the Symphony application is installed in the C: drive with a directory name \SYMPHONY, type:

```
d:\tvgautil\setsymph c:\symphony
```

2. The remaining steps need to be completed inside Symphony. Note them down or reference steps 4 through 9.
3. Change to the Symphony 2.x directory and type: SYMPHONY to open the main menu.
4. Select Install from the main menu.
5. Select Advanced options from the Install menu.
6. Select Add New Driver To Library from Advanced Options menu.
7. Select Modify Current Driver Set from the menu.
8. Select either text or graphics display. For the text mode, choose one of the following command lines to indicate the number of rows for your display:

```
TVGA 132x25 Version x.x  
TVGA 132x30 Version x.x  
TVGA 132x43 Version x.x  
TVGA 132x60 Version x.x  
TVGA 80x30 Version x.x  
TVGA 80x43 Version x.x  
TVGA 80x60 Version x.x
```

Example:
Enter TVGA 132x25 Version 1.0 for 132 column by 25-row display. The following row values may be used: 25, 30, 43, or 60.

For graphics mode, select the following command line:
TVGA 640x480 for Release 2.x

9. Return to the Symphony main menu and choose Save Changes to record the changes, then exit the Symphony installation program.
10. Installation is complete for Symphony. To reconfigure for a different resolution (i.e. 132x25 to 132x30 in text mode), follow Steps 4 through 9, then run Symphony as usual.

GEM Desktop 3.xx

1. Follow the prompts to prepare a GEM/3 driver diskette. The installation program will copy driver files to the newly formatted diskette in drive A:.
2. The remaining steps need to be completed in side GEM. They are listed in a text window. Note them down or reference steps 3 through 7.
3. Insert original GEM/3 system Master Disk and run "GEMSETUP".
4. Select in order Change Existing Configuration, Continue, Change Your Current Setup, and the listed graphics and card display.
5. When prompted for a new graphics card and display, select Other Pack and insert the newly prepared GEM/3 driver diskette in drive A:.
6. Select a display driver.
7. Continue with the rest of the GEMSETUP program. Please consult your GEM manual for more information on the GEMSETUP program.

Ventura Publisher

1. Follow prompts to prepare a Ventura driver diskette. The installation program will copy driver files to the newly formatted diskette in drive A:.
2. Supply the location of the Ventura directory on the hard disk when prompted (e.g. C:\VP). Enter the path and then select OK.

3. Indicate whether or not the Ventura Publisher Professional Extension is being used.
4. Select one of the display modes listed.
5. Indicate the type of mouse being used and to which I/O port (i.e. COM1, COM2, etc.) the mouse is connected.
6. Confirm choices to complete the installation.

Note:

To reconfigure for a different display mode, repeat this entire installation procedure.

WordPerfect

WordPerfect 5.1

To Install the Text Mode Drivers

1. Copy the driver files from \TVGAUTIL\WP51 directory on your hard disk drive into your WordPerfect 5.1 directory (e.g. C:\WP51). For example, if WordPerfect 5.1 is to be installed in drive C: and the driver\utility is installed in driver D:, type:

```
copy d:\tvgautil\uf51\tvgatext.vrs c:\wp51 <Enter>
```

The display drivers (TVGATEXT.VRS) will be copied automatically to the WordPerfect directory.

2. The remaining steps need to be completed inside WordPerfect. They are listed in a text window. Note them or reference steps 3 through 5.
3. Run WordPerfect 5.1 by typing WP at the WordPerfect 5.1 program directory.
4. Press Shift-F1 to bring up the Setup Menu. Press “2” to select Display and “3” to select Text Screen Type.
5. Choose one of the extended text drivers. The available drivers are 80x30, 80x43, 80x60, 132x30, 132x43, 132x60.
6. Driver installation is complete for WordPerfect. To reconfigure for a different resolution (eg. 132x25 to 132x30 in text mode), repeat steps 4 and 5.

To Install Extended Graphics Mode Drivers

1. Copy the driver files from \TVGAUTIL\WP51 directory on the hard disk drive into the WordPerfect 5.1 directory (e.g. C:\WP51). For example, if WordPerfect 5.1 is installed in drive C: and the driver\utility is installed in drive D:, type:

```
copy d:\tvgautil\wp51\tvga16.vrs c:\wp51
```

The display drivers (TVGA16.VRS) will be automatically copied to the WordPerfect directory.

2. The remaining steps need to be completed inside WordPerfect. They are listed in a text window. Note them or reference steps 3 through 5.
3. Run WordPerfect 5.1 by typing WP at the WordPerfect 5.1 program directory.
4. Press the <Shift-F1> to bring up the Setup Menu. Press “2” to select Display and the “2” to select Graphics Screen Type.
5. Choose one of the Extended Graphic drivers. The available drivers are 800x600-16 colors, 1024x768-16 colors, and 768x1024-16 colors.
6. Driver installation is complete for WordPerfect. To reconfigure for a different resolution (eg. 800x600), repeat steps 4 and 5.

WordPerfect 6.0

To Install the Text Mode Drivers

1. Copy the driver file from \TVGAUTIL\WP60 directory on the driver into the WordPerfect 6.0 directory (e.g. \WP6.0). For example, if WordPerfect 6.0 application is installed in drive C: and the driver\utility program is installed in drive D:, type:

```
copy d:\tvgautil\wp60\tvga6txt.vrs c:\wp60
```

2. To run WordPerfect 6.0 from the directory, type WP.
3. Make sure WordPerfect 6.0 Text Mode is selected. A check mark or an asterisk should appear in front of “Text Mode” under the View pull-down menu.
4. Select the “Setup” option under the File pull-down menu, and chose Display. Select “2. Text Mode Screen Type/Colors” and then select

“Screen Type”. To install the Trident driver, select “Trident VGA”. Select the appropriate screen resolution.

To Install Extended Graphics Mode Drivers

WordPerfect 6.0 for DOS allows selection of Text Mode or Graphic Mode Interface. For graphic mode, install the VESA driver and select a resolution from 640x480 to 1024x768.

1. If the VGA BIOS on the card is version C3.0 or later, select the VESA driver that is included in the WordPerfect 6.0 program. If the VGA BIOS is a version earlier than C3.0, run the VESA.EXE utility program located on the VGA Driver/Utility diskette. Please see section on SMONITOR in the Utility section earlier in this chapter.
2. Make sure the VESA driver from WP6.0 installation program is selected and installed. Boot-up the WordPerfect 6.0 program and select “Graphic Mode” from the view pull-down menu.
3. Select “Setup” from the “File” pull-down menu. Select “Display”, and choose “1” to select the different graphic mode driver. Choose “1” for Screen Type. Highlight “VESA VBE” and select the desired resolution. Follow the instructions on the screen to complete installation.

Microsoft Word for DOS

MS Word 5.0

1. Copy the MS Word driver from the \TVGAUTIL\Word directory on the hard drive into the MS Word 5.0 directory (e.g.\Word50). For example, if MS Word 5.0 is installed in drive C: and the Driver/Utility is installed in drive D:, type:

```
copy d:\tvgautil\word\screen.vid c:\word50
```

Note:

The display drivers (SCREEN.VID) will be automatically copied to the Word directory.

2. The remaining steps need to be completed inside MS Word. They are listed in a text window. Note them or reference steps 3 through 5.
3. Run MS Word 5.0 by typing “WORD” in the MS Word 5.0 directory.
4. Press <Esc> to enter a command. Press <O> to enter an Option Command.
5. Select Display Mode, then press F1 to list the display modes available. Choose one of the following lines to indicate the number of rows for the display:

- | | |
|------------------------------|---|
| (1) Text, 25 lines, 16 color | (5) Text, 25 lines, 16 color ¹ |
| (2) Text, 43 lines, 16 color | (6) Text, 30 lines, 16 color ¹ |
| (3) Text, 50 lines, 16 color | (7) Text, 43 lines, 16 color ¹ |
| (4) Text, 60 lines, 16 color | (8) Text, 60 lines, 16 color ¹ |

¹ Lines 5 through 8 are for 132 column modes. Mouse support is not available for 132 column modes.

6. Driver installation for MS Word is complete. To reconfigure for a different resolution (i.e. 132x25), repeat steps 4 and 5.

MS Word 5.5

1. Change the directory to \TVGAUTIL\Word55.
2. Type SETUP to run the setup program. Follow the instructions on the screen to complete the driver installation.

Panacea AutoCAD TurboDLD Driver

TurboDLD Classic Driver by Panacea is a combined display interface and rendering driver. It supports DOS versions of AutoCAD 10/386, 11/386, and 12. It offers the following resolutions for the drawing editor :

640x480	16 colors
800x600	16 colors
1024x768	16 colors
1280x1024	16 colors
320x400	200 colors
640x480	256 colors
800x600	256 colors
1024x768	256 colors (1MB Video RAM required)
1280x1024	256 colors (2MB Video RAM required)
512x480	32k colors
640x480	32k colors
800x600	32k colors
512x480	65k colors
640x480	65k colors
800x600	65k colors

It also offers the following resolutions for rendering:

320x200	256 colors
640x480	256 colors
800x600	256 colors
1024x768	256 colors (1MB Video RAM required)
1280x1024	256 colors (2MB Video RAM required)
512x480	32k colors
640x480	32k colors
800x600	32k colors
512x480	65k colors
640x480	65k colors
800x600	65k colors

To install the display drivers for AutoCAD 10/386, 11/386 or 12. The UG6.0 DISK # 2 and the proper AutoCAD 386 Release is required.

Important:

Ensure AutoCAD is already installed with the IBM Standard VGA driver.

AutoCAD/386 Release 10 and 11

1. Change the directory to C:\TVGAUTIL\ACAD. Type INSTALL [enter] and follow the installation steps on the screen. The TurboDLD Classic Driver and the other files will be copied to the proper ACAD working subdirectory.
2. Run DLD386's FASTCAD.BAT or copy the commands from the file into the AUTOEXEC.BAT file before running AutoCAD. FASTCAD.BAT sets the environment variables including DLDCFG, DSPADI, RDPADI and RCPADI.
3. Start AutoCAD/386 and select Configure AutoCAD from the Main Menu.
4. Select Configure, Video, Display.
5. Select ADI P386 v4.0/4.1 display. This will pull up TurboDLD's configuration menu, which should be used to select the desired graphics board resolution.
6. Select the graphics area background color, text color (for the menu status line and command prompt areas of the screen), text background color, border color, and dialog box/button outline color. To select the default colors, press <Enter> at each prompt. To select a different color, enter the desired color number at the given prompt.

AutoCAD/386 Release 12

Display Driver Installation Procedure

Change the directory to C:\TVGAUTIL\ACAD and type INSTALL <Enter>. Follow the installation steps on the screen. The TurboDLD Classic Driver and the other files are copied to the proper ACAD working subdirectory. The display driver for the drawing editor and rendering is installed by following these steps:

Editor Installation Procedure

1. Run the AutoCAD Drawing Editor screen.
2. Select CONFIGURE in the File pull-down menu. AutoCAD will switch to a text screen.
3. Select 3 to configure the video display. AutoCAD will then show the current video display.

4. Select “Y” to select a different driver.
5. Select “Trident Microsystems Panacea, Inc.”. This will bring out the TurboDLD’s configuration menu.
6. Follow the menu to select the desired resolution.
7. Save the selection and exit from TurboDLD’s configuration.
8. Enter “0” to return to the Drawing Editor screen.
9. Answer “Y” to save configuration changes.

Rendering Installation Procedure

1. Ensure Rendering for AutoCAD Release 12 is already installed.
2. Select Preferences in the Render pull-down menu from the Drawing Editor screen.
3. If Rendering has been previously configured, select Reconfigure in the Rendering Preferences dialog box. Otherwise, the program automatically will switch directly to a text screen.
4. Select “2” to configure the rendering driver.
5. Select “AutoCAD’s configured P386 ADI combined display/rendering driver.”
6. Select the desired resolution for rendering.
7. Select the desired rendering view.
8. Enter “0” to return to the Drawing Editor screen.
9. Answer “Y” to save configuration changes.
10. Click OK to close the Rendering Preferences dialog box.

Quattro Pro 2.x for DOS

1. Copy the Quattro Pro driver from the \TVGAUTIL\PRO directory on the hard drive into the QPRO 2.x for DOS directory. For example, if your Quattro Pro 2.x is installed in drive C: and the Driver/Utility is installed in drive D:, type:

```
copy d:\tvgautil\qfro\video.rsc c:\qpro
```

Note:

The display drivers (VIDEO.RSC) will be automatically copied to the Quattro Pro directory.

2. The remaining steps need to be completed inside Quattro Pro. They are listed in a text window. Note them or reference steps 3 through 5.
3. Choose to run Q.EXE by entering “Y” in response to the prompt. The Driver/Utility Installation program will exit to Quattro Pro.
4. Press “O” to select the Options menu and “D” to select Display Mode.
5. Choose an extended text mode.
6. The graphic driver installation for Quattro Pro is complete. To reconfigure for a different resolution (i.e. 800x600), repeat steps 4 and 5.

A POST Messages

The following table lists the Power On Self Test (POST) messages, possible causes, and solutions.

Message	Possible Cause	Solution
NO DISKETTE CONTROLLER	Disk controller not found.	Change the Configuration.
DISKETTE DRIVE RESET FAILED	Disk adapter has failed or is improperly configured.	Check the disk adapter.
DISKETTE DRIVE A FAILURE	Drive A failed or is missing.	Check the A drive.
DISKETTE DRIVE B FAILURE	Drive B failed or is missing.	Check the B drive.
DISKETTE READ FAILURE; STRIKE F1 TO RETRY BOOT	Disk is not formatted or is defective.	Replace the diskette with a formatted diskette and retry.
DISPLAY ADAPTER FAILED USING ALTERNATE	The color/monochrome switch is not set correctly, or the primary video adapter failed.	Change the switch to the correct setting, or check the primary video adapter.
ERRORS FOUND; DISK X FAILED INITIALIZATION	Hard disk configuration information is incorrect.	Rerun SETUP and enter the correct hard disk information.
ERRORS FOUND; INCORRECT CONFIGURATION INFORMATION; MEMORY SIZE MISCOMPARE	The size of the base or the expansion memory, does not agree with configuration information.	Enter correct memory size and rerun SETUP procedure.

Message	Possible Cause	Solution
FIXED DISK CONFIGURATION FAILURE	The specified configuration is not supported.	Correct the hard disk configuration.
FIXED DISK CONTROLLER FAILURE	The controller card has failed.	Replace controller card.
FIXED DISK X FAILURE (where X =0 or 1)	The hard disk crashed.	Press F1 to reboot or rerun SETUP. If this does not work, replace hard disk.
HARD READ FAILURE- STRIKE F1 TO RETRY BOOT	The hard disk failed.	Press F1 to reboot or rerun Setup. If this does not work, replace hard disk.
FDD CONTROLLER FAILURE	Diskette controller failed.	Replace controller card.
FDD A IS NOT INSTALLED	Cannot find diskette controller for drive A.	Install or replace controller card.
FDD B IS NOT INSTALLED	Cannot find diskette controller for drive B.	Install or replace controller card.
KEYBOARD CLOCK LINE FAILURE or KEYBOARD DATA LINE FAILURE	Keyboard logic failed.	Make sure the keyboard cable is connected correctly.
KEYBOARD STUCK KEY FAILURE	A key is jammed or was held down during boot.	Make sure the keys are not jammed or dirty.
REAL TIME CLOCK FAILURE	The real-time clock logic failed.	Check battery and replace, if necessary
TIME-OF-DAY NOT SET- RUN SETUP PROGRAM	The real-time clock time-of-day is not running.	Run SETUP utility.
BIOS XXXX ROM BAD CHECKSUM (where XXXX=C8000 to E0000)	The optional ROM checksum is bad.	Replace add-on card.

Message	Possible Cause	Solution
DISKETTE READ FAILURE, or NOT A BOOT DISKETTE, or NO BOOT DEVICE AVAILABLE	Hard/floppy disk failed or is not bootable.	Replace the diskette with a bootable diskette and retry.
DECREASING AVAILABLE MEMORY, or MEMORY FAILURE AT AAAAAAAAAA READ XXXX EXPECTING YYYY (where AAAAAAAAAA = failing address, XXXX=data read, and YYYY=data written)	The memory data integrity failed.	Check contact points between memory modules and system board. Replace memory modules if necessary.

B Beep Codes

Beep codes are a series of beeps sent through the speaker which indicate a problem during the Power On Self Test (POST). If text appears on the video screen, the LPX30WB has completed POST; any other tone from the speaker indicates something other than a POST error. These tones **are not** described in Table B-1.

The beep error codes are a series of three sets of beeps. The duration of the beep tones are constant, but the length of the pauses between the beeps varies. For example: a 1-3-3 beep code will sound like one beep, a pause; three beeps consecutively, another pause; and then three more beeps.

One beep code is often misunderstood. If a video card is not installed or is failing, the system board will generate a long-short-long-short beep code. This is often interpreted as a 1-2-1 beep code. But POST errors always vary in the length of the pause and not the duration of the beep tone.

Another way of identifying a POST error is to use a device called a POST card. This peripheral card is inserted into one of the ISA slots and has an LED (or LCD) read out showing the contents of port 80h.

The following table provides a list of all beep codes and probable causes.

Beep code	Contents Port 80h	Description
None	01h	CPU register test in progress.
1-1-3	02h	CMOS read/write failure.
1-1-4	03h	ROM BIOS check failure.
1-2-1	04h	Programmable interval timer failure.
1-2-2	05h	DMA initialization failure.
1-2-3	06h	DMA page register write/read failure.
1-3-1	08h	RAM refresh verification failure.
None	09h	First 64K RAM test in progress.
1-3-3	0Ah	First 64K RAM chip or data line failure (multi-bit).
1-3-4	0Bh	First 64K RAM odd/even logic failure.
1-4-1	0Ch	Address line failure first 64K RAM.
1-4-2	0Dh	Parity failure first 64K RAM.
2-1-1	10h	Bit 0 first 64K RAM failure.
2-1-2	11h	Bit 1 first 64K RAM failure.
2-1-3	12h	Bit 2 first 64K RAM failure.
2-1-4	13h	Bit 3 first 64K RAM failure.
2-2-1	14h	Bit 4 first 64K RAM failure.
2-2-2	15h	Bit 5 first 64K RAM failure.
2-2-3	16h	Bit 6 first 64K RAM failure.
2-2-4	17h	Bit 7 first 64K RAM failure.
2-3-1	18h	Bit 8 first 64K RAM failure.
2-3-2	19h	Bit 9 first 64K RAM failure.
2-3-3	1Ah	Bit 10 first 64K RAM failure.
2-2-4	1Bh	Bit 11 first 64K RAM failure.
2-3-1	1Ch	Bit 12 first 64K RAM failure.
2-4-2	1Dh	Bit 13 first 64K RAM failure.

Beep code	Contents Port 80h	Description
2-4-3	1Eh	Bit 14 first 64K RAM failure.
2-4-4	1Fh	Bit 15 first 64K RAM failure.
3-1-1	20h	Slave DMA register failure.
3-1-2	21h	Master DMA register failure.
3-1-3	22h	Master interrupt mask register failure.
3-1-4	23h	Slave interrupt mask register failure.
None	25h	Interrupt vector loading in progress.
3-2-4	27h	Keyboard controller test failure.
None	28h	CMOS power failure and checks calculation in progress.
None	29h	CMOS configuration validation in progress.
3-3-4	2Bh	Screen initialization failure.
3-4-1	2Ch	Screen retrace test failure.
3-4-2	2Dh	Search for video ROM in progress.
None	2Eh	Screen running with video ROM.
None	30h	Screen operable.
None	30h	Screen running with video ROM.
None	31h	Monochrome monitor operable.
None	32h	Color monitor (40 column) operable.
None	33h	Color monitor (80 column) operable.

C Hard Disk Drive Types

The following table lists the hard disk types supported by LPX30WB.

Type	Cyl	Hd	Pre	Sec	Size
1	306	4	128	17	10
2	615	4	300	17	21
3	615	6	300	17	30
4	940	8	512	17	62
5	940	6	512	17	46
6	615	4	-1	17	20
7	462	8	256	17	30
8	733	5	-1	17	30
9	900	15	-1	17	112
10	820	3	-1	17	20
11	855	5	-1	17	35
12	855	7	-1	17	49
13	306	8	128	17	20
14	733	7	-1	17	42
15	N/A	N/A	N/A	N/A	N/A
16	612	4	0	17	20
17	977	5	300	17	40
18	977	7	-1	17	56
19	1024	7	512	17	59
20	733	5	300	17	30
21	733	7	300	17	42

Type	Cyl	Hd	Pre	Sec	Size
22	733	5	300	17	30
23	762	8	-1	17	116
24	830	10	-1	39	68
25	1024	9	-1	17	76
26	918	7	-1	17	53
27	1024	8	-1	17	68
28	903	8	-1	46	162
29	1024	4	-1	17	34
30	820	6	-1	17	40
31	969	9	-1	34	144
32	615	8	-1	17	40
33	1024	5	-1	17	42
34	940	16	-1	26	190
35	1010	12	-1	55	325
36	903	4	-1	46	81
37	901	5	-1	53	116
38	980	5	128	17	40
39	966	16	-1	17	128
40	723	13	-1	51	234
41	1024	16	-1	63	504
42	966	5	-1	34	80
43	965	10	-1	17	80
44	776	8	-1	33	100
45	654	16	-1	63	321
46	683	16	-1	30	202
47	755	16	-1	17	100
User Config					
Auto Config					

D Specifications

Processor Options	Intel 486 SX 25 & 33MHz, PQFP. Intel 486 DX 33MHz, PGA. Intel 486 DX2 50 & 66MHz, PGA. Intel 486DX4 75 & 100MHz. Intel 486 DX2 3.3V Support. Intel Pentium <i>OverDrive</i> Processor. 486 OverDrive Processor.
Expansion	One proprietary slot. Riser card allows 1 VESA and 4 ISA slots (slot configuration may vary depending on case design).
Chip Set	Micronics X30 single chip ASIC. Opti Mode 3 IDE controller. Winbond 787 Super I/O controller.
RAM Capacity	128MB.
Form Factor	Mini AT footprint (8.5" x 9.5"). 4 Layer PCB.
Keyboard	PS/2 compatible (AT keyboard support w/adapter).
Mouse	PS/2 compatible.
BIOS	Phoenix BIOS on 1MB Flash EPROM.
Cache	8K of internal cache memory (may vary).
Cache Upgrade	Optional 0K, 128K, or 256K of secondary cache memory (write-through or write-back).
I/O Ports	Built in support. Two serial ports. One bi-directional parallel port. Enhanced Parallel Port (EPP) compatible. Microsoft and Hewlett Packard Extended Capabilities Port (ECP) compatible.

Floppy Port	Supports two floppy drive (2.88, 1.44, 1.2, 720K, 360K).
VESA IDE Port	Supports two IDE hard disks. Mode 3 support. Multiple sector transfer support. LBA support.
Secondary IDE Support	Supports two additional IDE hard disks. Multiple sector transfer support. LBA support.
Burn-in	48 hours (minimum).

Environmental Specifications

The environment in which the LPX30WB is located is critical. Micronics recommends the following environmental specifications:

Temperature Range

Operating: 50 to 104 degrees Fahrenheit (10 to 50 degrees Celsius).

Non-Operating: 50 to 140 degrees Fahrenheit (10 to 60 degrees Celsius).

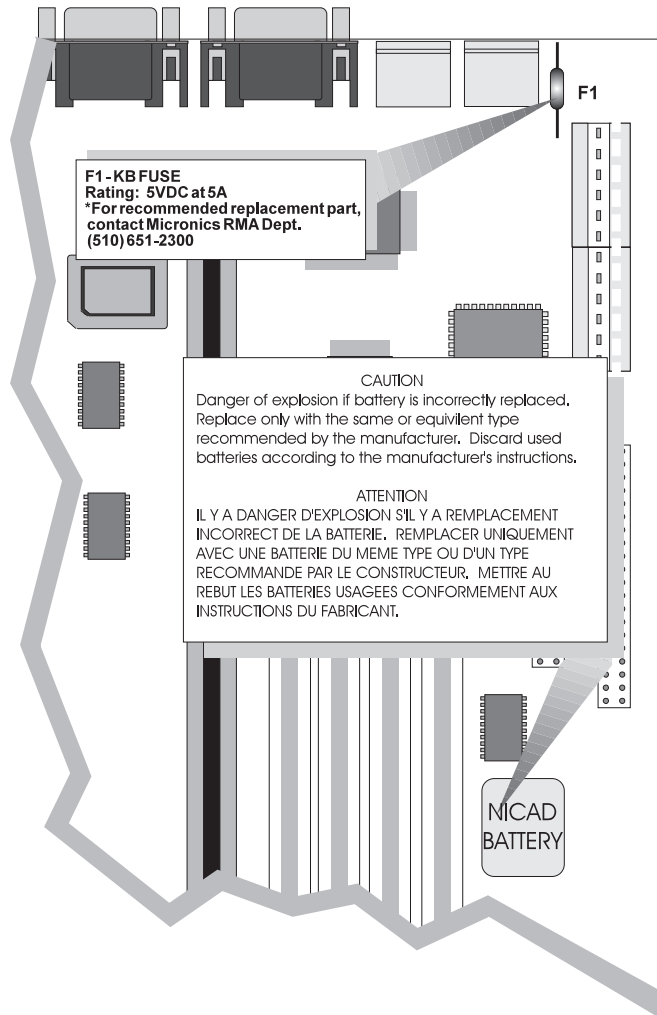
Shipping: -22 to 140 degrees Fahrenheit (-30 to 60 degrees Celsius).

Relative Humidity

Operating: 20% to 80%

Non-Operating: 5% to 90%

Battery Disposal



Warning:
DO NOT: open battery; dispose of in fire; recharge; put in backwards, mix with used or other battery types.

May explode or leak and cause personal injury.

E Installing a Power Module

The LPM30 will accommodate a large variety of 486 processors. When installing a 5.0V processor, locate J22 on your system board (see Figure 2-1) and configure it as shown below (Figure E-1).

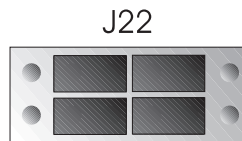


Figure E-1 Configuring Jumper J22

To configure your system board for a 3.3V or 4.0V processor, you will need to order a Power Module. If you do not have one, contact Micronics' Customer Service department at (510) 651-2300.

To install a Power Module, remove all jumpers from Jumper J22 and install it as shown below (Figure E-2).

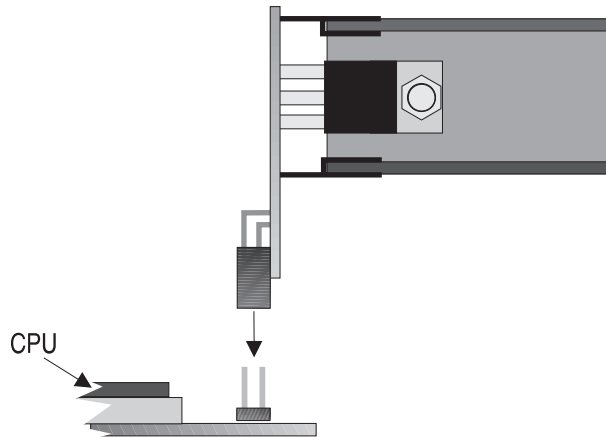


Figure E-2 Installing a Power Module

After you have installed the Power Module, secure it with a tie strap (Figure E-3) and your installation is complete.

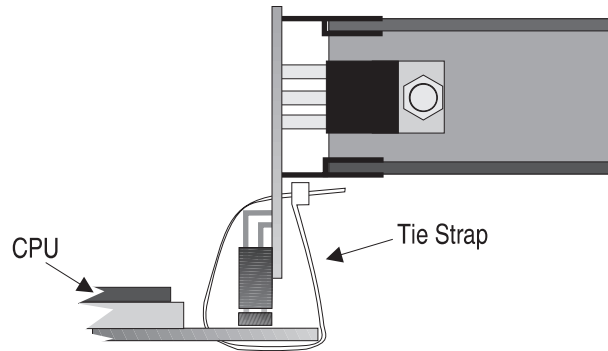


Figure E-3 Securing the Power Module

FCC Warning Statement

This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not used in accordance with the instructions, may cause harmful interference to radio communications. Interference to radio or television reception can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- ⊗ Reorient the receiving antenna.
- ⊗ Increase the separation between the equipment and the receiver.
- ⊗ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ⊗ Consult your dealer or an experienced radio/TV technician for help.

To meet FCC requirements, shielded cables and power cords are required.

Note:

Changes or modifications not expressly approved by Micronics could void the user's authority to operate the equipment.

Glossary

BIOS:	Basic Input Output System. Maintains and controls the entire functions of the computer.
Cache:	Fast memory used to enhance the efficiency and speed of the computer.
CPU:	Central Processing Unit. Essentially, the “brains” of the computer.
Disk Drive:	Either a hard disk or a floppy diskette.
DRAM:	Dynamic Random Access Memory.
EISA:	Extended Industry Standard Architecture.
ISA:	Industry Standard Architecture.
Jumpers:	A device on the system board used to configure certain information on the board.
POST:	Power On Self Test. The computer’s self-diagnostic test, which is executed whenever the system is booted.
Setup:	Steps used to configure the system board.
SIMM:	Single In-line Memory Module. SIMMs are banks of memory used to increase the performance of the computer.
SRAM:	Static Random Access Memory.

Limited Warranty

Except as described below, Micronics warrants the products to be free from defects in material and workmanship in normal use for a period of one (1) year from date of purchase. Should any product fail to perform according to this warranty at any time during the warranty period, except as provided below, Micronics or its authorized service centers will, at Micronics' option, repair or replace the product at no additional charge.

The warranty does not cover loss or damage which occurs in shipment or which is due to: (1) improper installation or maintenance, misuse, neglect or any cause other than ordinary commercial application, including without limitation, accidents or acts of God; (2) adjustment, repair, or modification by other than a Micronics authorized service center; (3) improper environment, excessive or inadequate heating or air conditioning, or electrical power failures, surges or other irregularities; (4) any statement about the product other than those set forth in this warranty; or (5) nonconformity to models or samples shown to the purchaser. Any models or samples were for the sole purpose of suggesting the character of the product and are not intended to form the basis of the bargain.

A receipt or copy of the invoice with the date of purchase from a Micronics reseller is required before any warranty service can be rendered. Service can be obtained by calling Micronics for a Return Merchandise Authorization (RMA) Number.

The RMA Number should be prominently displayed on the outside of the shipping carton of the returned product. Returned product should be shipped prepaid or hand carried to Micronics. The purchaser assumes risk of loss or damage in transit, and unless otherwise agreed to in writing by Micronics, will pay inbound shipping charges.

The exclusive remedy of the purchaser under this warranty above will be repair or replace at Micronics' option, but if for any reason that remedy should fail of its essential purpose, the exclusive remedy of the purchaser shall then be actual damages up to amounts paid for the defective product by the purchaser. This limited warranty shall be deemed to "fail of its essential purpose" if, after repeated efforts, Micronics is unable to make the product operate as warranted. Micronics' liability for damages to the purchaser for any cause whatsoever; regardless of the form of action and whether in contract or in tort, shall be limited to the purchase price in effect when the cause of action arose for the product that is the basis of the claim.

Micronics will not be liable for any lost profits or any indirect, special incidental or consequential damages in connection with the product, even if Micronics has been advised of the possibility of such damages.

Micronics makes no warranties or representations as to performance of products or as to service to distributor or to any person, except as set forth in Micronics; limited warranty accompanying delivery of product.

Micronics disclaims all other warranties whether oral, written, expressed, or implied, including without limitation, the warranties of design, merchantability, or fitness for a particular purpose, if applicable, or arising from a course of dealing, usage or trade practice.

Non-Warranty Service

After the one year warranty service is no longer in effect, repair service is still available for Micronics products. For more information, contact Micronics' RMA department at (510) 683-0428 or (510) 683-0389. The RMA department is open between 8:30 A.M. and 5 P.M. Pacific Standard Time.