USER'S MANUAL

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Nx586 VESA/ISA System Board

July 26, 1995

NexGen™

NOTICE

WARNING

FOR CONTINUED PROTECTION AGAINST FIRE, REPLACE FUSE WITH SAME TYPE AND RATING. FUSE RATING: 1A/125V.

THE USER IS CAUTIONED THAT CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THIS EQUIPMENT.

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Introduction

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Congratulations on your purchase of the NexGen™ Nx586 system board-- part of the family of high-performance personal computer products from NexGen™. This motherboard has been designed to fit in most standard AT and baby-AT enclosures. To avoid damage to your system please read the installation section thoroughly before attempting to install the motherboard or configure your system.

This chapter describes the features of the Nx586 VESA/ISA system board. This chapter also provides an overview of this manual to help you locate information quickly.

Features

The NexGen™ Nx586 system board includes the following features:

- Supports NexGen Nx586 P80/P90/P100 microprocessors with 32KB internal cache.

- NexGen NxVL chipset.

- High performance 256KB write-back secondary cache.

- Supports up to 192MB of main memory on-board using 72-pin SIMM DRAM Fast Page Mode modules.

- Two 32-bit VESA compatible local bus expansion slots with bus mastering capability, five 16-bit ISA Expansion slots.

- Supports both hardware and software turbo switching.

- Flash BIOS support for easy upgrading.

- 3-year limited warranty.

About This Manual

This manual is organized as follows:

*   The Hardware Setup section describes how to install and set up the Nx586 system board, memory, and peripherals. Included in this section are the motherboard layout and DRAM memory table.

*   The Software Configuration section describes the BIOS setup.

*   The Technical Reference section describes the jumper and switch settings for the Nx586 system board.

Checklist

The following items are included with your Nx586 system board package:

*   Nx586 system board
*   this manual

If you suspect that any of the items in the system unit package have been damaged or that items are missing, contact your reseller immediately.

Hardware Setup
. . . .

Overview

This section provides instructions for installing and setting up your Nx586 system board, installing memory modules and VESA/ISA-BUS peripherals.

> **CAUTION!** The procedures described are meant as general guidelines for the experienced installer. Contact your dealer if you are unsure about the installation, or if you need more detailed information about any portion of the installation.

The installation of your Nx586 system board consists of 6 basic steps (Your installation may vary, depending on your system configuration):

Step 1. Configure the system board.

Step 2. Install the system board into your computer chassis.

Step 3. Install the DRAM modules.

Step 4. Install any internal VESA/ISA peripherals.

Step 5. Connect the monitor, keyboard, and other external peripherals.

Step 6. Run the BIOS Setup program to configure your system board's memory, hard drive and floppy drive parameters.

This section discusses the hardware installation portion of setting up your system (Steps 1 through 5). It also contains a diagram of the system board (see Figure 1-1 System board Layout, next page) for reference purposes. To run BIOS setup see the Software Configuration Section for the AMI BIOS® (Step 6).

System Board Layout

Familiarize yourself with the components of the Nx586 system board.
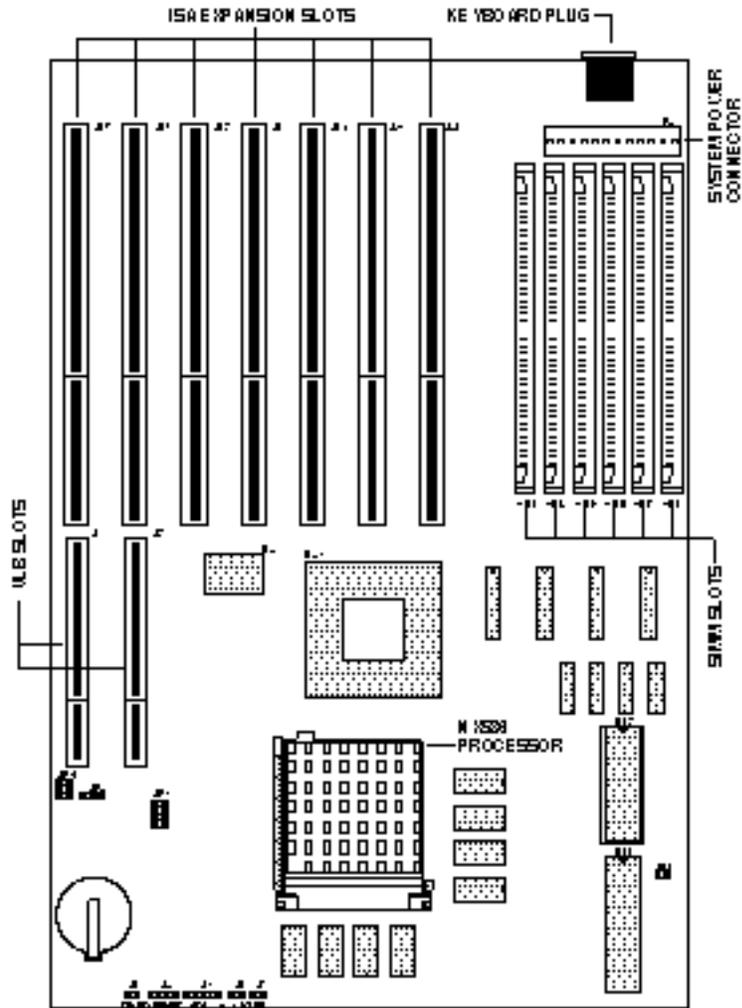
Figure 1 **System Board Layout**

Step 1. Configuring the System Board

The Nx586 system board options are configured through both software/BIOS and hardware jumpers. The software/BIOS configuration settings are discussed in the Software Configuration section of this manual and the Technical Reference section of this manual lists all of the jumper settings for the Nx586 system board. We do not recommend changing ANY jumper settings unless the user is an experienced installer -- misuse of jumper settings can result in system board failure and/or loss of warranty.

Step 2. Installing the System Board

> **CAUTION!**   Make sure to observe precautions for handling static sensitive devices. Static electricity can harm components on your Nx586 system board and cause system failure.

The Nx586 system board is designed to fit into most standard AT/Baby AT enclosures.Follow the instructions for your particular chassis in order toinstall the Nx586 system board. Make sure your chassis power supply can generate adequate power for your system board and peripherals. For safety purposes, NexGen™ recommends using only chassis' that employ UL-Listed power supplies.

> **WARNING:** The Nx586 processor requires adequate air flow to dissipate the heat generated by the processor. Make sure that the processor fan is not obstructed and is operational. If the fan is not working, return the board to your dealer for an exchange.

Step 3. Installing DRAM Modules

The Nx586 system board accommodates six 72-pin 32-bit or 36-bit DRAM SIMM modules. When installing memory, the DRAM speed must be 70ns or faster, must support fast-page mode. The six SIMM slots are labeled in pairs as SM1/SM2 - Bank A, SM3/SM4 - Bank B and SM5/SM6 - Bank C. The banks may be populated in any order (Bank C then Bank A then Bank B etc..) but both SIMMs within a bank must be installed at the same time with the same density (1M, 2M, 4M ...) of DRAM module. Any of the following single density SIMMs (1M, 4M or 16M) or double density (2M, 8M or 32M) SIMM modules may be used. Table 1-1 shows a short list of the possible memory configurations.

DRAM Configurations

SM1	SM2	SM3	SM4	SM5	SM6	TOTAL
1MB x 32	1MB x 32					8 MB
2MB x 32	2MB x 32					16 MB
4MB x 32	4MB x 32					32 MB
8MB x 32	8MB x 32					64 MB
2MB x 32	2MB x 32	1MB x 32	1MB x 32			24 MB
2MB x 32	2MB x 32	2MB x 32	2MB x 32			32 MB
2MB x 32	2MB x 32	4MB x 32	4MB x 32			48 MB
2MB x 32	2MB x 32	8MB x 32	8MB x 32			80 MB
...	...	...	...	...	...	...
4MB x 32	4MB x 32	2MB x 32	2MB x 32	1MB x 32	1MB x 32	56 MB
4MB x 32	4MB x 32	2MB x 32	2MB x 32	2MB x 32	2MB x 32	64 MB
4MB x 32	4MB x 32	2MB x 32	2MB x 32	4MB x 32	4MB x 32	80 MB
4MB x 32	4MB x 32	2MB x 32	2MB x 32	8MB x 32	8MB x 32	112 MB
...	...	...	...	...	...	...
8MB x 32	8MB x 32	4MB x 32	4MB x 32	1MB x 32	1MB x 32	104 MB
8MB x 32	8MB x 32	4MB x 32	4MB x 32	2MB x 32	2MB x 32	112 MB
8MB x 32	8MB x 32	4MB x 32	4MB x 32	4MB x 32	4MB x 32	128 MB
8MB x 32	8MB x 32	4MB x 32	4MB x 32	8MB x 32	8MB x 32	160 MB
8MB x 32	8MB x 32	8MB x 32	8MB x 32	1MB x 32	1MB x 32	136 MB
8MB x 32	8MB x 32	8MB x 32	8MB x 32	2MB x 32	2MB x 32	144 MB
8MB x 32	8MB x 32	8MB x 32	8MB x 32	4MB x 32	4MB x 32	160 MB
8MB x 32	8MB x 32	8MB x 32	8MB x 32	8MB x 32	8MB x 32	192 MB

Table 1 Partial RAM Configuration List

Step 4. VESA/ISA-BUS Adapter Installation Procedure

To install a VESA or ISA -Bus adapter card:

1. Locate a free VESA or ISA Bus slot on the system board, either a VESA or ISA slot whichever is appropriate for the card to be installed.
2. Remove the appropriate expansion slot cover plate from the chassis .
3. Line up the adapter along the slot to be used and insert the gold-edged connectors into the connector on the motherboard completely. Make sure that the adapter is well seated in the slot. Secure the adapter to the chassis with a slot cover screw.
4. The system should automatically recognize the added adapter. If you have added a video adapter and wish to use the extended video modes, you may have to install additional drivers corresponding to the programs and environments used.

Step 5. Connecting External Peripherals

Connect your monitor, keyboard, mouse, AC power cord, and other external devices to your chassis before powering on the system.

Step 6. Running BIOS Setup

Once the motherboard has been mounted in the case and all of the peripheral connected the final step is to run the BIOS setup program. When the system is turned on for the first time the BIOS will notice the addition of DRAM memory and other peripherals and prompt you to enter the setup utility. The next section of this manual describes the use of the AMI BIOS® Setup utility in configuring your system. After running Setup, you can proceed with installation of system and application software.

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Software Configuration
of System Board Components
. . . .

Overview

This section describes how to use the included software to configure the components of your system board. The utilities described include:

AMI BIOS® Setup

Introduction

A program in the ROM (permanent memory) of your system board that configures RAM, date and time, the type of hard disk connected, and virtually all of the main system level components. The BIOS Setup values may have already been set prior to shipment.

A record of the system parameters (such as amount of memory, types of disk drives, video display, numeric coprocessor, and other peripherals) is stored in a special area of memory called CMOS RAM. When the computer is turned off, a backup battery provides power to the CMOS RAM, thereby retaining your system configuration.

Each time the system is turned on, it is configured with the values in CMOS RAM, unless the CMOS RAM was corrupted. The CMOS Setup parameter resides in the CMOS RAM and is available each time the computer is turned on.

If for some reason, the CMOS RAM is corrupted, the system is configured with the default values stored in the ROM file. There are two sets of BIOS values stored in the ROM file: the BIOS Setup default values and the Power-On default values (see this section for more detailed information on BIOS defaults).

Note: Your system may have been pre-configured prior to   shipment. It is only necessary to execute the configuration program if:

*   You have changed the hardware configuration (i.e.: added memory, added or removed drives, etc.).

*   The system itself has detected an error while booting up and requires you to reconfigure CMOS RAM.

Users are not encouraged to run this setup program unless they are familiar with it. Improper use of this setup program can   result in system failure.

Running the BIOS Setup

When the system power is turned on, the computer performs a series of device initializations and diagnostic tests. During this process, the system will allow you to interrupt the process and run Setup by pressing the <Del> key. When the Power-On-Self-Test (POST) has completed, the following message appears:

Press the <Del> key to enter the Setup program.

The table below describes special keys used to perform certain functions within the Setup program.

Keystroke	Action
<Esc>	Returns to previous screen or menu, also used to exit setup.
<Arrow keys>	Moves cursor from one option to the next within a window or menu.
Alt+H	Displays Help screen
TAB	Move to next window.
Alt+SPACE	Global Exit.
ENTER	Select item highlighted.

Table 2 Keyboard Use - Setup

Exiting the Setup Program

When finished making changes within Setup press the <Esc> key until the following menu shown in figure 2 appears. At this point you are presented with the three choices described below.
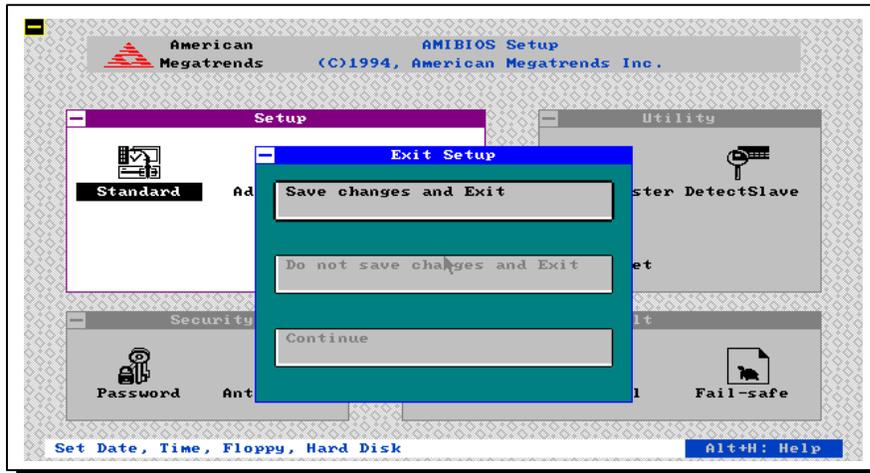
Figure 2 Exit Setup Menu.

Save Changes and Exit

This option is used to save the changes made during this session in the Setup program then continue the boot process. After pressing <Enter> with this option highlighted all settings that were modified are stored in CMOS RAM then a CMOS RAM checksum is calculated and written to CMOS RAM. Control is then passed to the ROM BIOS and the BIOS either reboots the system (if any new setting changed the memory map) or continues the boot process.

Do Not Save Changes and Exit

This option passes control to the BIOS without writing any changes made to the CMOS RAM. Press <Enter> with this option highlighted to continue the boot process without saving any altered system parameters.

Continue

Press <Enter> with this option highlighted to return to the main menu of the Setup program.

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Main Menu Setup Screen

The Setup Main Menu is shown below:
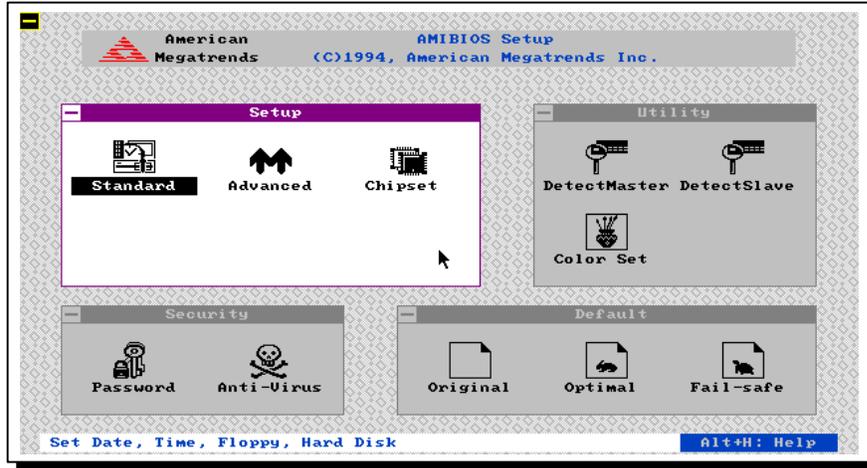
Figure 3 Main Setup Menu.

The Main Setup Menu is divided into four windows each with several submenu options:

- **Setup Window**
    - Standard Setup
    - Advanced Setup
    - Chipset Setup

- **Security Window**
    - Password
    - Anti-Virus

- **Utility Window**
    - Detect Master Hard Disk
    - Detect Slave Hard Disk
    - Color Set

- **Default Window**
    - Original Settings
    - Optimal Settings
    - Fail-safe Settings

Setup Window

This window contains three menus; Standard, Advanced and Chipset. The Standard menu permits the user to configure and set system components such as time and date, floppy drives and hard disk drives. The Advanced menu permits the user to configure and set some of the more complex settings for system components such as floppy drive swapping, system caches, shadow RAM control interrupt mapping. Finally, the Chipset menu controls some of the hardware specific options of the NxVL chipset.
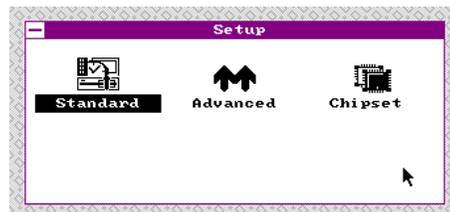
Utility Window

This window contains three menus; DetectMaster, DetectSlave and Color Set. The DetectMaster menu allows IDE/EIDE hard disks to be automatically detected configuring the proper number of heads, cylinders and sectors to make full use of the drive. The DetectSlave menu performs the same operation for the slave or 2nd IDE hard disk installed in the system. The Color Set menu allows you to control the color settings for optimal viewing on all type of displays.

Security Window

This window contains two menus; Password and Anti-Virus. The Password menu allows you to set a password that will be required each time the system is turned on. If you forget your password you will need to use the CLEAR CMOS jumper to erase the password. Doing this will also clear all of the other settings which you have made in any of the setup menus. The Anti-Virus option when enabled issues a warning to the user whenever a program attempts to write to the boot sector of the hard disk or program attempts to format the hard disk.

Default Window

This window contains three menus; Original, Optimal and Fail-safe. These three menus set all of the Standard, Advanced, and Chipset settings to preprogrammed values by the factory. Under most conditions the optimal settings should be used to achieve the best overall system performance. If you experience any abnormal system behavior try using the Fail-safe settings. If you change your mind after selecting either the Optimal or Fail-safe settings before you save changes and exit the Original menu can be used to restore and modified parameters to their original values before exiting.

The remainder of this section details the options and screens available in each of these menus.

Standard Setup

This option permits the user to configure and set system components such as time and date, floppy drives, and hard disk drives. Use the arrow keys to highlight the icon labeled Standard, then press <Enter>. The following screen appears:
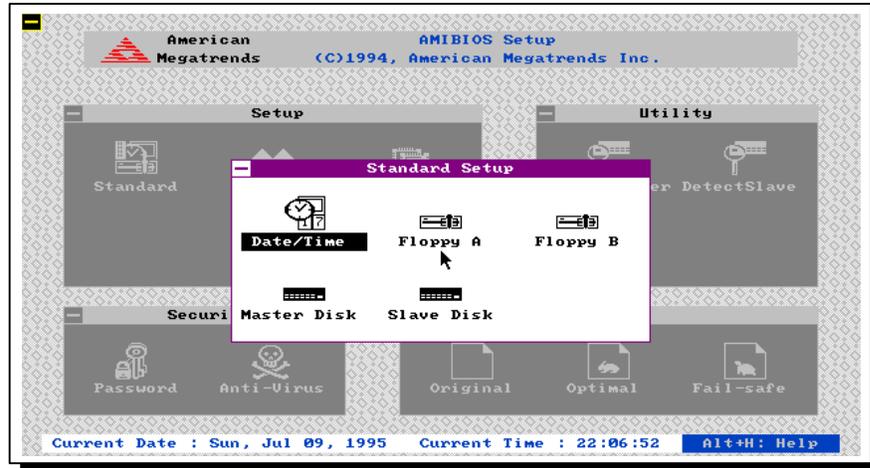
Figure 4 Standard CMOS Setup Menu

Date/Time: This option permits the month, day, year hour, minute, and second stored in CMOS to be changed. Press <Enter> to bring up the modification screen then move the cursor to the field you wish to change by using the arrow keys. Change the setting by using '+' and '-' keys or entering the value directly with the keyboard. The time uses a 24 hour clock format. For P.M. numbers, add 12 to the hour (4:30 P.M. is 16:30:00).

Floppy Drives A: and B: Supports 720KB, 1.44MB, and 2.88MB 3.5 inch drives; 360KB, and 1.2MB 5.25 inch drives. Move the cursor to either field with the arrow keys and set the appropriate floppy drive type using the arrow keys then pressing <Enter>.

Master and Slave H ard Disks: Hard disk types from 1 to 46 are industry standard. The USER type is user-definable and can be used for both the master and slave drive. If the USER type is selected, the user must enter the proper hard drive parameters from the keyboard. The parameters for the USER type under the master hard disk and slave hard disk can be different, which allows two different user-definable hard disk drives in the system. **Not Installed** can be used for diskless workstations The two remaining settings are for ESDI and SCSI hard disks.

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Hard Disk Configuration

Hard drives are available with many different types of interfaces and controller options. The system BIOS has built in support for several of the most common interface standards: IDE/EIDE, SCSI, ESDI and ST-506/MFM. In general, depending on the controller used the BIOS needs to be configured to recognize the hard drives connected.

The most common type of hard disk today uses the IDE or EIDE interface. This type of drive is very simple to install and configure. The Nx586 system board supports up to four IDE/EIDE hard drives using a primary and a secondary IDE channel. Each channel supports up to two IDE/EIDE drives or other IDE devices such as CDROMs or Tape Backup devices.

IDE/EIDE drives can be configured simply by using the DetectMaster and DetectSlave commands in the Utility Window.

Hard drives are identified by several parameters:

Parameter	Description
Type	The number designation for a drive with certain identification parameters.
Cyl - Cylinders	The number of cylinders in the disk drive.
Hd - Heads	The number of heads.
WP - Write Precompensation	The size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number where write precompensation begins.
Lz - Landing Zone	This number is the cylinder location where the heads will normally park when the system is shut down.
Sec - Sectors	The number of sectors per track. Hard drives that use MFM have 17 sectors per track. RLL drives have 26 sectors per track. RLL and ESDI drives have 34 sectors per track. SCSI and IDE drives may have even more sectors per track.
Size	The formatted capacity of the drive based on the following formula: (Number of heads) x (Number of cylinders) x (number of sectors per cylinder) x 512 bytes per sector)

Table 3 Hard Drive Configurations

Older ST-506/MFM type hard drives require manual selection of these parameters. The BIOS provides a table with 46 of the most common parameters for these drives. Also a 47th entry can be used to enter any configuration not found in the table. Refer to your hard disks manual for the proper settings if you have this type of drive.

Type	Cyls.	Heads	Write Precomp	Landing Zone	Sectors	Capacity
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	31MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	901	17	112MB
10	820	3	65535	820	17	20MB
11	855	5	65535	855	17	35MB

12	855	7	65535	855	17	50MB
13	306	8	128	319	17	20MB
14	733	7	65535	733	17	43MB
16	612	4	0	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1023	17	60MB
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0	336	17	10MB
24	925	7	0	925	17	54MB
25	925	9	65535	925	17	69MB
26	754	7	754	754	17	44MB
27	754	11	65535	754	17	69MB
28	699	7	256	699	17	41MB
29	823	10	65535	823	17	68MB
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB

Table 4 Standard Hard Drive Parameter Settings

Advanced Setup

This option permits the user to configure and set some of the more complex settings for system components such as floppy drive swapping, system caches, shadow RAM control interrupt mapping.

> **CAUTION!** Users are not encouraged to change Advanced CMOS settings unless they are familiar with doing so.
> Improper use of these utilities can result in system failure.

Use the arrow keys to highlight the icon labeled Advanced, then press <Enter>. The following screen appears:
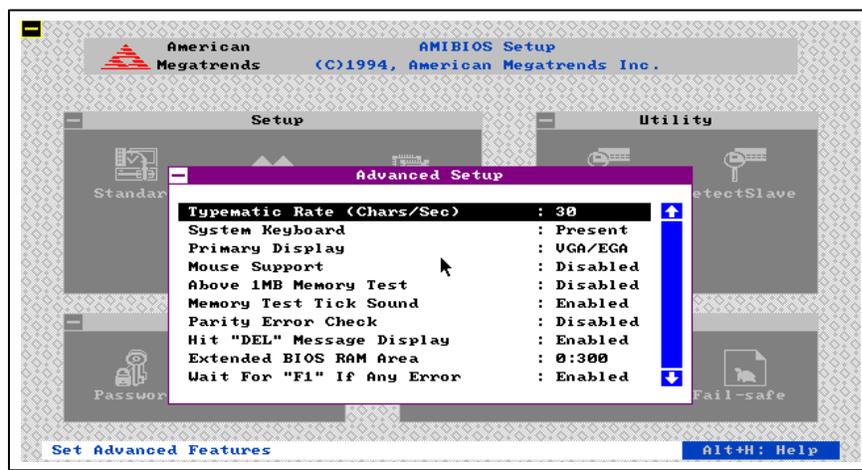
Figure 5 Advanced CMOS Setup Menu, Page 1 of 4

Typematic Rate : Controls the rate at which keystrokes are repeated if a key is held down. The selections are 15, 20, 24, or 30 characters per second.

System Keyboard: This option controls whether an error message is generated if no keyboard is attached. This permits the system to boot without displaying the "Press F1 to continue" message if no keyboard is attached.

Primary Display: Selects the type of primary display connected to the system. The option are Monochrome, Color 40x25, Color 80x25 , VGA/EGA/PGA or Not Installed.

Mouse Support: When enabled this option permits the use of a PS/2 style mouse.

Above 1MB Memory Test: When this option is enabled the entire memory range is tested during the POST. If disabled only the first 1MB of system RAM is tested with the remaining memory only checked for size by the POST.
Memory Test Tick Sound: This option enables or disables the "tick" sound heard from the PC speaker during the memory test routine of the POST.

Parity Error Check: This option determines whether system DRAM should generate parity check errors. If your DRAM SIMMs are 32bit non-parity SIMMs this option should be set to disabled. If your DRAM SIMMs are 36bit parity SIMMs you can set this option to either enabled or disabled.

Hit <DEL> Message Display: Setting this option to disabled will prevent the

Hit <DEL> if you want to run Setup

message from being displayed during the system boot process.

Extended BIOS RAM Area: This option controls where the hard disk information will be stored in memory. The options are 0:300 or Top 1K. If Top 1K is selected the hard disk information will be stored beginning at 639K instead of the normal 0:300 memory location.

Wait For "F1" If any Error: During the power-on self test of the system if the BIOS detects any errors it will display the message:

> Press <F1> to continue

If this option is disabled the boot process will not wait for the F1 key to be pressed before continuing to boot.
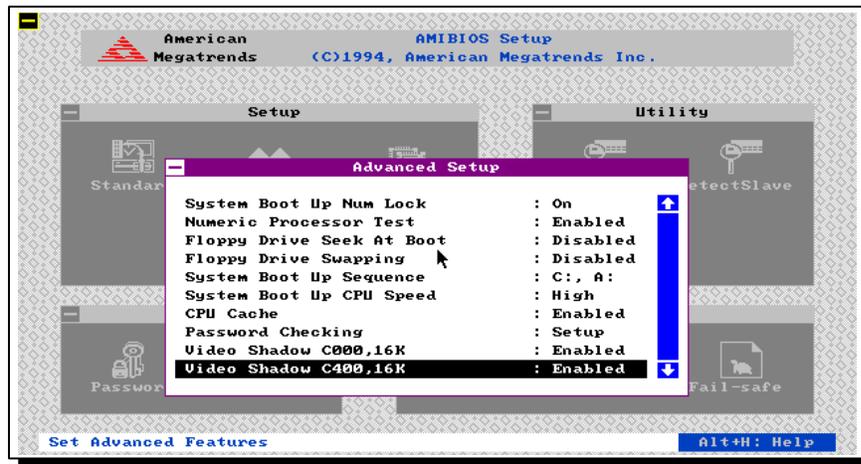
Figure 6 Advanced CMOS Setup Menu, Page 2 of 4

System Boot Up Num Lock: When set to ON this option turns off the keyboards Num Lock setting after booting.

Numeric Processor Test: Enables or disables the detection of a installed numeric coprocessor.

 Floppy Drive Seek At Boot: When set to enabled the BIOS performs a seek command on all floppy drives before booting.

System Boot Up Sequence: This option controls the order in which the BIOS looks for a boot device. The options are [A: then C:] and [C: then A:].

System Boot Up CPU Speed: This option controls whether the CPU is booted in the Turbo or non-Turbo mode.

CPU Cache: This option enables or disables the internal and external CPU caches. When set to disabled both the internal and external CPU caches are disabled.

Password Checking: This option enables the prompting for a password each time the system is booted or the user exits the Setup utility. The settings are Setup or Always. If Setup is selected the password prompt will only be asked when attempting to enter the setup utility.

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Video Shadow C000,16K:

Video Shadow C400,16K:

These option control the shadowing of the video BIOS area. When enabled the video BIOS ROMs are copied into system DRAM for faster execution.

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┌─────────────────────────────────────────────────────────────────────────┐
│ ■                                                                         │
│          American                  AMIBIOS Setup                          │
│          Megatrends     (C)1994, American Megatrends Inc.                 │
│                                                                           │
│  ┌─ Setup ──────────────────────┐      ┌─ Utility ──────────────┐         │
│  │                              │      │                        │         │
│  │   ┌──────────── Advanced Setup ──────────────┐     etectSlave│         │
│  │ Standar│ ■                                    │               │         │
│  │        │ Shadow C800,16K        : Disabled ↑ │               │         │
│  │        │ Shadow CC00,16K        : Disabled   │               │         │
│  │        │ Shadow D000,16K        : Disabled   │               │         │
│  │        │ Shadow D400,16K     ▶  : Disabled   │               │         │
│  │        │ Shadow D800,16K        : Disabled   │               │         │
│  ┌────────│ Shadow DC00,16K        : Disabled   │               │         │
│  │        │ Non-cacheable Region #1 : Disabled  │               │         │
│  │        │      Base Address:     :   0MB      │               │         │
│  │        │           Offset:      :   0KB      │               │         │
│  │ ▄      │      Block Size:       :   4KB    ↓ │          ▄     │         │
│  │ Passwor└──────────────────────────────────────┘     Fail-safe│         │
│  └──────────────────────────────┘      └────────────────────────┘         │
│                                                                           │
│  Set Advanced Features                              Alt+H: Help           │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 7 Advanced CMOS Setup Menu, Page 3 of 4

Shadow C800,16K:

Shadow CC00,16K:

Shadow D000,16K;

Shadow D400,16K:

Shadow D800,16K:

Shadow DC00,16K:

These options control the shadowing of adapter ROMs in the specified areas of memory. Unless you a re sure no adapter RAM resides in the area you wish to shadow these should remain disabled.

Non-cacheable Region #1:

Non-cacheable Region #2:

These options along with the Base address, Offset and Block Size options permit two areas of memory to be defined as non-cacheable.
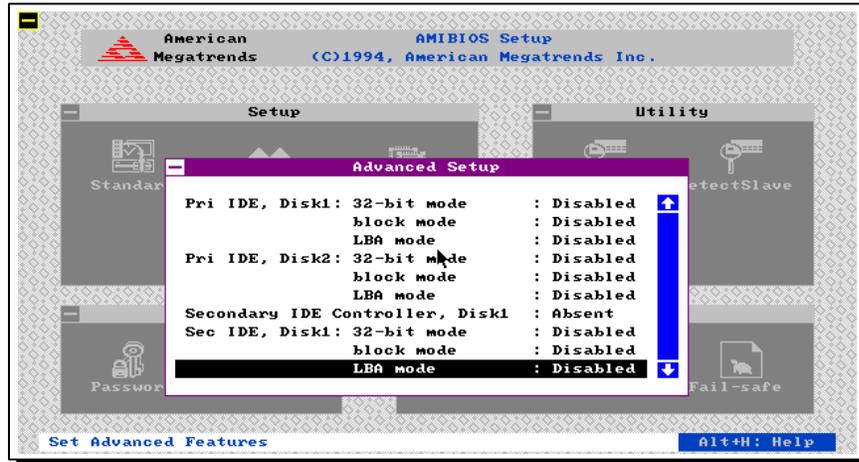
Figure 8 Advanced CMOS Setup Menu, Page 4 of 4

Pri IDE, Disk1: 32-bit mode:

Pri IDE, Disk 2: 32-bit mode:

Block Mode:

LBA Mode:

These settings control the hard disks connected to the primary IDE controller in the system. The 32-bit mode setting when enabled uses 32-bit data transfers on the IDE data port. When disabled the BIOS uses 16-bit data transfers to the IDE drive. In order to make use of 32-bit mode your IDE controller must also support 32-bit transfers between the controller and the CPU. Block mode enables the use of multi-sector reads and writes to the selected IDE drive. LBA (Logical Block Address) mode is a method of addressing hard drives greater than 528MB in size. If you are installing a drive greater than 528MB LBA Mode must be set to enabled. Also the hard drive must have been formatted and portioned with LBA Mode enabled in order to operate properly.

Secondary IDE Controller, Disk1:

Secondary IDE Controller, Disk2:

These options tell the BIOS whether additional drives are connected to the secondary IDE controller. The options are Present and Absent.

Sec IDE, Disk1: 32-bit mode:

Sec IDE, Disk 2: 32-bit mode:

Block Mode:

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LBA Mode:

Refer to the description for the primary IDE settings above.

Chipset Setup

This option configures chipset-specific features. These parameters have already been optimized for your system--improper use of this utility could result in system failure. Consult your dealer before attempting to use this option.
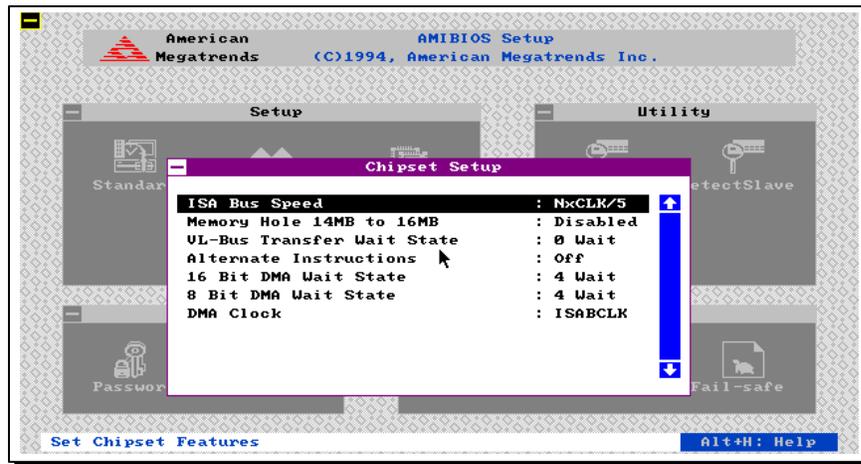
Figure 9 Chipset Features Setup Menu

ISA Bus Speed: This option controls the divisor between the CPU's clock and the clock sent to the ISA bus. This option is set automatically to the proper divisor by the BIOS and should not be modified under normal conditions.

Memory Hole 14MB to 16MB: This option forces a hole in the systems DRAM between 14MB and 16MB. Some operating systems may require a hole in this memory space. This option should be set to disabled for DOS/Windows/OS/2 systems.

VL-Bus Transfer Wait State: This option when enabled forces 1-wait state to be inserted in all VESA bus operations.

Alternate Instructions: This option should be left disabled.

16 Bit DMA Wait States: This option controls the number of wait states during 16-bit DMA cycles. This option should be set to 4 Wait States under normal operation.

8 Bit DMA Wait States: This option controls the number of wait states during 8-bit DMA cycles. This option should be set to 4 Wait States under normal operation.

DMA Clock: This option controls the divisor between the ISA Bus Clock and the DMA controller. Under normal operation this should be set to ISABCLK.

Factory Recommended CMOS Settings (for AMI BIOS® users)

The factory recommended settings are listed below. These settings should be used in the event CMOS RAM has been corrupted, or for some reason you wish to reset CMOS to the factory's recommended settings. However, if your hard disk does not have an operating system, change the setting at **System boot up sequence**, to **A:,C:**. For Adapter ROM shadowing, enable shadow whenever appropriate (i.e.: adapter card has on-board BIOS).

Advanced CMOS Setup			
Typematic Rate Programming	:Disabled	Adapter ROM Shadow C800,16K	:Disabled
Typematic Rate Delay (msec)	:500	Adapter ROM Shadow CC00,16K	:Disabled
Typematic Rate (Chars/sec)	:5	Adapter ROM Shadow D000,16K	:Disabled
Above 1M Memory Test	:Disabled	Adapter ROM Shadow D400,16K	:Disabled
Memory test tick sound	:Enabled	Adapter ROM Shadow D800,16K	:Disabled
Memory Parity Error Check	:Disabled	Adapter ROM Shadow DC00,16K	:Disabled
Hit <DEL> Message Display	:Enabled	System ROM Shadow E&F,128K	:Enabled
Hard Disk Type 47 RAM area	:0:300	Non-Cacheable Region #1	:Disabled
Wait for <F1> if any error	:Enabled	Starting Base Addr.	: 0MB
System Boot Up Num Lock	:On	Offset	: 0MB
Floppy Drive Seek at Boot	:Disabled	Block Size	: 4KB
System Boot Up Sequence	:C:, A:	Non-Cacheable Region #2	:Disabled
Cache Control	:Enabled	Starting Base Addr.	: 0MB
Fast Gate A20 Option	:Enabled	Offset	: 0MB
Video ROM Shadow C000,32K	:Enabled	Block Size	: 4KB

Table 2-4 Advanced CMOS Setup

Advanced NxVL[TM] Chipset Setup			
ISA Bus Speed	:CLK/5	16 Bit DMA Wait State	4 Wait
Memory hole 14meg to 16meg	:Disabled	8 Bit DMA Wait State	4 Wait
VL-Bus Transfer Wait State	:0 WS	DMA Clock	ISABCLK
Alternate Instructions	:Off		

Note: The ISA Bus Speed setting listed is for the P80 and P90 boards. For the P75 board, set the ISA Bus Speed to CLK/4. For the P100 board, set the ISA Bus Speed to CLK/6.

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Technical Reference
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Nx586 System Board Jumper Settings

JP1	Open*	Reserved for future use
JP2	1-2*	Normal
	2-3	Clear CMOS
JP3	Factory use only	CPU dependent - Do not change from factory setting. Warranty void if tampered with.
JP4-1	Closed *	VL-Bus Write wait state (1 WS)
-2	Closed *	VL-Bus > 33MHz
	Open	VL-Bus <= 33MHz
-3	Closed *	VL-Bus Burst Support (Read only)

* Default Setting

NOTE: All number settings indicate a closed jumper. e.g. 1-2, 3-4.

Connectors

J1	Reset Switch
J2	Speaker connector
J3	Keylock/Power LED connector
J4	Turbo switch connector
J5	Turbo LED connector
J6&J7	VESA Local bus slots
J15-J21	16-bit ISA slots
P2	Power connector
J22	External battery connector
P3	Keyboard connector

Battery Options

Depending upon the date which your motherboard was built it may have been shipped with two coin cells on the motherboard or an external battery pack connected to J22. Either option will work fine. Due to the limited capacity of the coin cells you may experience a loss of CMOS memory within a year of use. The external battery packs have a much greater capacity and will last up to 4 years under normal conditions. When the onboard coin cells drain you may replace them with another set of coin cells or an external battery pack (4.5V or 6V) which ever you prefer.

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Notes

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