MICR⊞NICS
COMPUTERS INC.

JX30WB VL/ISA

SYSTEM BOARD

MANUAL

MICRONICS

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1 Introduction

The Micronics JX30WB system board is Micronics' fourth generation VL-Bus system board, offering outstanding features for building an advanced personal computer or workstation.

The JX30WB supports all 486 processors, including the new Intel DX4-100 processor, which requires a 3.3 volt power supply. The system board automatically senses the type of CPU and its voltage requirements, then configures itself accordingly. In addition, the JX30WB utilizes level 1 write-back cache now available on the latest 486 processors.

The JX30WB is also a "Green board," which means it adheres to the Environmental Protection Agency's strict Energy Star efficiency guidelines. The system board can reduce power to consume less energy, thus making it a more efficient system board.

The system board comes complete and ready to be installed. It is designed to be installed with minimal or no help.

Features

The JX30WB includes the following features:

- Two 32-bit VL-Bus\ISA slots and five 16-bit ISA slots.

- 100% VESA VL-Bus compliant.

- EPA Energy Star compliant when used with other energy efficient components. User-defined time intervals.

- Micronics' JX30WB chip set, with Mode 3 VL IDE controller.

- Supports up to 128MB of on-board Memory.

- 4-layer, Baby AT form-factor (13" X 8.5").

- Supports the following processors (write-through and write-back cache versions) in the Zero Insertion Force (ZIF) CPU socket:

    - 486SX 25 or 33MHz

    - 486 SX2 50MHz

    - 486 DX 33MHz

    - 486 DX2 50 or 66MHz

    - 486 DX4 75 or 100MHz

Software Compatibility

The JX30WB system board has been tested thoroughly under a variety of software packages. A sampling of programs include products by Microsoft, Novell, IBM, and Santa Cruz Operation.

2 Setting Up the JX30WB

Precautions

Although the JX30WB system board is securely packed in its shipping container, use care while unpacking the system board. After unpacking the JX30WB, place it on its anti-static bag. Carefully inspect the board for damage that may have occurred during shipment, making sure the jumper pins are not bent.

Static Electricity

The JX30WB is shipped in an anti-static bag; however, it is still important that you and your work area are static free. Ground yourself first and then ground the board.

Office Environment

When installing the JX30WB, make sure the finished product is in an area with good ventilation. The system should not be in direct sunlight; near heaters; or exposed to moisture, dust, or dirt.

JX30WB Components

Danger of explosion if battery is incorrectly replaced. The battery should only be replaced by an authorized technician, using the same or equivalent recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
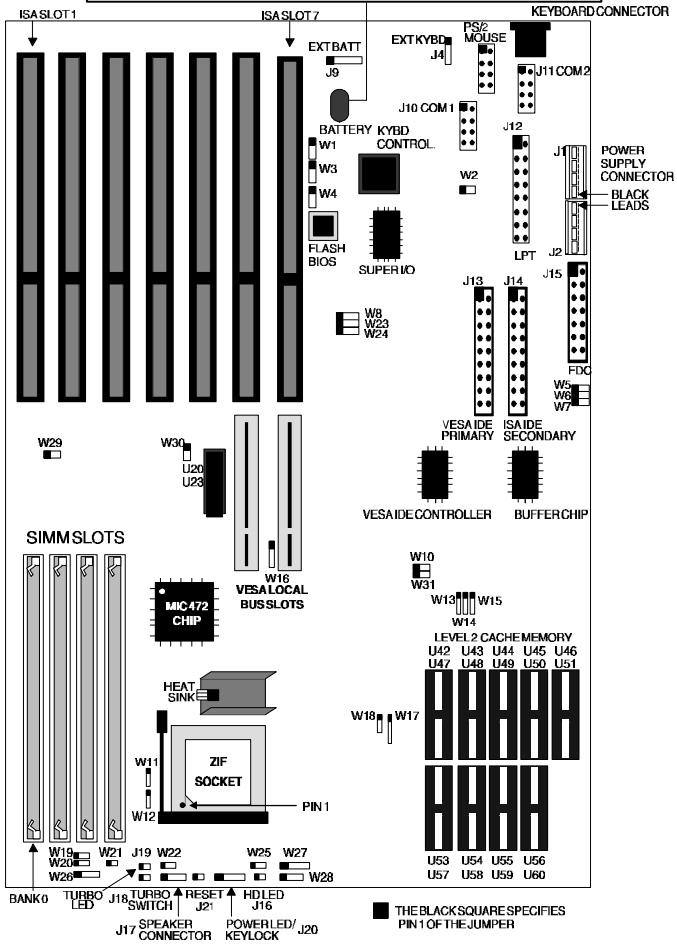
Figure 2-1. JX30WB Rev. 1B System Board

NOTE: Refer to Appendix D for battery disposal
instructions.

Jumper Settings

Table 2-1 lists jumper settings for the BIOS operation.

Table 2-1. BIOS Operation Selection

Jumper	Function	Setting
W1	BIOS Recovery Normal (Default)	1-2 2-3
W31	BIOS Write Protect (Default) BIOS Write Enable	 1-2 Open

NOTE: Jumper W31 must be reconfigured to update
(Flash) the BIOS. If problems occur during the
flash procedure, reset W1 to the BIOS Recovery
Mode. A special diskette is also needed for the
recovery mode. Refer to your computer dealer for
the Flash Utility diskette and the special recovery
diskette, or call Micronics' BBS number at (510)
651-6837 to download the utility.

Table 2-2 lists jumper settings for the type of video monitor
display used with the system board.

Table 2-2. Video Monitor Display Selection

Jumper	Function	Setting
W2	Color (Default) Monochrome	1-2 Open

Jumper Settings (Cont'd)

Table 2-3 lists jumper settings for the printer port configuration.

Table 2-3. Printer Port Configuration Selection

Jumper	Function	Setting
W3	ECP uses DMA1 ECP uses DMA3 ECP Disabled (Default)	1-2 2-3 Open
W4	ECP uses DMA1 ECP uses DMA3 ECP Disabled (Default)	1-2 2-3 Open
W8	IRQ 7 (Default) IRQ 5	1-2 2-3

Table 2-4 lists jumper settings for the CMOS reset selection.

Table 2-4. CMOS Reset Selection

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

WARNING: Power must be **off** during CMOS reset procedure.

Jumper Settings (Cont'd)

Table 2-5 lists jumper settings for the SMI configuration.

Table 2-5. SMI Configuration Selection

Jumper	Function	Setting
W6	Break Switch Function Normal (Default)	1-2 2-3

Table 2-6 lists jumper settings for the Local Bus IDE.

Table 2-6. Local Bus IDE Selection

Jumper	Function	Setting
W7	Local IDE Enable (Default) Local IDE Disable	1-2 2-3

Table 2-7 lists jumper settings for the CPU Clock selection.

Table 2-7. CPU Clock Selection

Jumper	Function	Setting
W10	25 MHz 33 MHz	Open 1-2

Jumper Settings (Cont'd)

Table 2-8 lists jumper settings for level 2 cache configuration selections.

Table 2-8. Cache Size Selection

Cache	W13	W14	W15	W17	W30
128K	1-2	1-2	1-2	1-2 & 3-4	Open
256K	2-3	2-3	1-2	2-3 & 4-5	Open
512K	2-3	1-2	1-2	1-2 & 3-4	1-2
1M	2-3	2-3	2-3	2-3 & 4-5	1-2

Jumper Settings (Cont'd)

Table 2-9 lists jumper W11 through W21 settings for the type of 486 CPU used on the system board.

Table 2-9. CPU Type Selection (Jumpers W11-W21)

CPU	W11	W12	W18	W19	W20	W21
P24T	1-2 3-4	1-2	Open	1-2	2-3	Open
P24CT	1-2 3-4	1-2	Open	1-2	2-3	Open
P24D	1-2 3-4	2-3	Open	1-2	2-3	1-2
DX4 (3X)	1-2 3-4	2-3	Open	2-3	2-3	Open
DX4 (2.5X)	1-2 3-4	2-3	1-2	2-3	2-3	Open
DX4 (2X)	1-2 3-4	2-3	2-3	2-3	2-3	Open
486 DX2-SL	1-2 3-4	2-3	Open	2-3	2-3	Open
486 DX-SL	1-2 3-4	2-3	Open	2-3	2-3	Open
486 SX-SL	2-3	Open	Open	2-3	2-3	Open
486 DX/DX2	1-2 3-4	2-3	Open	2-3	2-3	Open
AM486 DXL	1-2 3-4	2-3	Open	2-3	2-3	Open
486 SX	2-3	Open	Open	2-3	2-3	Open
487 SX	2-3	1-2	Open	2-3	2-3	Open
M7 (5V)	1-2 3-4	2-3	Open	2-3	1-2	Open
M7 (3.3V)	1-2 3-4	2-3	Open	2-3	1-2	Open

Jumper Settings (Cont'd)

Table 2-10 lists jumper W22 through W28 settings for the
type of 486 CPU used on the system board.

Table 2-10. CPU Type Selection (Jumpers W22-W28)

CPU	W22	W23	W24	W25	W26	W27	W28
P24T (5V)	Open	1-2	1-2	1-2	1-2	1-2	3-4
P24CT (3.3V)	Open	1-2	1-2	1-2	1-2	1-2 3-4	3-4
P24D (L1 WB)	2-3	1-2	1-2	1-2	4-5	1-2	1-2 3-4
DX4 (3X)	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
DX4 (2.5X)	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
DX4 (2X)	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
486 DX2-SL	1-2	1-2	2-3	2-3	4-5	1-2 3-4	3-4
486 DX-SL	1-2	1-2	2-3	2-3	4-5	1-2 3-4	3-4
486 SX-SL	1-2	1-2	2-3	2-3	4-5	1-2 3-4	3-4
486 DX/DX2	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
AM486 DXL	Open	2-3	1-2	2-3	4-5	1-2 3-4	3-4
486 SX	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
487 SX	Open	1-2	2-3	2-3	4-5	1-2 3-4	3-4
M7 (5V)	Open	2-3	1-2	2-3	2-3	2-3	2-3
M7 (3.3V)	Open	2-3	1-2	2-3	2-3	2-3 4-5	2-3

Jumper Settings (Cont'd)

Table 2-11 lists reserved jumpers with factory determined
settings. Do not reconfigure these jumpers.

Table 2-11. Reserved Jumpers

Jumper	Function	Setting
W16	Reserved	2-3
W29	Reserved	Open

Jumper Settings (Cont'd.)

Table 2-12 lists jumper settings for peripherals and case connections.

Table 2-12. Peripheral and Case Connections

Jumper	Function	Setting
J1 & J2	Power Supply Connector	
J3	Keyboard Connector	
J4	External Keyboard	
J9	External Battery Connector	
J10	Serial Port A	Can be Disabled at the CMOS configuration screen.
J11	Serial Port B	Can be Disabled at the CMOS configuration screen.
J12	Parallel Port Connector (LPT)	
J13	VESA IDE Connector	Primary
J14	ISA IDE Connector	Secondary
J15	Floppy Disk Connector	
J16	HD LED	
J17	Speaker Connector	1-Speaker; 2-N/C 3-Ground; 4-5V DC
J18	Turbo Switch	
J19	Turbo LED	
J20	Power LED/Keylock	1-Power; 2-N/C; 3-Ground; 4-Keybd Lock; & 5-Ground
J21	Reset	

3 Installing Add-On Peripherals and System Memory

Options are available to improve performance on the JX30WB. These options are Local Bus peripherals, SIMMs, an enhanced processor chip, and level 2 cache memory.

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

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

Installing a VL-Bus Card

The VL-Bus slots accommodate all VESA local bus compatible cards. Complete the following steps to install a VL-Bus card:

1. Power off the computer system and remove the computer cover.

2. Choose an unused VL-Bus slot.

3. Insert the card with the bottom edge level. **Never insert the card at an angle.**

Installing a VL-Bus Card (Cont'd)

4. Carefully push the card straight down, making sure the card is fully inserted.

5. Replace the screw that holds the card into place.

6. Replace the computer cover.
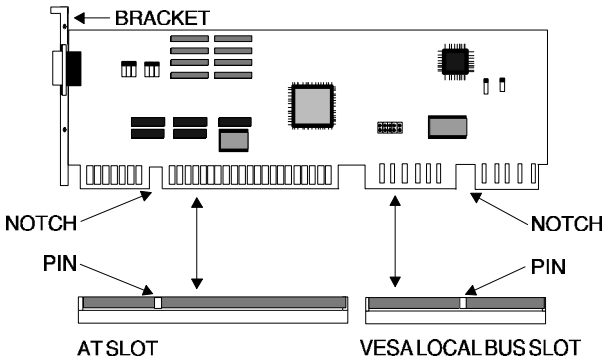
Figure 3-1. Inserting a VESA Local Bus Card

NOTE: Always refer to the computer user guide for additional instructions concerning installation. Make sure the VESA Local Bus card is configured to accommodate the computer.

Cache Memory

The JX30WB supports 8K or 16K of level 1 write-through/write-back cache depending on the specific 486 processor installed. Options are available to support 128K, 256K, 512K, or 1MB of level 2 write-through/write-back cache.

System Memory

The JX30WB has four banks of DRAM, which provide a maximum of 128MB using 1Mx36, 2Mx36, 4Mx36, or 8Mx36 SIMMs. The system board also supports x32-bit non-parity SIMMs without need for additional jumper or BIOS change.

Installing the SIMMs

To install the SIMMs, first locate the four memory banks on the system board. Start with the bank marked "0", then work your way up (0, 1, 2, 3).

Perform the following steps to install the SIMMs:

1. Hold the SIMM so that the NOTCHED edge is pointing toward the ISA slots (refer to Figure 2-1).

2. Insert the SIMM at a 45 degree angle.

3. Gently push the SIMM to an upright position until it "snaps" into place (past the release tabs).

The SIMM is ready to operate when it is firmly seated in the socket.
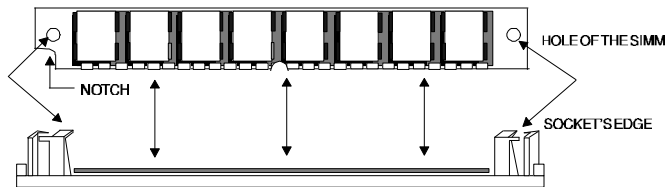
Figure 3-2. Installing the SIMM

Removing the SIMMs

Perform the following steps to remove the SIMMs:

1. With both thumbs (or fingers), press the release tabs
    away from the socket. The SIMM should now be free
    from the release tabs.

2. Lift the module straight up.

Memory Configuration

Table 3-1 lists the possible memory size configurations.
The BIOS automatically detects the amount of memory
installed.

Table 3-1. DRAM Memory Configuration

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

SIMM-Types Supported

The JX30WB supports the following SIMMs:

- 1x36 (4MB) with memory parity bit

- 1x32 (4MB) without memory parity bit

- 2x36 (8MB) with memory parity bit

- 2x32 (8MB) without memory parity bit

- 4x36 (16MB) with memory parity bit

- 4x32 (16MB) without memory parity bit

- 8x36 (32MB) with memory parity bit

- 8x32 (32MB) without memory parity bit

NOTE: For long term reliability, Micronics recommends using SIMMs with tin-plated connectors. Using gold-plated connectors may conflict with the tin alloy of the SIMM socket.

Installing an Enhanced CPU

The JX30WB is designed to support Intel OverDrive ™ processors, including 486 DX2, DX4, and Pentium OverDrive versions. A processor upgrade can significantly improve system performance.

Installing an Enhanced CPU (Cont'd)

Complete the following steps to install an upgrade processor:

1. Locate the ZIF socket on the system board (refer to Figure 2-1).

2. Lift the lever of the socket.

3. Insert the new processor into the socket. Make sure pin 1 on the CPU lines up with pin 1 on the socket. Refer to Figure 2-1 for pin 1 location.

4. Push the lever down to its original position.

5. Configure the board using the tables in Chapter 2.

The new CPU is now ready to operate. The system board detects the installed CPU after it is inserted and configured.

WARNING: If the new processor includes a heat sink or cooling fan, be certain to install the device according to the manufacturer's instructions. Failure to provide adequate cooling of the processor may seriously affect system performance or cause permanent damage.

Installing Cache Memory

The JX30WB supports 8K or 16K bytes of level 1 write-through/write-back cache depending on the 486 processor installed. Level 2 write-through/write-back cache is also available to provide 128K, 256K, 512K, or 1MB options.

Installing Cache Memory (cont'd)

128K of Level 2 Cache

Write-Through

For 128K bytes of level 2 cache, install four 32Kx8-20ns SRAMs into sockets U57 through U60. The sockets have four additional pins, or an additional row of pins, to support 128Kx8 SRAMs for 512K and 1MB configurations. After installing the cache, refer to table 2-8 for the correct jumper settings.

Write-Back

For enhanced level 2 performance, add an additional 32Kx8-20ns "dirty bit" SRAM in the U51 socket.
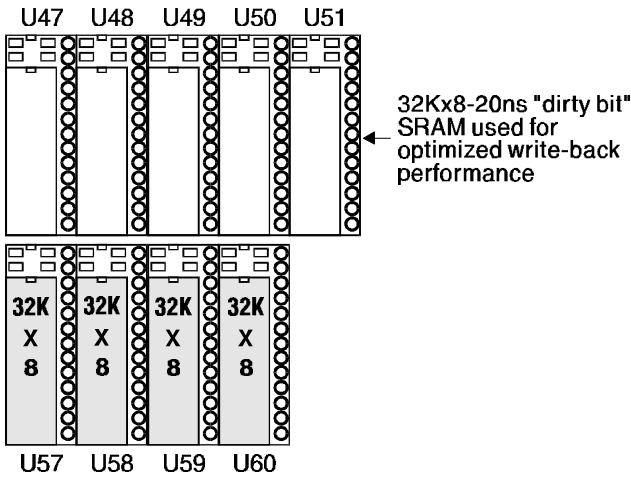
Figure 3-3. Installing 128K of Level 2 Cache

NOTE: Make sure the notches on SRAMs match the
notches on the sockets.

Installing Cache Memory (Cont'd)

256K of Level 2 Cache

Write-Through

For 256K bytes of level 2 cache, install eight 32Kx8-20ns
SRAMs into sockets U47 through U50 and U57 through
U60. The sockets have four additional pins, or an
additional row of pins, to support 128Kx8 SRAMs for
512K and 1MB configurations. After installing the cache,
refer to table 2-8 for the correct jumper settings.

Write-Back

For enhanced level 2 performance, add an additional
32Kx8-20ns "dirty bit" SRAM in the U51 socket.
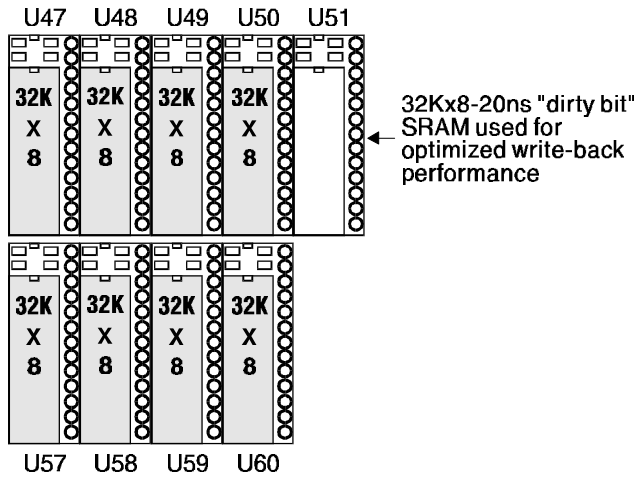
Figure 3-4. Installing 256K of Level 2 Cache

NOTE: Make sure the notches on SRAMs match the
notches on the sockets.

Installing Cache Memory (Cont'd)

512K of Level 2 Cache

Write-Through

For 512K bytes of level 2 cache, install four 128Kx8-20ns
SRAMs into sockets U53 through U56. After installing the
level 2 cache, refer to table 2-8 for the correct jumper
settings.

Write-Back

For enhanced level 2 performance, add an additional
128Kx8-20ns "dirty bit" SRAM in the U46 socket.
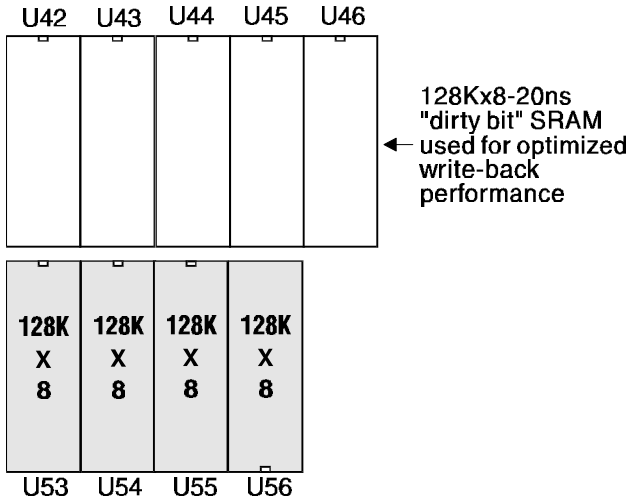
Figure 3-5. Installing 512K of Level 2 Cache

NOTE: Make sure the notches on SRAMs match the
notches on the sockets.

Installing Cache Memory (Cont'd)

1MB of Level 2 Cache

Write-Through

For 1MB of level 2 cache install eight 128Kx8-20ns
SRAMs into sockets U42 through U45 and U53 through
U56. After installing the level 2 cache, refer to table 2-8 for
the correct jumper settings.

Write-Back

For enhanced level 2 performance, add an additional
128Kx8-20ns "dirty bit" SRAM in the U46 socket.

U42   U43   U44   U45   U46

128K X 8	128K X 8	128K X 8	128K X 8	

128Kx8-20ns
"dirty bit" SRAM
← used for optimized
write-back
performance

128K X 8	128K X 8	128K X 8	128K X 8

U53   U54   U55   U56

Figure 3-6. Installing 1MB of Level 2 Cache

NOTE: Make sure the notches on SRAMs match the
notches on the sockets.

4 Installing and Configuring the JX30WB

Installation

Installation of the JX30WB system board depends on the type of case you have. Consult the computer user manual when installing the JX30WB, or contact your dealer's Technical Support department. Before installing the JX30WB, make sure you have a clear work space available and adhere to all anti-static precautions.

Tools Required

Micronics recommends using the following tools to install the JX30WB:

- Small Philips screwdriver

- Tweezers or a pair of needle-nose pliers

- Tray to hold loose screws

Equipment Required

Micronics recommends using the following equipment with the JX30WB:

- Chassis with standard hardware

- Standard power supply capable of providing continuous power within a 5 volt range, plus or minus 5% (e.g., 4.75 to 5.25). A power filter may be added for areas with noisy transmission.

- Hard disk and floppy disk drives (360K, 720K, 1.2M, 1.44M, or 2.88M)

- Eight ohm speaker

- Video card (monochrome, EGA, or VGA)

- Standard video monitor

- AT-compatible keyboard (84 or 101 keyboard)

- Flat ribbon cables between the hard/floppy drive controller

- Heat-sink for the CPU (if needed)

Configuration

After all components have been installed and extras added, your system is ready to be configured. Before power-up, make sure all cables are correctly connected. You may want to keep the system open, so if you encounter any problems, you can easily address them.
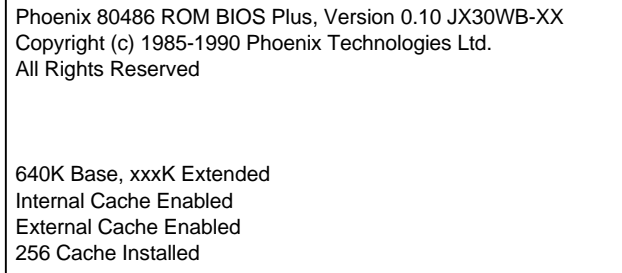
Initial Boot Up

Boot-up the JX30WB. If after power-up the system doesn't properly boot, check all connections and peripherals. You may also get beep codes or other messages. If this occurs, consult Appendices A and/or B for a guide to possible problems.

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

Setup

The Setup procedure is already 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:

```
Phoenix 80486 ROM BIOS Plus, Version 0.10 JX30WB-XX
Copyright (c) 1985-1990 Phoenix Technologies Ltd.
All Rights Reserved



640K Base, xxxK Extended
Internal Cache Enabled
External Cache Enabled
256 Cache Installed
```

Figure 4-1. Power-Up Screen

If the systems 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 <**F2**> 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 JX30WB 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.

```
┌──────────────────────────────────────────────────────────────┐
│              Phoenix SETUP Utility (Version 1.00)              │
│        (c) Phoenix Technologies Ltd. 1985, 1993  All Rights Reserved │
├──────────────────────────────────────────────────────────────┤
│                                                   Page 1 of 2  │
│   System Time:      22:06:45          System Date:  Jan 06, 1990│
│                                                                │
│   Diskette Drive A:   3.5", 1.44 MB                            │
│   Diskette Drive B:   Not Installed     Cyl  Hd  Pre  LZ  Sec  Size│
│   Hard-Disk Drive 1:  Auto Config       978  14   0   0   35   233│
│   Hard-Disk Drive 2:  Not Installed                            │
│   Hard-Disk Drive 3:  Not Installed                            │
│   Hard-Disk Drive 4:  Not Installed                            │
│                                                                │
│   Board Memory:       640 KB                                   │
│   Extended Memory:    15360 KB                                 │
│   Video Card:         VGA/EGA                                  │
│   System Speed:       Normal                                   │
│   Cache:              Both                                      │
│   Ext. Cache Mode:    Write-Back                               │
│   CPU Type:           DX-33 / DX2-66                           │
├──────────────────────────────────────────────────────────────┤
│   ESC      F1        F2          ↓↑          +/-       PgUp/   │
│   Menu     Help      Sys Info    Field       Value     PgDn    │
└──────────────────────────────────────────────────────────────┘
```

Figure 4-2. CMOS Main Screen

Running the Setup Procedure (Cont'd.)

```
┌─────────────────────────────────────────────────────────────────┐
│              Phoenix SETUP Utility (Version 1.00)               │
│      (c) Phoenix Technologies Ltd. 1985, 1993  All Rights Reserved │
├─────────────────────────────────────────────────────────────────┤
│                                                   Page 2 of 2   │
│  System BIOS:              Shadowed & Cached                    │
│  Video BIOS:               Shadowed & Cached                    │
│                                                                 │
│  On Board Floppy:          Enabled       Keyboard:      Installed│
│  Primary IDE:              Enabled       System Password: Disabled│
│  Master Speed:             Normal        Setup Password:  Disabled│
│  Slave Speed:              Normal                               │
│  Secondary IDE:            Enabled                              │
│                                                                 │
│  Serial Port 1:            COM1 / IRQ4 (3F8h)                   │
│  Serial Port 2:            COM2 / IRQ3 (2F8h)                   │
│  Parallel Port:            LPT1 (378h)                          │
│  Parallel Port Mode:       AT                                  │
│  Standby Break Event IRQ:  Disabled                            │
│  Energy Saving Timer:      Disabled                            │
│  Non-Cacheable Area:       Undefined  0000000h                 │
├─────────────────────────────────────────────────────────────────┤
│  ESC      F1       F2          ↓↑           +/-        PgUp/    │
│  Menu     Help     Sys Info    Field        Value      PgDn     │
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-3. CMOS Extended 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 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 A or B

This allows you to configure a diskette drive added or removed from your computer.

Hard Disk 1, 2, 3, or 4

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 right 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.

Setting the CMOS Main Screen (Cont'd.)

Video Card

This sets the type of monitor required for your computer. The display peripheral supports VGA/EGA, Monochrome (MONO), or no monitor at all.

System Speed

The CPU speed determines whether the turbo switch on the front of the computer is enabled or disabled. The selections for the system speed are NORMAL and SLOW. When set to SLOW, the system runs at "cache off" 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 State

The JX30WB has the option of activating or deactivating the internal 8K- or 16K-byte cache of the 486 microprocessor, and the external cache on the system board. Choose INTERNAL to activate or DISABLED to deactivate the internal cache, if no external cache is present. If external cache is present, choose BOTH to activate and DISABLED to deactivate.

Setting the CMOS Main Screen (Cont'd.)

External Cache Mode

This option selects the type of level 2 cache installed in the system. The choices are WRITE-BACK or WRITE-THROUGH.

Setting the CMOS Extended Screen

System BIOS

The system BIOS allows you to "shadow" the BIOS on the system board. Choosing SHADOWED & CACHED copies the system BIOS into RAM for faster execution and makes the memory region cacheable. This allows you to take advantage of the high-speed 32-bit bus and the 70 nanosecond RAM. Choosing SHADOWED copies the system BIOS into RAM, but does not cache any memory region. You can also select DISABLED.

Video BIOS

The video BIOS allows you to "Shadow" the BIOS on the video card. Choosing SHADOWED & CACHED copies the video BIOS into RAM for faster execution and makes the memory region cacheable. Choosing SHADOWED copies the video into RAM, but does not cache any memory region. You can also select DISABLED. Some video cards cannot be shadowed, so this selection must be set to DISABLED.

Setting the CMOS Extended Screen (Cont'd.)

On-Board Floppy

This selection allows you to disable or enable the on-board floppy. Use the <+/-> keys to toggle between the options.

Primary IDE

This selection allows you to disable or enable the on-board primary IDE controller. VESA local bus IDE provides faster performance. The selections are ENABLED and DISABLED.

Master Speed

This selection is for the master (first) drive connected to the on-board primary IDE controller, and customizes the speed of the drive. The selections are NORMAL, MEDIUM, and FAST. Select MEDIUM for Mode 2 and FAST for Mode 3. This is for higher performance drives that support Mode 3 (180ns cycle time). Select NORMAL for drives that do not support Mode 3.

Slave Speed

This selection is for the slave (second) drive connected to the on-board primary IDE controller and customizes the speed of the drive. The selections are NORMAL, MEDIUM, and FAST. Select MEDIUM for Mode 2 and FAST for Mode 3. This is for higher performance drives that support Mode 3 (180ns cycle time). Select NORMAL for drives that do not support Mode 3.

Setting the CMOS Extended Screen (Cont'd.)

Secondary IDE

This selection allows you to enable or disable the on-board secondary IDE controller. The secondary IDE is a standard ISA connector suitable for slower IDE devices, such as tape backups and CD ROM drives. No BIOS options exist for drive speed because both master and slave drives connected to the secondary ISA IDE controller have only one speed.

Serial Port 1 (Com 1)

The serial port 1 can be selected as COM1/IRQ4, COM3/IRQ4, or DISABLED. Be sure this setting does not conflict with any add-on peripherals. This port can also be set to DISABLED if the on-board port is not used.

Serial Port 2 (Com 2)

The serial port 2 can be selected as COM2/IRQ3, COM4/IRQ3, or DISABLED. Be sure this setting does not conflict with any add-on peripherals. This port can also be set to DISABLED if the on-board port is not used.

Parallel Port (LPT)

The parallel port selection can be selected as LPT1 or LPT2. Be sure this setting does not conflict with any add-on peripherals. The parallel port can also be set to DISABLED if the on-board port is not used.

Setting the CMOS Extended Screen (Cont'd.)

Parallel Port Mode

The parallel port mode selects either bi-directional mode or output mode for the parallel port. Output mode is selected when this is set to AT. Bi-directional mode is selected when this is set to PS/2.

Standby Break Event IRQ

Disable this option if no network is present. If a network card is present, set it to the IRQ setting of the network card (e.g., IRQs 2, 3, 4, 5, 9, 10, 11, or 12). Novell netware sends dummy IRQs to all machines on the network at intervals of five seconds. These dummy IRQs cause the system to be active at all times, and does not allow it to go into the sleep mode. Setting the IRQ to match the network card eliminates this problem.

Energy Saving Timer

This section allows you to conserve energy while maintaining optimum performance. If no key strokes are performed on the keyboard, the following occurs:

- CPU reduces its speed to 8MHz

- IDE drive spins down

- DPMS graphics are disabled

These selections **will not** recognize any mouse movement, only activity involving the keyboard.

Setting the CMOS Extended Screen (Cont'd.)

Energy Saving Timer (Cont'd)

This selection can be set to one minute or in increments of fifteen minutes (up to 120 minutes). After the allotted time, the above functions time out. To return the functions to full speed, press any key. The Scroll Lock light flashes to indicate reduced speed.

Non-Cacheable Area

This selection allows a block of 32-bit memory to be set as NON-CACHEABLE. The size and address can be selected. To set the memory as non-cacheable, use the < +/-> keys to change the first three zeroes to the appropriate address (only these zeroes can be changed). The selections include a range from 0000000h to 3FF0000h (64MB). The default settings for both selections are UNDEFINED.

Keyboard

The keyboard function is set to INSTALLED for keyboard error reporting. To turn off keyboard error reporting, use the left/right arrow keys to toggle the keyboard NOT INSTALLED.

Setting the CMOS Extended Screen (Cont'd.)

System Password

The password you select must be typed at boot up when this selection is ENABLED. The system will not boot up without the correct password. After entering the correct password, the system asks: "Do you want to change your password (Y/N)?" Press < **Y**> to change the password and <**N**> to keep it.

If no password has been entered or the CMOS memory has been cleared, the following message appears at boot up: "Password values are invalid. Do you want a password (Y/N)?"

Setup Password

If ENABLED, a password is required to enter Setup. If the password is lost or forgotten, the CMOS must be cleared.

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.

```
┌─────────────────────────────────────────────────────────────┐
│           Phoenix SETUP Utility (Version 1.00)               │
│   (c) Phoenix Technologies Ltd. 1985, 1993  All Rights Reserved │
├─────────────────────────────────────────────────────────────┤
│                                              Page 1 of 2      │
│ System Time:        22:06:45         System Date:  Jan 06, 1990│
│                                                              │
│ Diskette Drive A:   3.5", 1.44 MB                            │
│ Diskette Drive B:   Not Installed    Cyl  Hd  Pre  LZ  Sec  Size│
│ Hard-Disk Drive 1:  Auto Config      978  14   0   0   35   233│
│ Hard-Disk Drive 2:  Not Installed                            │
│ Hard-Disk Drive 3:  Not Installed    ┌─────┐                 │
│ Hard-Disk Drive 4:  Not Installed    │ ESC │  Continue With Setup│
│                                      └─────┘                 │
│ Board Memory:       640 KB           ┌─────┐  Save Values, Exit│
│ Extended Memory:    15360 KB         │ F4  │  SETUP and Reboot │
│ Video Card:         VGA/EGA          └─────┘                 │
│ System Speed:       Normal           ┌─────┐  Load Default Values│
│ Cache:              Both             │ F5  │  For All Pages    │
│ Ext. Cache Mode:    Write-Back       └─────┘                 │
│ CPU Type:           DX-33 / DX2-66   ┌─────┐  Abort SETUP Without│
│                                      │ F6  │  Saving Values    │
│                                      └─────┘                 │
├─────────────────────────────────────────────────────────────┤
│ ESC      F1        F2           ↓↑         +/-        PgUp/   │
│ Menu     Help      Sys Info     Field      Value      PgDn    │
└─────────────────────────────────────────────────────────────┘
```

Figure 4-4. Exit Pop-up Screen

A POST and Boot Error Messages

Table A-1 lists Power On Self Test (POST) messages, possible causes, and solutions.

Table A-1. POST Messages

Number/Message	Possible Cause	Solution
NO DISKETTE CONTROLLER	If Floppy controller is not found.	Change the configuration.
DISKETTE DRIVE RESET FAILED	The diskette adapter has failed.	Check the diskette adapter.
DISKETTE DRIVE B FAILURE	The B drive failed or is missing.	Check the B drive.
DISKETTE DRIVE A FAILURE	The A drive failed or is missing.	Check the A drive.
DISKETTE READ FAILURE; STRIKE F1 TO RETRY BOOT	The diskette 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	The POST reports hard disk configuration information is incorrect.	Rerun SETUP and enter the correct hard disk information.

Table A-1. POST Messages (Cont'd)

Number/Message	Possible Cause	Solution
ERRORS FOUND; INCORRECT CONFIGURATION INFORMATION; MEMORY SIZE MISCOMPARE	The POST reports the size of base, or the expansion memory, does not agree with configuration information.	Enter correct memory size and rerun SETUP procedure.
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.

Table A-1. POST Messages (Cont'd)

Number/Message	Possible Cause	Solution
KEYBOARD CLOCK LINE FAILURE or KEYBOARD DATA LINE FAILURE	The Keyboard logic failed.	Make sure the kybrd cable is connected correctly.
KEYBOARD STUCK KEY FAILURE	The Key(s) is jammed.	Make sure the keyboard is not dirty.
REAL TIME CLOCK FAILURE	The Real-time clock logic failed.	Check battery or field service is required.
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.
DISKETTE READ FAILURE, or NOT A BOOT DISKETTE, or NO BOOT DEVICE AVAILABLE	If Boot from floppy diskette failed.	Replace the diskette with a bootable diskette and retry.
DECREASING AVAILABLE MEMORY, or MEMORY FAILURE AT AAAAAAAA READ XXXX EXPECTING YYYY (where AAAAAAAA = 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 that indicate a problem during POST. If text appears on the video screen, the JX30WB 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. With no video card installed, or if the video card 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.

Table B-1 lists all beep codes and probable causes.

Table B-1. Beep Codes

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.

Table B-1. Beep Codes (Cont'd)

Beep Code	Contents Port 80h	Description
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.
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.

Table B-1. Beep Codes (Cont'd)

Beep Code	Contents Port 80h	Description
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 Types

Table C-1 lists the hard disk types compatible with the JX30WB.

Table C-1. Hard Disk Types

Type	Cyl	Hd	Pre	Lz	Sec	Size
1	306	4	128	305	17	10
2	980	5	-1	-1	17	40
3	980	10	-1	-1	17	81
4	872	8	-1	-1	35	119
5	1010	6	-1	-1	55	162
6	987	12	-1	-1	35	202
7	989	12	-1	-1	35	202
8	1010	9	-1	-1	55	244
9	1010	12	-1	-1	55	325
10	989	15	-1	-1	56	405
11	903	4	0	0	46	81
12	903	8	0	0	46	162
13	659	16	0	0	46	236
14	702	16	0	0	63	345
15	Not Valid (Unusable Parameters)					
16	987	16	0	0	63	485
17	1023	16	0	0	63	503
18	895	5	0	0	55	120

Table C-1. Hard Disk Types (Cont'd)

Type	Cyl	Hd	Pre	Lz	Sec	Size
19	904	8	0	0	46	162
20	683	16	0	0	58	309
21	895	10	0	0	55	240
22	904	16	0	0	46	324
23	1023	16	0	0	63	503
24	1024	12	0	0	17	102
25	1001	15	0	0	17	124
26	978	14	0	0	35	233
27	1018	14	0	0	62	431
28	1024	12	0	0	34	204
29	768	14	0	0	62	325
30	1024	16	0	0	63	504
31	1001	15	0	0	34	249
32	936	16	0	0	17	124
33	883	16	0	0	38	262
34	967	16	0	0	63	475
35	790	16	0	0	57	351
36	615	4	-1	615	17	20
37	1024	4	-1	1023	17	34
38	1024	5	-1	1023	17	42
39	989	5	0	989	17	41

Table C-1. Hard Disk Types (Cont'd)

Type	Cyl	Hd	Pre	Lz	Sec	Size
40	1024	8	1024	1024	17	68
41	820	6	-1	820	17	40
42	823	10	256	824	17	68
43	615	8	128	664	17	40
44	1023	15	-1	1023	17	127
45	1024	8	-1	1024	17	68
46	925	9	-1	925	17	69
47	699	7	256	700	17	40
48	User Config.					
49	Auto Config.					

D Specifications

Processor Options	486 SX 25 & 33MHz
	486 DX 25 & 33MHz
	486 DX2 50 & 66MHz
	486 DX4 75 & 100MHz
	Pentium OverDrive
Chip Set	Micronics X30WB single chip
	Opti 611A Mode 3 VL IDE controller
	SMC 665 Super I/O controller
CPU Clock Select	Frequency synthesizer chip for easy upgrade CPU clock selection
Form Factor	
	Baby AT footprint (8.5" x 13")
	4 Layer PCB
Expansion	
	Two 32-bit VL-Bus/16-bit ISA
	Five 16-bit ISA slots
RAM Capacity	
	Four 72-pin (x36 type) SIMM sockets, which accommodate up to 128MB of RAM (using 8Mx36 SIMMs)

Keyboard	Standard AT style DIN connector
BIOS	
	Phoenix BIOS on 1MB Flash EPROM
	Mode 3 IDE driver support
	Auto detection of memory size
	Auto configuration of IDE hard disk drive types
Cache	
	8K/16K of on-chip level 1 write-back cache memory
Read Policy	
	Look aside
Cache Upgrade	
	Optional 128K, 256K, 512K, or 1MB of secondary cache memory (write-through or write-back)
I/O Ports	
	Two serial ports
Connectors	One parallel port
	One floppy interface
Local Bus IDE	One keyboard interface
	Two resident 40-pin IDE connectors (primary and secondary IDE)
	Mode 3 support
	Auto detection of add-in IDE cards
	Multiple sector transfer support

Battery Disposal

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ATTENTION: Il y a danger d'explosion s'il y a replacement incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un type recommande par le constructeur. Mettre au rebut les batteries usagees conforement aux instructions du fabricant.

Environmental Specifications

The environment in which the JX30WB is located is critical. Micronics recommends the following environmental specifications:

Temperature Range

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

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

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

Relative Humidity (Non-Condensing)

Operating: 20% to 80%.

Non-Operating: 5% to 90%

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 after 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.

Limited Warranty (Cont'd.)

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, service is still available for Micronics products. For more information, contact Micronics' RMA department at (510) 651-2300. The RMA department is open between 8:30 A.M. and 5 P.M. Pacific Standard time.

User's Comment Form: JX30WB

What do you like about this manual?

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What would you change in this manual?

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