

Hunter ATX

**Motherboard
Installation Guide**

Table of Contents

<i>Introduction</i>	<i>IV</i>
<i>Chapter 1- Pre-Configuration</i>	<i>1</i>
<i>Step 1- Setting the Jumpers</i>	<i>2</i>
Jumper Locations	3
CMOS Reset	4
Disk-on-Chip Selection	4
Flash BIOS Programming Voltage	4
Clock Speed Selection	5
<i>Step 2 - DRAM, CPU and Cables</i>	<i>7</i>
Hunter ATX Memory Configuration	7
Installing DIMMs Memory Modules	7
CPU Installation	8
Installing Cables	9
Power and Control Panel Cables	9
Installing Peripheral Cables	9
<i>Chapter 2 -HIFLEX BIOS Setup.....</i>	<i>14</i>
<i>Standard Setup</i>	<i>16</i>
<i>Advanced Setup</i>	<i>16</i>
<i>Advanced Chipset Setup</i>	<i>21</i>
<i>PCI/Plug and Play Setup</i>	<i>25</i>
<i>Changing Supervisor Password</i>	<i>30</i>
<i>Auto Configuration with Optimal Settings</i>	<i>31</i>
<i>Auto Configuration with Fail-Safe Settings</i>	<i>31</i>
<i>Save Settings and Exit</i>	<i>31</i>
<i>Exit without Saving</i>	<i>31</i>
<i>Chapter 3 -Upgrading</i>	<i>32</i>
<i>Upgrading the System Memory</i>	<i>32</i>

***Upgrading the Microprocessor* 32**

Appendix A-Technical Specifications 34

***Chipsets* 34**

***Embedded I/O* 35**

***Miscellaneous* 36**

Appendix B - Flash BIOS programming 50

Appendix C - Disk-On-Chip 52

Introduction

Thank you for your purchase of the Hunter ATX™ industrial system motherboard. The Hunter ATX™ design was based on the Intel™ 430TX chipset providing the ideal platform to industrial applications. The Hunter ATX™ design is based on the Intel Pentium™ processor.

With proper installation and maintenance, your Hunter ATX™ will provide years of high performance and trouble free operation.

This manual provides a detailed explanation into the installation and use of the Hunter ATX™ industrial system board. This manual is written for the novice PC user/installer. However, as with any major computer component installation, previous experience is helpful and should you not have prior experience, it would be prudent to have someone assist you in the installation. This manual is broken down into 3 chapters and 6 appendix.

Chapter 1 - System Board Pre-Configuration

This chapter provides all the necessary information for installing the Hunter ATX™. Topics discussed include: installing the CPU (if necessary), DRAM installation, jumper settings for CPU and standard I/O. Connecting all the cables from the system board to the chassis and peripherals.

Chapter 2 - BIOS Configuration

This chapter shows the final step in getting your system firmware setup.

Chapter 3 - Upgrading

The Hunter ATX provides a number of expansion options including memory and cache. All aspects of the upgrade possibilities are covered.

Appendix A - Technical Specifications

A complete listing of all the major technical specifications of the Hunter ATX is provided.

Appendix B - Flash BIOS Programming

Provides all the information necessary to program your optional AMIBIOS Flash BIOS.

Appendix C - Disk-on-Chip

On-board socket for a solid state flash disk device.

Static Electricity Warning!

The Hunter ATX has been designed as rugged as possible but can still be damaged if jarred sharply or struck. Handle the motherboard with care. The Hunter ATX also contains delicate electronic circuits that can be damaged or weakened by static electricity. Before removing the Hunter ATX from its protective packaging, it is strongly recommended that you use a grounding wrist strap. The grounding strap will safely discharge any static electricity build up in your body and will avoid damaging the motherboard. Do not walk across a carpet or linoleum floor with the bare board in hand.

Warranty

This product is warranted against material and manufacturing defects for two years from the date of delivery. Buyer agrees that if this product proves defective American Predator Corporation is only obligated to repair, replace or refund the purchase price of this product at manufacturer's discretion. The warranty is void if the product has been subjected to alteration, neglect, misuse or abuse; if any repairs have been attempted by anyone other than the manufacturer; or if failure is caused by accident, acts of God, or other causes beyond the manufacturer's control.

Hunter ATX - An Overview

The Hunter ATX represents the ultimate in industrial system board technology. No other system board available today provides such impressive list of features:

CPU Support

- Supports full series of Intel Pentium™ processors up to 233MHz.
- On-board voltage regulator for P55C (MMX).
- Supports AMD™ K6, K6/2E up to 400MHz.

Supported Bus Clocks

50, 60 and 66 MHz.

Memory

64 or 72-bit JEDEC unbuffered EDO or SDRAM DIMMS-
Memory capacity: 8 to 256MB.

High Speed DRAM Cache

Integrated 256KB pipeline burst SRAM direct-mapped L2 cache
mapping configuration factory upgradable to 512KB.

On-Board I/O

- 2 Floppies up to 2.88 MB.
- Two high speed RS-232 serial ports 16Bytes FIFO (16550).
- One Centronics™ compatible bidirectional parallel port.
EPP/ECP mode compatible.
- PS/2 mouse port.
- ATX Power connector.
- Two Universal Serial Bus connectors.
- Disk-on-Chip socket.

ROM BIOS

AMI BIOS™ BIOS HIFLEX with optional FLASH ROM

Conventions Used in this Manual



Notes - Such as a brief discussion of memory types.



Important Information - such as static warnings, or very important instructions.



When instructed to enter keyboard keystrokes, the text will be noted by this graphic.

Chapter 1 Pre-Configuration

This chapter provides all the necessary information for installing the Hunter ATX into a standard PC chassis. Topics discussed include: installing the CPU (if necessary), DRAM installation, jumper settings for CPU and standard I/O.

Handling Precautions

The Hunter ATX has been designed to be as rugged as possible but it can be damaged if dropped, jarred sharply or struck. Damage may also occur by using excessive force in performing certain installation procedures such as forcing the system board into the chassis or placing too much torque on a mounting screw.

Take special care when installing or removing the system memory DIMMs. Never force a DIMM into a socket. Screwdrivers slipping off a screw and scraping the board can break a trace or component leads, rendering the board unusable. Always handle the Hunter ATX with care.



Special Warranty Note:

Products returned for warranty repair will be inspected for damage caused by improper installation and misuse as described in the previous section and the static warning below. Should the board show signs of abuse, the warranty will become void and the customer will be billed for all repairs and shipping and handling costs.

Static Warning

The Hunter ATX contains delicate electronic semiconductors that are highly sensitive to static electricity. These components, if subjected to a static electricity discharge, can be weakened thereby reducing the serviceable life of the system board. **BEFORE THE BOARD IS REMOVED FROM ITS PROTECTIVE ANTISTATIC PACKAGING, TAKE PROPER PRECAUTIONS!** Work on a conductive surface that is connected to the ground. Before touching any electronic device, ground yourself by touching an unpainted metal object or, and highly recommended, use a grounding strap.

Step 1 Setting the Jumpers

Your Hunter ATX is equipped with a large number of peripherals and has the ability to run at a variety of speeds without the need to change any crystals or oscillators. As such, there is a large number of configuration jumpers on the board. Taken step by step, setting these jumpers is easy. We suggest you review each section and follow the instructions.

Jumper Types

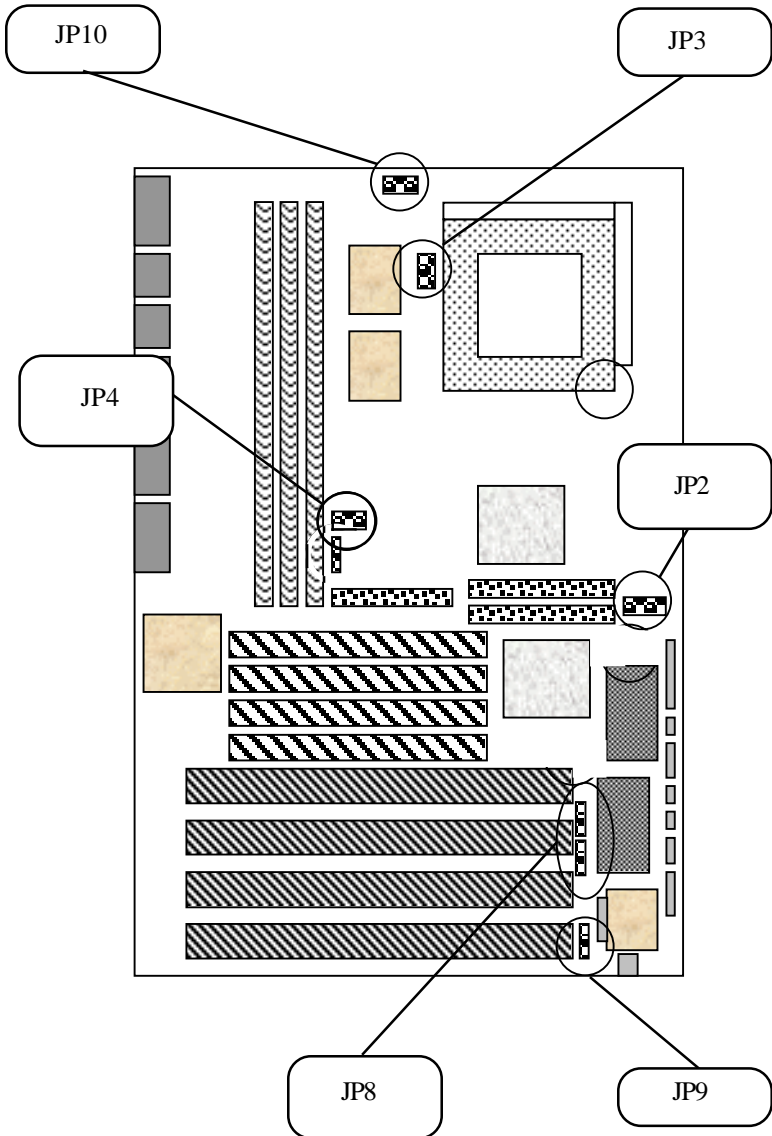
Jumpers are small copper pins attached to the system board. Covering two pins with a shunt closes the connection between them. The Hunter ATX examines these jumpers to determine specific configuration information. There are three different categories of jumpers on the Hunter ATX.

- A. Two pin jumpers are used for binary selections such as enable, disable. Instructions for this type of jumper are open, for no shunt over the pins or closed, when the shunt covers the pins.
- B. Three or four pin jumpers are used for multiple selection. Instructions for these jumpers will indicate which two pins to cover. For example: for JPx 2-3 the shunt will be covering pins 2 and 3 leaving pins 1 and 4 exposed.
- C. Grouped jumpers are used when a certain function has multiple selections. There are two grouped jumpers on the board and careful attention should be given when setting these jumpers. Instructions for grouped jumpers are similar to those above.

Jumper Locations

Use the diagram below and the tables on the following pages to locate and set the on-board configuration jumpers.

Figure 1-2 Jumper Locations



CMOS Reset

This option is provided as a convenience for those who need to reset the CMOS registers. It should always be set to “Normal” for standard operation. If the CMOS needs to be reset, turn off the system, move JP9 to 2-3, turn the system on.

Table 1-1 CMOS Reset

RTC	Normal	Reset
JP9	1-2*	2-3

Disk-on-Chip Selection

The jumper JP2 allows selection for the address on Disk-on-Chip device.

Table 1-2 Disk-on-Chip Selection

Address	JP2
D000H	1-2
D400H	3-4
D800H	5-6
DC00H	7-8

Flash BIOS Programming Voltage

To program the optional flash BIOS use JP8 to select the voltage according to the flash BIOS chip manufacturer. For regular standard BIOS use default settings.

Table 1-3 Flash BIOS Programming Selection

Voltage Programming	12V	5V
JP8	1-2	2-3*

Clock Speed Selection

The jumpers JP4, JP3 and JP10 allow you to choose the appropriate CPU speed, without changing crystals and oscillators.

Table 1-4 Clock Frequency and CPU speed Selection

	JP3			JP4
Intel	BF0 1-2	BF1 3-4	BF2 5-6	BUS Clock
100MHz	Off	Off	Off	5-6
133MHz	On	Off	Off	5-6
166MHz	On	On	Off	5-6
200MHz*	Off	On	Off	5-6
233MHz*	Off	Off	Off	5-6
AMDK6				
K6/2E 233MHz	Off	Off	Off	5-6
K6/2E 266MHz	On	Off	On	5-6
K6/2E 300MHz	On	On	On	5-6
K6/2E 333MHz	Off	On	On	5-6
K6/2E 366MHz	Off	Off	On	5-6
K6/2E 400MHz	On	Off	Off	5-6

**** MMX CPUs***

Table 1-5 CPU Voltage Selection

	JP10 - VCORE				
Intel	1-2	3-4	5-6	7-8	VOLT.
100MHz	On	On	On	On	3.5V
133MHz	On	On	On	On	3.5V
166MHz	On	On	On	On	3.5V
200MHz	On	On	On	On	3.5V
166MHz*	Off	Off	Off	On	2.8V
200MHz*	Off	Off	Off	On	2.8V
233MHz*	Off	Off	Off	On	2.8V

* **MMX CPUs**



For AMD K6 CPU please check the CPU marking for correct voltage setting.

JP10	1-2	3-4	5-6	7-8
2.8V	Off	Off	Off	On
2.9V	On	Off	Off	On
3.0V	Off	On	Off	On
3.1V	On	On	Off	On
3.2V	Off	Off	On	On
3.3V	Off	On	On	On
3.5V	On	On	On	On
2.2V	Off	On	Off	Off

Step 2 DRAM, CPU and Cables Installation

Depending upon how your Hunter ATX is configured you may need to install the following:

- DRAM (DIMMs)
- CPU

Hunter ATX Memory Configuration

The Hunter ATX offers 3 DIMM memory sockets. They can be configured with 3.3V unbuffered EDO or SDRAM modules. It is very important that the quality of the DIMMs is good. Undesirable operation of the system may result if poor quality DIMMs are used. Always purchase your memory from a reliable source.



The Hunter ATX uses standard DIMMs. To determine the actual capacity of a 1 by 64 DIMM, simply multiply the or 1MB by 8. Thus the actual DIMMS capacity is 8MB.

Installing DIMMs Memory Modules

The Hunter ATX offers 3 DIMM memory module sockets. The order in which they should be populated is not important, but the socket U32 (facing the edge of the board) should be populated with DIMM modules not over 32MB. Never mix EDO with SDRAM modules.



Modules over 32MB can be used in sockets U13 and U12.

CPU Installation

The Hunter ATX currently supports the following CPUs:

- Full series of Intel Pentium™ processors up to 233MHz MMX.
- On-board switching voltage regulator for P55C (MMX).
- Supports AMD™ K6, K6/2E.



1. *Improper installation of the CPU may cause permanent damage to both the system board and the CPU. -- Void of warranty*
2. *Always handle the CPU by the edges, never touch the pins.*
3. *Always use a heatsink and CPU fan.*

Using Figure 1-3, locate the diagonal notch on the CPU chip. This notch represents pin one. The Pentium processor also has a small dot as well indicating pin 1. **DO NOT USE THE CHIP LOGO OR LETTERING TO LOCATE PIN ONE.**

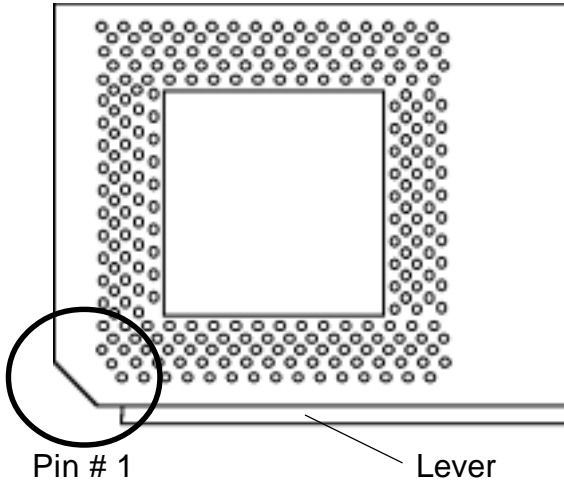
Locate the CPU socket on your Hunter ATX system board. Pin 1 on the socket is located in the lower left hand corner of the socket.

Figure 1-3 CPU Alignment



To install the processor, lift the lever of the ZIF socket and gently insert the CPU. Make sure the CPU is inserted all the way. Lower the lever. See figure 1-4.

Figure 1-4 CPU Socket alignment



This completes the installation of the CPU. Now is it a good time to double check both the CPU and DIMM installation to make sure that these devices have been properly installed.

Installing Cables

Power and Control Panel Cables

The Hunter ATX features an ATX type power connector. Connect the power supply cable to the system board.

Installing Peripheral Cables

Now it is a good time to install the internal peripherals such as floppy and hard disk drives. Do not connect the power cable to these peripherals as it is easier to attach the bulky ribbon cables before the smaller power connectors. If you are installing more than one IDE drive, double check your master/slave jumpers on the drives. Review the information supplied with your drive for more information on this subject.

Connect the floppy cable (not included) to the system board. Then connect remaining ends of the ribbon cable to the appropriate peripherals.

Finally, connect the IDE cable (not included) to the system. Then connect remaining ends of the ribbon cable to the appropriate peripherals. This concludes the hardware installation of your Hunter ATX system. Now it is a good time to re-check all of the cable connections to make sure they are correct. It is also a good idea to label each of the external peripheral connectors - COM1, COM2, Mouse and Parallel.

The connector hole layouts on the Hunter ATX are designed according to Intel specifications. See the drawing below.

Figure 1-5 ATX Intel Specs Gasket

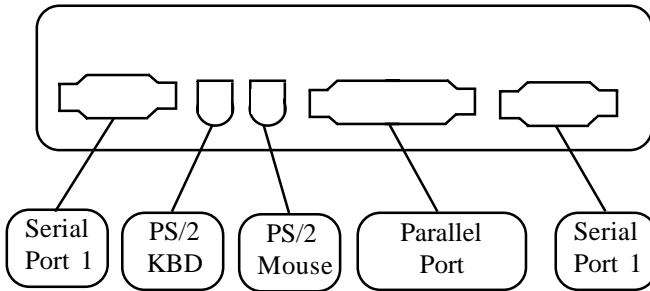


Figure 1-5 On-Board Connectors Location

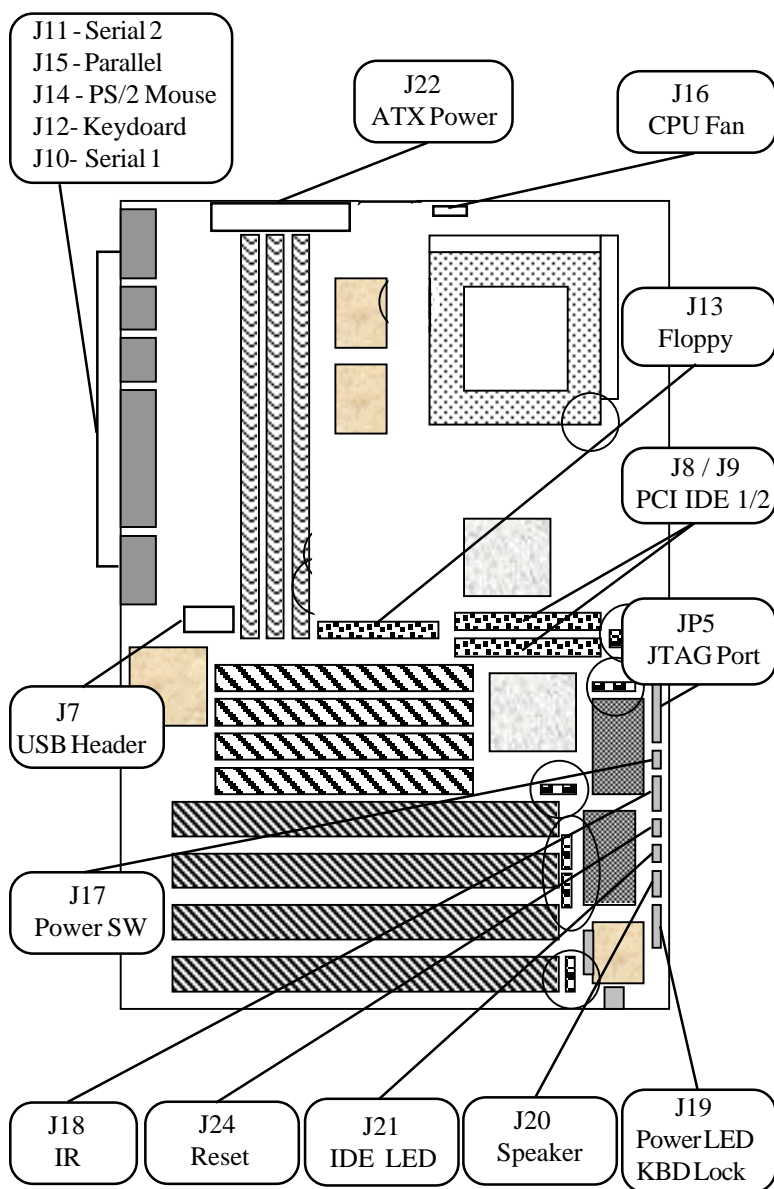


Table 1-6 Control Panel Connectors

Connector	Description
J5	JTAG Port (reserved)
J7	USB
J8	Primary PCI IDE 1
J9	Secondary PCI IDE 2
J10	Serial 1
J11	Serial 2
J12	Keyboard
J13	Floppy
J14	PS/2 mouse
J15	Parallel
J17	Power SW
J16	CPU Fan 1&3-GND/2-12V
J18	Infra Red
J19	Power LED / KBD. Lock 1-LED/2-key/3-GND/4&5-keylock
J20	Speaker 1-SPK/2-key/3-GND/4-VCC
J21	IDE LED 1-positive/2-signal
J22	ATX Power
J24	Reset

User's Notes:

Chapter 2

HIFLEX BIOS Setup

Your Hunter ATX features AMI BIOS. The system configuration parameters are set via the HIFLEX AMIBIOS setup. Since HIFLEX BIOS Setup resides in the ROM BIOS, it is available each time the computer is turned on.

Starting BIOS Setup

As POST executes, the following appears:

Hit if you want to run SETUP

Using the Keyboard with BIOS Setup

The BIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

Keystroke Function

<Tab>	Move to the next window or field.
, , ,	Move to the next field to the right, left, above, or below.
<Enter>	Select in the current field.
+	Increments a value.
-	Decrements a value.
<Esc>	Closes the current operation and return to previous level.
<PgUp>	Returns to the previous page.
<PgDn>	Advances to the next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt> <H>	Access a help window.
<Alt> <Spacebar>	Exit WINBIOS Setup.
Alphabetic keys	A to Z are used in the Virtual Keyboard, and are not case-sensitive.
Numeric keys	0 to 9 are used in the Virtual Keyboard and Numeric Keypad.

BIOS Setup Main Menu

The BIOS Setup main menu is organized into 11 windows. Each window is discussed in this chapter.

Each window contains several options. Clicking on each option activates a specific function. The BIOS Setup options and functions are described in this chapter. Some options may not be available in your BIOS. The windows are:

- Standard CMOS Setup
- Advanced CMOS Setup
- Advanced Chipset Setting
- Power Management Setup
- PCI/Plug and Play Setup
- Peripheral Setup
- Auto-Detect Hard Drive
- Change User Password
- Change Supervisor Password
- Auto Configuration With Optimal Settings
- Auto Configuration With Fail Safe Settings
- Save Settings and Exit
- Exit Without Saving

Standard Setup

Standard Setup options are displayed by choosing Standard option from the HIFLEXBIOS Setup menu. All Standard Setup options are described below.

Date/Time

Select the Date/Time option to change the date or time. The current date and time are displayed. Enter new values through the displayed window.

Floppy Drive A, B

Choose the Floppy Drive A or B icon to specify the floppy drive type. The settings are *360 KB 5¼"*, *1.2 MB 5¼"*, *720 KB 3½"*, *1.44 MB 3½"*, or *2.88 MB 3½"*.

Pri Master Pri Slave

Sec Master Sec Slave

Select one of these options to configure the hard disk drive. Select Auto from the drive parameters screen to let AMIBIOS automatically configure the drive. A screen with a list of drive parameters appears. Choose the desired option to configure the drive. Auto will automatically detect your hard drive everytime the computer boots. If required, a specific Hard Drive type may be selected.

Advanced Setup

Advanced Setup options are displayed by choosing the Advanced option from the AMIBIOS Setup main menu. All Advanced Setup options are described in this section.

Quick Boot

Set this option to *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old **Above 1 MB Memory Test** Advanced Setup option. The settings are: enabled and disabled.

Pri Master ARMD Emulated as

Pri Slave ARMD Emulated as

Sec Master ARMD Emulated as

Sec Slave ARMD Emulated as

If set to Auto, the default emulation depends on ARMD drive. The default emulation type is floppy for LS120, hard drive for MO, hard disk for zip drives.

1st Boot Device

This option sets the type of device for the first boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are Disabled, 1st IDE, 2nd IDE, 3rd IDE, 4th IDE, Floppy, ARMD-FDD, ARMD-HDD, ATAPI-CDROM, SCSI, Network, I2O.

2nd, 3rd, 4th Boot Device

This option selects additional devices to boot from after AMIBIOS POST completes. The settings are Disabled, IDE1, 1st IDE, 2nd IDE, 3rd IDE-HDD, 4th IDE-HDD, Floppy, ARMD-FDD, ARMD-HDD, ATAPI-CDROM.

Try Other Boot Devices

Set this option to Yes to instruct AMIBIOS to attempt to boot from any other drive in the system if it cannot find a boot drive among the drives specified in the 1st, 2nd, 3rd, and 4th Boot Devices options .

Floppy Access Control

This option selects usage right from the floppy drive. The settings are Read/Write or Read-Only.

Hard Disk Access Control

This option selects usage right from the hard disk . The settings are Read/Write or Read-Only.

S.M.A.R.T. for Hard Disks

Set this option to Enabled to permit AMIBIOS to use the SMART (System Management and Reporting Technologies). The settings are Enabled or Disabled.

BootUp Num Lock

Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard.

Floppy Drive Swap

Set this option to *Enabled* to permit drives A: and B: to be swapped. The settings are *Enabled* or *Disabled*.

Floppy Drive Seek

Set this option to *Enabled* to specify that floppy drive A: will perform a Seek operation at system boot. The settings are *Disabled* or *Enabled*.

Typematic Rate

The settings are Fast or Slow.

PS/2 Mouse Support

Set this option to Enabled to enable AMIBIOS support for a PS/2-type mouse.

System Keyboard

This option does not specify if a keyboard is attached to the computer. Rather, it specifies if error messages are displayed if a keyboard is not attached. This option permits you to configure workstations with no keyboards.

Primary Display

This option configures the type of monitor attached to the computer. The settings are Mono, CGA40x25, CGA80x25, VGA/EGA, or Absent.

Password Check

This option enables password checking every time the system boots or when you run AMIBIOS Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears if AMIBIOS is executed. See the Advanced Setup chapter for instructions on changing a password. The Optimal and Fail-Safe defaults are Setup.

BOOT to OS/2

Set this option to Enabled if running OS/2 operating system and using more than 64 MB of system memory on the motherboard. The settings are Enabled or Disabled.

Wait for <F1> If Error

AMIBIOS POST runs system diagnostic tests that can generate a message followed by:

Press <F1> to continue

If this option is set to Enabled, AMIBIOS waits for the end user to press <F1> before continuing. If this option is set to Disabled, AMIBIOS continues the boot process without waiting for <F1> to be pressed.

Hit Del Message Display

Set this option to *Disabled* to prevent the message

Hit if you want to run Setup

from appearing on the first AMIBIOS screen when the computer boots. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are *Enabled*.

Internal Cache

This option enables or disables the L1 internal Cache.

External Cache

This option enables or disables the L2 secondary (external) cache memory.

System BIOS Cacheable

When set to Enabled, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment is always copied from the BIOS ROM to system RAM for faster execution. The settings are Enabled or Disabled.

C000,16K Shadow

C400,16K Shadow

These options specify how the 32 KB of video ROM at C0000h is treated. The settings are: enabled, disabled or cached.

C800,16K Shadow

CC00,16K Shadow

D000,16K Shadow

D400,16K Shadow

D800, 16K Shadow

DC00,16K Shadow

These options enable shadowing of the contents of the ROM area named in the option. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards. The settings are: Disabled, cached or enabled.

Advanced Chipset Setup

USB Function

Set this option to Enabled to enable USB (Universal Serial Bus) support. The settings are Enabled or Disabled.

USB KB/Mouse Legacy Support

Allows to use an USB keyboard or mouse before loading any software. The settings are Enabled or Disabled.

Port 64/60 Emulation

SDRAM RAS# to CAS# Override

SDRAM CAS# Latency

SDRAM RAS# Timing

SDRAM Speculative Read Logic

DRAM Speed

DRAM Read Burst Timing

DRAM Write Burst Timing

DRAM Lead Off Timing

Fast EDO Read Cycle Timing

Speculative Lead Off Timing

Memory Address Drive Strength

Enhanced Paging Disabled

DRAM Refresh RAS Cycles (HCLK'S)

DRAM Refresh Rate

Suspend Refresh Type

Cache DRAM Refresh Time (HCLK'S)

These settings are related to your memory modules specifications. Leave options at default settings, unless required by your memory module manufacturer.

Memory Hole

The settings for the option are: disable, 512-640MB, 15-16MB and 14-16MB.

8bit I/O Recovery Time

The settings are Disabled, 1,2,3,4,5,6 and 8 SYSCLK. The optimal and Fail-Safe default settings are Disabled.

16bit I/O

The settings are Disabled, 4, 1, 2 and 3 SYSCLK. The optimal and Fail-Safe default settings are Disabled.

Power Management Setup

All Power Management Setup options are described in this section.

Power Supply Type

This option is related to the power supply selection. The options are ATX or AT.

Power Management/APM

Set this option to *Enabled* to enable the power management and APM (Advanced Power Management) features. The default settings are *Disabled*

Power button Function

This option specifies how the power button mounted externally on the computer chassis is used. The settings are: on/off or suspend.

Inst-On Support

Set this option to Enabled to enable AMIBIOS support for the Intel InstantON specification. The settings are Enabled or Disabled.

Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video monitor enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are Off, Standby or Suspend.

Video Power Down Mode

This option specifies the power management state that the video subsystem enters after the specified period of display inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*. The default settings are *Disabled*.

Hard Disk Power Down Mode

This option specifies the power management state that the hard disk drive enters after the specified period of display inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*. The default settings are *Disabled*.

Hard Disk Timeout (Minute)

This option specifies the length of a period of hard disk inactivity. When this period expires, the hard disk drive enters the power-conserving mode specified in the **Hard Disk Power Down Mode** option described on the previous page. The settings are *Disabled*, *1 Min (minutes)*, and all one minute intervals up to and including *15 Min*. The default settings are *Disabled*.

Standby / Suspend Timer Unit

This option allows a timer to be set for hard disk standby mode. The options are: 32 seconds, 4 miliseconds, 4 minutes or 4 seconds.

Standby Timeout

This option specifies the length of the period of system inactivity when the computer is in Full-On mode before the computer is placed in Standby mode. In Standby mode, some power use is curtailed. The settings are multiples of the standby suspend timer unit.

Suspend Timeout

This option specifies the length of the period of system inactivity when the computer is already in Standby mode before the computer is placed in Suspend mode. In Suspend mode, nearly all power use is curtailed. The settings are multiples of the standby suspend timer unit.

Slow Clock Ratio

This option specifies the speed at which the system clock runs in the Standby Mode power saving state. The settings are expressed as a percentage between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state. The settings are 0-12.5%, 12.5-25%, 25-37.5%, 37.5-50%, 50-62.5%, 62.5-75%, or 75-87.5%. The Optimal and Fail-Safe default settings are 50-62.5%.

Display Activity

When set to Monitor, this option enables event monitoring on the video display. If set to Monitor and the computer is in a power saving state, AMIBIOS watches for display activity. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if display activity occurs. The settings are Monitor or Ignore. The Optimal and Fail-Safe default settings are Ignore.

Device 6

Serial 1

Device 7

Serial 2

Device 8

Parallel

Device 5

Floppy

Device 0

Primary Master IDE

Device 1

Primary Slave IDE

Device 2

Secondary Master IDE

Device 3

Secondary Slave IDE

PCI/Plug and Play Setup

PCI/PnP Setup options are displayed by choosing the PCI/PnP Setup icon from the AMIBIOS Setup main menu. All PCI/PnP Setup options are described in this section

Plug and Play Aware OS

Set this option to *Yes* if the operating system installed in the computer is Plug and Play-aware. AMIBIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 and 98 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to *No* if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP. *You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.* The settings are *No* or *Yes*. The Optimal and Fail-Safe default settings are *No*.

PCI Latency Timer (in PCI Clocks)

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks. The settings are *32, 64, 96, 128, 160, 192, 224, or 248*. The Optimal and Fail-Safe default settings are *64*.

PCI VGA Palette Snoop

This option must be set to *Enabled* if any ISA adapter card installed in the computer requires VGA palette snooping. The settings are *Disabled* or *Enabled*.

Allocate IRQ to PCI VGA

The settings for this option are: yes or no.

PCI IDE Bus Master

Set this option to *Enabled* to specify that the IDE controller on the PCI local bus has bus mastering capability. The settings are *Disabled* or *Enabled*.

Offboard PCI IDE Card

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller on the motherboard is automatically disabled. The settings are *Erase*, *Auto*, *Slot1*, *Slot2*, *Slot3*, or *Slot4*. If *Auto* is selected, AMIBIOS automatically determines the correct setting for this option.

Offboard PCI IDE Primary IRQ

This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are: *Disabled*, *INTA*, *INTB*, *INTC*, *INTD*, or *Hardwired*. The Optimal and Fail-Safe default settings are *Disabled*.

Offboard PCI IDE Secondary IRQ

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are *Disabled*, *INTA*, *INTB*, *INTC*, *INTD* or *Hardwired*. The Optimal and Fail-Safe default settings are *Disabled*.

PCI Slot1 IRQ Priority

PCI Slot2 IRQ Priority

PCI Slot3 IRQ Priority

PCI Slot4 IRQ Priority

These options specify the IRQ priority for PCI devices installed in the PCI expansion slots. The settings are *Auto*, (IRQ) 3,4,5,7,9,10 and 11. The Optimal and Fail-Safe default settings are *auto*. These options may be not available on your BIOS.

DMA Channel 0

DMA Channel 1

DMA Channel 3

DMA Channel 5

DMA Channel 6

DMA Channel 7

These options allow you to specify the bus type used by each DMA channel. The settings are PNP or ISA/EISA. The optimal and fail-safe default settings are PNP.

IRQ3

IRQ4

IRQ5

IRQ7

IRQ9

IRQ10

IRQ11

IRQ14

IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQpool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured as PCI/PNP. IRQ12 only appears if the mouse support option in advanced setup is set to disabled. IRQ14 and 15 will not be available if the onboard PCI IDEs are enabled. The optimal and fail-safe default settings are PCI/PNP.

Reserved Memory Size

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

The settings are *Disabled*, *16K*, *32K*, or *64K*. The Optimal and Fail-Safe default settings are *Disabled*.

Reserved Memory Address

This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

The settings are *C0000*, *C4000*, *C8000*, *CC000*, *D0000*, *D4000*, *D8000*, or *DC000*. The Optimal and Fail-Safe default settings are *C0000*.

Peripheral Setup

Peripheral Setup options are displayed by choosing Peripheral Setup from the AMIBIOS Setup main menu. All Peripheral Setup options are described here.

Onboard FDC

Set this option to Enabled to enable the floppy drive controller on the motherboard. The settings are Auto (AMIBIOS automatically determines if the floppy controller should be enabled), Enabled, or Disabled. The default settings are Auto.

Onboard Serial Port1

This option specifies the base I/O port address of serial port 1. The settings are Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 3E8h, or 2E8h. The Optimal and Fail-Safe default settings are Auto.

Onboard Serial Port2

This option specifies the base I/O port address of serial port 2. The settings are Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 3E8h, or 2E8h. The Optimal and Fail-Safe default settings are Auto.

Serial Port Mode

This option allows installation of a Infra-red device by the Serial Port. The settings are Normal, IRDA or Ask IR.

Infra-Red Transmission Mode

The settings are Full Duplex or Half Duplex

Receiver Polarity

The settings are Activity High or Activity Low

Transmitter Polarity

The settings are Activity High or Activity Low

Onboard Parallel Port

This option specifies the base I/O port address of the parallel port on the motherboard. The settings are Auto, Disabled, 378h, 278h, or 3BCh. The Optimal default setting is Auto.

Parallel Port Mode

This option specifies the parallel port mode. The settings are: normal, ECP or EPP.

EPP Version

The settings are Not Available, 1.7 and 1.9

Parallel Port IRQ

This option specifies the IRQ always used by the parallel port. The settings are Auto, (IRQ) 5, or (IRQ) 7.

Parallel Port DMA Channel

This option is only available if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by the parallel port. The settings are (DMA Channel 0, 1, or 3).

Onboard IDE

This option specifies the IDE channel used by the onboard IDE controller. The settings are Disabled, Primary, Secondary or Both.

CPU Current Temp.

Not Available

CPU or Ethernet Warning Temp.

Not Available

CPU Overheat Clock Down

The settings for this option are: Disable, 12.5%, 25%, 37.5%, 50%, 62.5%, 75%, 87.5%.

Auto Detect Hard Disk

Choose this option to let AMIBIOS find the IDE hard disk drive parameters for all IDE drives connected to the primary and secondary IDE channels installed in the system.

AMIBIOS automatically configures the drive parameters after it has detected these parameters.

Changing Supervisor Password

Select the Supervisor or User from the Security section of the AMIBIOS Setup main menu. Enter the password and press <Enter>. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press <Enter>.



Remember the Password Keep a record of the new password when the password is changed. If you forget the password, you must erase the system configuration information in NVRAM (Non-Volatile Random Access Memory).

Auto Configuration with Optimal Settings

You can load the optimal default settings for the AMIBIOS by selecting the Optimal option. The Optimal default settings are best-case values that should optimize system performance. If CMOS is corrupted, the Optimal settings are loaded automatically.

Auto Configuration with Fail-Safe Settings

You can load the Fail-Safe AMIBIOS Setup option settings by selecting the Fail-Safe option from the Default section of the AMIBIOS Setup main menu.

The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

Save Settings and Exit

Exit AMIBIOS saving the changes.

Exit without Saving

Allows to exit AMIBIOS setup without saving.

Chapter 3: Upgrading

Upgrading the System Memory

The Hunter ATX allows an upgrade of the system memory up to 256MB, using DIMMs memory modules. The Hunter ATX offers 3 DIMM memory sockets that can be configured with EDO or SDRAM modules. It is very important that the quality of the DIMMs is good. Undesirable operation of the system may result if poor quality DIMMs are used. Always purchase your memory from a reliable source.

Upgrading the Microprocessor

The Hunter ATX currently supports the following CPUs:

- Supports full series of Intel Pentium™ processors up to 233MHz.
- Supports AMD™ K6, K6/2E Cyrix and IBM.

There are three jumpers related to the microprocessor. For correct installation and proper function please refer to the table on the next page.

Using Figure 3-1, locate the diagonal notch on the CPU chip. This notch represents pin one. The Pentium processor also has a small dot as well indicating pin 1. **DO NOT USE THE CHIP LOGO OR LETTERING TO LOCATE PIN ONE.**

Locate the CPU socket on your Hunter ATX system board. Pin 1 on the socket is located in the lower left hand corner of the socket.

Figure 3-1 CPU Alignment



Table 3-1 Clock Frequency and CPU speed Selection

	JP3			JP4
Intel	BF0 1-2	BF1 3-4	BF2 5-6	BUS Clock
100MHz	Off	Off	Off	5-6
133MHz	On	Off	Off	5-6
166MHz	On	On	Off	5-6
200MHz*	Off	On	Off	5-6
233MHz*	Off	Off	Off	5-6
AMDK6				
K6/2E 233MHz	Off	Off	Off	5-6
K6/2E 266MHz	On	Off	On	5-6
K6/2E 300MHz	On	On	On	5-6
K6/2E 333MHz	Off	On	On	5-6
K6/2E 366MHz	Off	Off	On	5-6
K6/2E 400MHz	On	Off	Off	5-6

***MMX CPUs**

Appendix A

Technical Specifications

Chipsets

Core Logic

Intel 430TX Chipset.

Peripheral I/O

Standard Microsystems (SMC) FDC37C93x.

Micro Processor Support

Intel Pentium processors from 100 to 233MHz; AMD K6/2E up to 400MHz.

System Memory

Memory Capacity

8 to 256MB of DIMM Memory.

Memory Type

Three sockets for JEDEC compatible (168 pin) DIMMs. All memory configurations are set automatic through BIOS. Supports EDO or SDRAM 3.3V unbuffered memory modules.

Bios

System BIOS

AMI HiflexBIOS with Flash BIOS option.

Flash BIOS

Optional feature for System BIOS. Flash programming done through BIOS.

Embedded I/O

IDE

Two PCI EIDE controllers. Supports up to 4 devices. Ultra DMA up to 33MB/sec. supported. CD ROM and LS120 compatible. 34 pin headers on-board.

Floppy

Up to two floppy disk drives. Sizes supported are: 5.25" 360K and 1.2MB; 3.5" 720K, 1.44MB and 2.88MB. Floppy Tape.

Serial Ports

Two high speed 16550 compatible UARTS. BIOS configurable as COM1 - 4.

USB Interfaces

Two on-board USB headers.

Parallel Port

One Centronics compatible, bi-directional (PS/2 compatible). Microsoft/HP EPC/EPP high speed.

Mouse Port

One PS/2 compatible mouse controller with 6 pin mini-din connector.

Expansion Slots

Four 16 bit ISA slots and four PCI slots (one shared).

Disk-On-Chip - Solid State Flash Disk

On-board Flash disk socket up to 144MB with Flash File System included.

Miscellaneous

CMOS/Battery

RTC with lithium battery. No external battery is required.

Control Panel Connections

Reset, Keylock, Speaker, CPU fan (12V). LEDs for power and IDE.

CPU Socket

Standard ZIF (Zero Insertion Force), socket 7.

Form Factor

ATX Size - 8.0" x 12".

PCB Construction

Six Layers, dry film mask.

Manufacturing Process

Automated surface mount.

Reliability

MTBF: 48.840 hours

Environmental	Operating	Non-Operating
Temperature	0" to +55" C	-40" to +65" C
Humidity	5 to 95% @ 40" C non-condensing	5 to 95% @ 40" C non-condensing
Shock	2.5G @ 10ms	10G 10ms
Vibration	0.25 @ 5-100Hz	5G @ 5-100Hz

Table A-1 Standard PC-AT I/O Map

Address (HEX)	Device
000-01F	DMA Controller
020-03F	Interrupt Controller 1
040-05F	Timer
070-07F	Real Time Clock (non-maskable interrupt)
080-09F	DMA Page Registers
0A0-0BF	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0F8-0FF	Math co-processor
1F0-1FF	Hard Disk Controller
200-207	Game I/O
278-27F	Prototype Card
2F8-2FF	Serial Port 2
300-31F	Parallel Printer Port
380-38F	SDLC Bi-synchronous 2
3B0-3AF	Bi-synchronous 1
3B0-3BF	Monochrome Display/Printer
3C0-3CF	(Reserved)
3D0-3DF	Color Graphics Display Adapter
3F0-3F7	Floppy Disk
3F8-3FF	Serial Port COM 1

Table A-2 DMA Page Register and I/O address

Channel	Function
Page Register	I/O Hex Address
Channel 0	87
Channel 1	83
Channel 2	81
Channel 3	82
Controller 2: 16-bit (at Only - ports 0C0-0DF)	
Channel 5	8B
Channel 6	89
Channel 7	8A
Refresh (AT)	8F

Table A-3 DMA Assignments

Channel	Function
0	Reserved
1	SDLC
2	Floppy Disk
3	Spare
4	Cascade for CTRL
5	Spare (Reserved)
6	Spare (Reserved)
7	Spare (Reserved)

Table A-4 DMA Controller Register

DMA #		Description
1	2	
0	0C0	CH0 base and current address
1	0C2	CH0 base and current word count
2	0C4	CH0 base and current address
3	0C6	CH0 base and current word count
4	0C8	CH0 base and current address
5	0CA	CH0 base and current word count
6	0CC	CH0 base and current address
7	0CE	CH0 base and current word count
8	0D0	Read status register/write command register
9	0D2	Write request register
00A	0D4	Write single mask request register bit
00B	0D6	Write mode register
00C	0D8	Clear byte pointer Flip/Flop
00D	0DA	Read temporary register / Write master clear
00E	0DC	Clear mask register
00F	0DE	Write all mask register bits

Table A-5 Interrupts

Channel	Name	Function
NMI	NMI	Parity
0	IRQ0	System Timer Output 0*
1	KYBIRQ	Keyboard Output Buffer Full
2	IRQ2	CTRL2 Interrupt (IRQ8-IRQ15)
3	IRQ3	Serial Port 2 (COM2)
4	IRQ4	Serial Port 1 (COM1)
5	IRQ5	Parallel Port 2
6	IRQ6	Floppy Disk Controller
7	IRQ7	Parallel Port 1
8	RTCIRQ	Real Time Clock
9	IRQ9	Available
10	IRQ10	Available
11	IRQ11	Available
12	IRQ12	PS/2 Mouse
13	IRQ13	Math Coprocessor
14	IRQ14	Primary IDE
15	IRQ15	Secondary IDE

Connectors Pin Outs

Table A-6 Floppy Disk Drive Connector

Pin#	Name
2	RMP/LC
4	N/C
6	IDO
8	-INDEX
10	-MTRO
12	-DRV1
14	-DRVO
16	-MTR1
18	DIR
20	-STEP
22	-WDATA
24	-WGATE
26	-TRK0
28	-WPRT
29	ID0
30	-RDATA
32	HDSEL
33	ID1
34	DSKCHG
*	GND

Table A-7 Parallel DB25 Connector

Pin#	Name
1	-STROBE
2	+DATA BIT 0
3	+DATA BIT 1
4	+DATA BIT 2
5	+DATA BIT 3
6	+DATA BIT 4
7	+DATA BIT 5
8	+DATA BIT 6
9	+DATA BIT 7
10	ACK1
11	BUSY
12	PAPER EMPTY
13	SLCT
14	AUTOFEED
15	ERROR
16	INIT
17	SLCT IN
18-25	GND

Table A-8 IDE Connector

Pin#	Name	Pin#	Name
1	-RST	21	N/C
2	GND	22	GND
3	D7	2	IOW
4	D8	3	GND
5	D6	24	IOR
6	D9	25	GND
7	D5	26	N/C
8	D10	27	BALE
9	D4	28	N/C
10	D11	29	GND
11	D3	30	IRQ14
12	D12	31	IO16
13	D2	32	SAI
14	D13	34	N/C
15	D1	35	SA0
16	D14	36	SA2
17	D0	37	CS0
18	D15	38	CS1
19	GNC	39	HDIND
20	N/C	40	N/C

Table A-9 PS/2 Mouse Connector

Pin#	Name
1	DATA
2	N/C
3	GND
4	+5V
5	CLOCK
6	N/C

Table A-9A USB Headers

	USB1	USB2
1	VCC	VCC
2	-D	-D
3	+D	+D
4	GND	GND

Table A-10 PCI Connector Pin Assignments

Pin#	Assign.	Pin#	Assign.	Pin#	Assign	Pin#	Assign.
A01	N/C	A32	AD16	B01	-12V	B32	AD17
A02	+12V	A33	N/C	B02	TCK	B33	C/BE2#
A03	N/C	A34	FRAME#	B03	GND	B34	GND
A04	WRAP	A35	GND	B04	TDO	B35	IRDY#
A05	+5V	A36	TRDY#	B05	+5V	B36	N/C
A06	INTA#	A37	GND	B06	+5V	B37	DEVSEL
A07	INTC#	A38	STOP#	B07	INTB#	B38	GND
A08	+5V	A39	N/C	B08	INTD#	B39	LOCK#
A09	N/C	A40	SDONE	B09	ID1	B40	PERR#
A10	+5V	A41	SB0#	B10	ID2	B41	N/C
A11	CLCKD	A42	GND	B11	GNT3#	B42	SERR#
A12	GND	A43	PAR	B12	GND	B43	N/C
A13	GND	A44	AD15	B13	GND	B44	C/BE1#
A14	N/C	A45	N/C	B14	N/C	B45	AD14
A15	RST#	A46	AD13	B15	GND	B46	GND
A16	+5V (I/O)	A47	AD11	B16	CLKB	B47	AD12
A17	GNT0#	A48	GND	B17	GND	B48	AD10
A18	GND	A49	AD09	B18	REQ0#	B49	GND
A19	N/C	A50	KEY	B19	+5V(I/O)	B50	KEY
A20	AD30	A51	KEY	B20	AD31	B51	KEY
A21	N/C	A52	C/BE0#	B21	AD29	B52	AD08
A22	AD28	A53	N/C	B22	GND	B53	AD07
A23	AD26	A54	AD06	B23	AD27	B54	N/C
A24	GND	A55	AD04	B24	AD25	B55	AD05
				B25	N/C	B56	AD03
				B26	CBE#3	B57	GND

Hunter ATX - Installation Guide

Pin#	Assign.	Pin#	Assign.	Pin#	Assign	Pin#	Assign.
A25	NAD24	A58	AD00	B27	AD23	B58	AD01
A26	IDESEL	A59	+5V	B28	GND	B59	+5v(I/O)
A27	N/C	A60	REQ64#	B29	AD21	B60	ACK64#
A28	AD22	A61	+5V	B30	AD19	B61	+5V
A29	AD20	A62	+5V	B31	N/C	B62	+5V
A30	GND						
A31	AD18						

Table A-14 ISA Connector Pin Assignments

Pin#	Assign.	Pin#	Assign.	Pin#	Assign	Pin#	Assign.
A01	IOCH	B01	D18	C01	SBHE#	D01	EMCS1
A02	SD7	B02	RESETD	C02	LA23	D02	IOCS16
A03	SD6	B03	D16	C03	LA22	D03	IRQ10
A04	SD5	B04	IRQ9	C04	LA21	D04	IRQ11
A05	SD4	B05	+5V	C05	LA20	D05	IRQ12
A06	SD3	B06	DRQ2	C06	LA19	D06	IRQ15
A07	SD2	B07	-12V	C07	LA18	D07	IRQ14
A08	SD1	B08	0WS#	C08	LA17	D08	DACK0
A09	SD0	B09	+12V	C09	MEMR	D09	DRQ0
A10	IOCHR	B10	D18	C10	MEMW#	D10	DACK5
A11	AEN	B11	SMWT#	C11	SD8	D11	DRQ5
A12	SA19	B12	SMPD#	C12	SD9	D12	DACK6
A13	SA18	B13	IOW#	C13	SD10	D13	DRQ6
A14	SA17	B14	IOR#	C14	SD11	D14	DACK7
A15	SA16	B15	DACK3#	C15	SD12	D15	DRQ7
A16	SA15	B16	DRQ3	C16	SD13	D16	B3
A17	SA14	B17	DACK1#	C17	SD14	D17	MASTE
A18	SA13	B18	DRQ1	C18	SD15	D18	B1
A19	SA12	B19	REFRES				
A20	SA11	B20	SYSCLK				
A21	SA10	B21	IRQ7				
A22	SA9	B22	IRQ6				
A23	SA8	B23	IRQ5				
A24	SA7	B24	IRQ4				

Pin#	Assign.	Pin#	Assign.	Pin	Assign.	Pin#	Assign.
A25	SA6	B25	IRQ3	C08			
A26	SA5	B26	DACK2#	C07			
A27	SA4	B27	TC	C06			
A28	SA3	B28	BALE	C05			
A29	SA2	B29	VCC	C04			
A30	SA1	B30	BOSC	C03			
A31	SA0	B31	GND	C02			

User's Notes:

Appendix B

Flash BIOS programming

The Hunter ATX offers the optional FLASH BIOS. When installed, you will be able to update your BIOS without having to replace the EPROM. The AMIBios will read the new BIOS file from a floppy disk, replace the old BIOS and reboot your computer.

When updating your BIOS, make sure you have a disk with the correct BIOS file (its size should be 128K).

Rename the file to "AMIBOOT.ROM". Turn your computer off. Insert the disk in Drive A.; turn the computer on while pressing <CTRL><HOME>. Your computer will show no screen, but will beep to indicate what is being done.

If the programming is successful, you should hear 4 beeps and your computer will reboot with the new BIOS.

Please never turn the power off while reprogramming a FLASH BIOS. Refer to the table on the next page for beep errors.

Voltage Programming	12V	5V
JP8	1-2	2-3*

Table C-1 Flash Bios Beep Errors

Beeps	Description
1	Insert diskette in floppy A:
2	The AMIBOOT.ROM file was not found in the root directory of floppy drive A:
3	Base memory error
4	Flash program successful
5	Floppy read error
6	Keyboard controller BAT command failed
7	No FLASH EPROM detected
8	Floppy controller failure
9	Boot Block BIOS checksum error
10	Flash erase error
11	Flash program error
12	AMIBOOT.ROM file size error

Appendix C

Disk-On-Chip

The Hunter ATX offers an on-board flash disk as an optional device. The Disk-On-Chip is a single chip flash disk device in a standard 32-pin DIP socket.

It features up to 144MB of storage capacity with high-speed boot-up capabilities, including the Flash File System (FFS) for easy storage.

This feature of the Hunter ATX is a perfect replacement for conventional hard-drives in the harsh industrial environment where shock and vibration is a burden for standard hard drives.

There is one Jumper JP2, dedicated for the Disk-on-Chip address programming please check the table below.

Address	JP2
D000H	1-2
D400H	3-4
D800H	5-6
DC00H	7-8

For upgrade and technical specifications about Disk-on-Chip, please contact the manufacturer M-Systems at www.m-sys.com.

User's Notes:

MN-PHATX-02