8500TVX

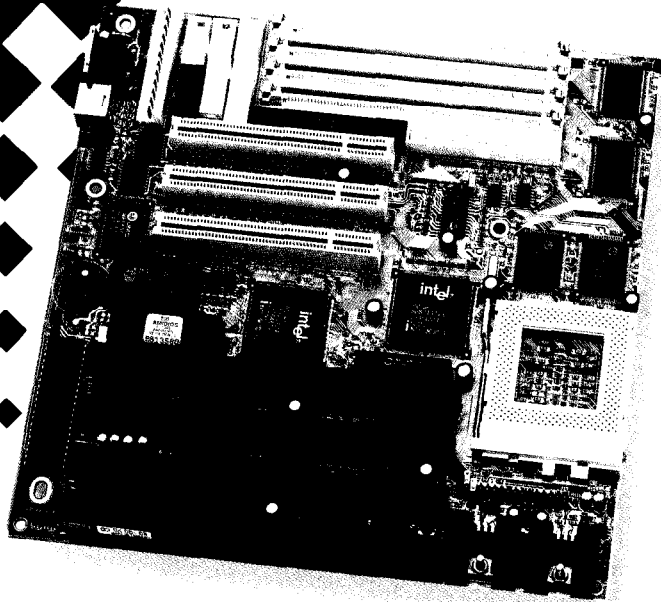## PENTIUM™ VX SYSTEM BOARD

User's Manual

Features

- **Hardware**

CPU

- Supports Pentium^{TM} Mimroprocessor P54C/CT/CS/CQS,P55C
; Cyrix^{TM} Microprocessor 6x86^{TM}/6x86L^{TM};
AMD^{TM} Microprocessor 5k86^{TM}, K5^{TM}.

- Provides 321-pin ZIF socket. (socket 7)

Green   Function

Supports power management operation via BIOS.
Power down timer from 2 Mins to 30 Mins.
Wakes up by any key pressed or mouse activity.
Green mode selection via software or hardware.

Speed

Supports CPU bus clock from 50 MHz to 66 MHz.
Supports 25/27.5/30/33 MHz PCI BUS speed.
Speed selection via software.
I/O clock 8MHz for ISA Bus.

Shadow   RAM

- A memory controller that provides shadow RAM and supports
I-bit ROM BIOS.

DRAM   Memory

- Supports 2 banks (4pcs) 72-pin 4MB/8MB/16MB/32MB SIMM
module socket.
- Supports DRAM memory 8MB to 128MB *on* board.
- Supports EDO,BEDO, & FP MODE DRAM.
- Supports Symmetrical and Asymmetrical DRAM.

Cache Memory

- Supports Pipelined Burst SRAM up to 512KB.

BUS Slots

- Provides four 16-bit ISA Bus slots and three PCI Bus slots.

Flash Memory

- Supports PnP mode for BIOS function.

PCI Enhanced IDE Built-in On Board

- Supports 4 IDE hard disk drives.
- Supports mode 4, Master Mode, high performance hard disk drives.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
  Supports LBA mode.

ISA I/O-Built-in On Board

Supports one multi-mode parallel port.

(1) Standard & Bidirection Parallel Port (SPP).

(2) Enhanced Parallel Port (EPP).

(3) Extended Capabilities Port (ECP).

Supports two serial ports,16550 UART,with 16 Byte FIFO.

Supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy disk drivers.

Supports one Infrared transmission(IR).(optional)

Supports PS/2 MOUSE.

Universal Serial Bus

Supports two Universal Serial Bus (U.S.B) Port.(optional)

Supports 48 MHz USB.(optional)

Dimension

- 22 cm X 22 cm (W x L)

- **Software**

BIOS

  - AM1 legal friendly BIOS.

O.S.

  - Offers the highest performance for MS-DOS, OS/2, Windows,
    Windows NT, Windows 95, Novell, UNIX, SCO UNIX etc.

- **Attachments**

  - HDD Cable
  - FDD Cable
  - Serial Port Cables
  - Printer Port Cable
  - FLASH Memory Writer for BIOS Update(optional)
  - PS/2 Mouse Cable (optional)
 - USB Cable.(optional)

System Performance

CPU Type/ Test Under Software	Landmark Ver 2.0	Power Meter MIPS Ver 1.7
Pentium^{TM} - 100MHz	575.61	69.6
Pentium^{TM} - 120MHz	691.26	82.9
Pentium^{TM} - 133MHz	767.48	92.8
Pentium^{TM} - 150MHz	864.04	102.6
Pentium^{TM} - 166MHz	958.76	114.6
Pentium^{TM} - 180MHz	1036.87	118.1
Pentium^{TM} - 200MHz	1150.52	134.4

Mainboard Installation

Layout of Mainboard

Model No. MB-8500TVX- A Ver: 2 and afterwards
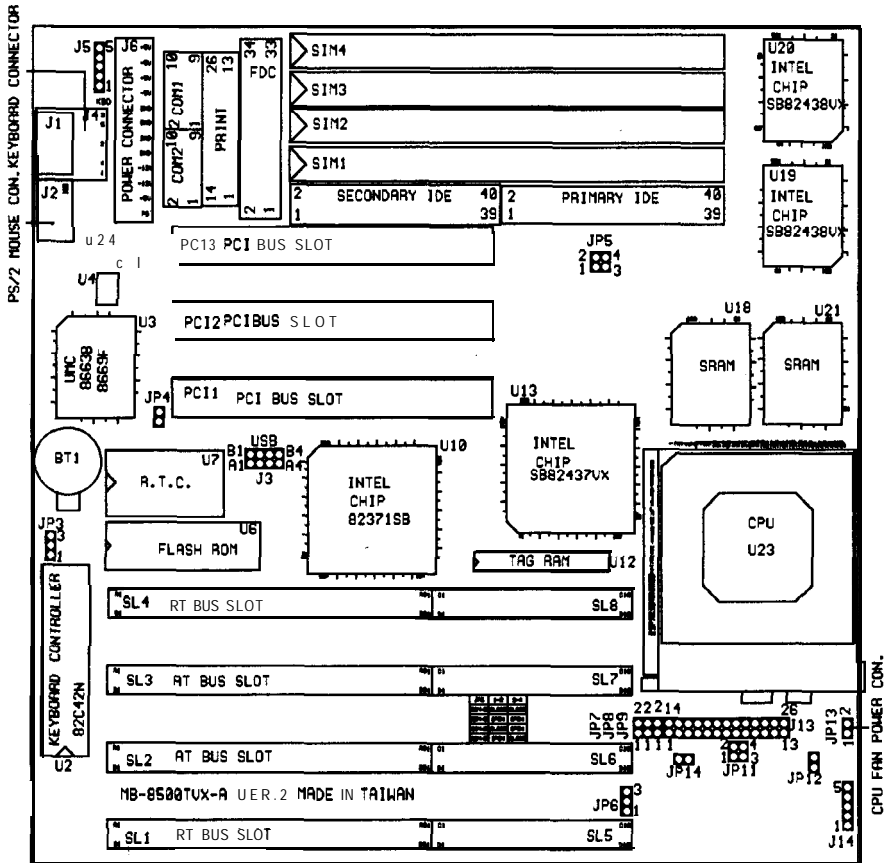
Jumper Setting

A jumper is several pins which may or may not be covered by a plastic jumper cap. A jumper is used to select different system options.

(A)   JP3   Flash ROM Type Voltage Select

1 ▣◯◯   **l-2** Closed : +5V type Flash Memory used

1 ◯◯◯ 3   2-3 Closed : +12V type Flash Memory used

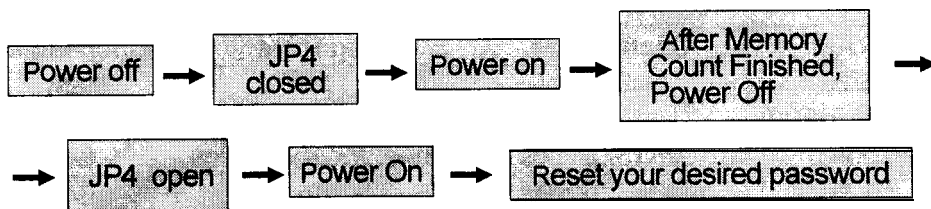**(B)   JP4   CMOS Function Select**

◻ ◯◯   Open : To maintain set up and extended setup data in CMOS for normal functioning. (default)
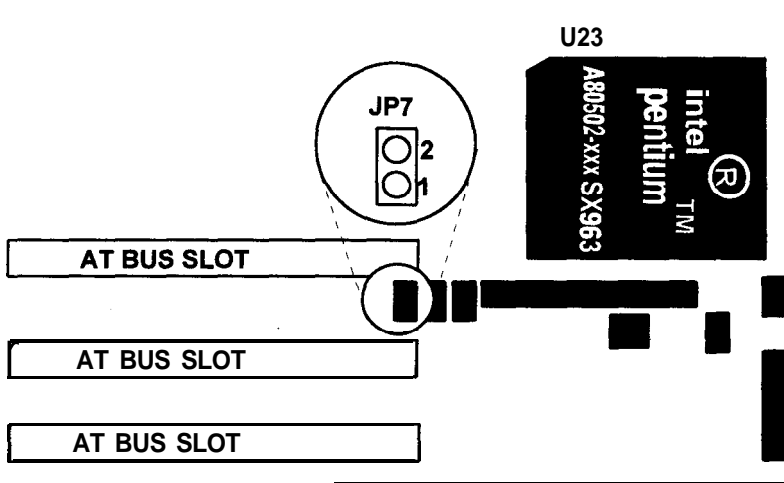
◻◯◯◻   Closed : To clear CMOS setup memory. If there has been any inappropriate operation incurring the system failure.

Note: Please follow the procedures below to clear BIOS password if your password is lost or forgotten.

Power off → JP4 closed → Power on → After Memory Count Finished, Power Off →

→ JP4 open → Power On → Reset your desired password

(C) JP7 Cache RAM Size Select

Jumper NO.	256KB	512KB
JP7	open	closed

Cache RAM Combination

SRAM Size Locate	Cache RAM U18,U21	Tag RAM u12	Cacheable Main Memory(MB)
256KB	(32Kx32)x2pcs	(8Kx8)/(32Kx8)x1pcs	64
512KB	(64Kx32)x2pcs	(32Kx8)x1pcs	84

CPU Installation/Jumper Setting
(A)   JP6, JP11   CPU Type Select
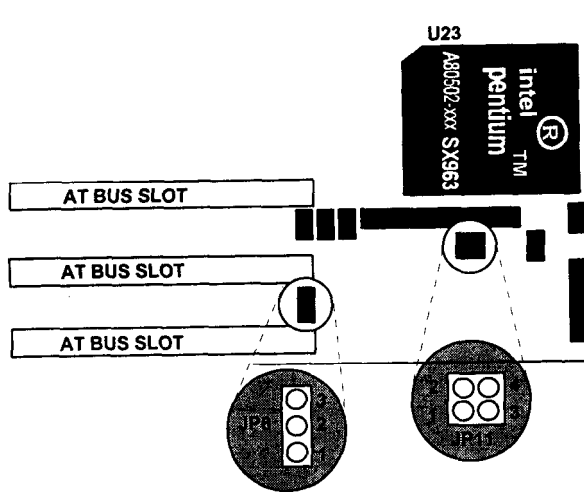
	CPU	JP6	JP11	Remark
Single Voltage	INTEL P54C/CQS/CT Cyrix 6x86™ AMDK5	3 □ 1 1-2 closed	2 4 1 3 closed	V I/O & Vcore =3.45V/3.5V
Dual Voltage	INTEL P55C/CT Cyrix 6x86L AMDK5	3 □ 1 2-3 closed	2 4 1 3 open	V I/O=3.45V/3.5V Vcore=2.6V/2.9V

(B) JP12 (l)Core Voltage & I/O Voltage level Select for

Single Voltage CPU

(2)I/O Voltage level Select for Dual Voltage CPU

U23

AT BUS SLOT

AT BUS SLOT

AT BUS SLOT
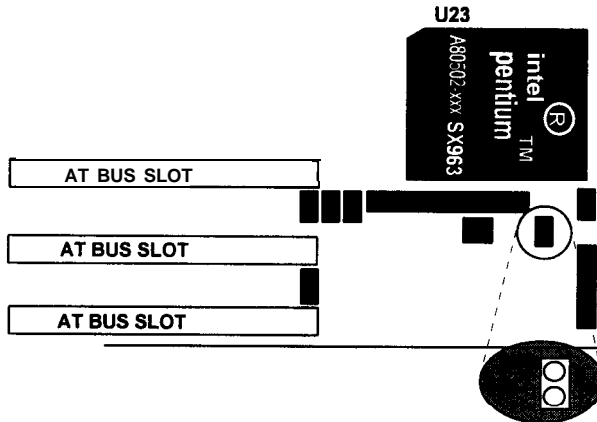
Open   : 3.5V (For VRE SPEC.)

Closed : 3.45V (For Standard and VR SPEC.)
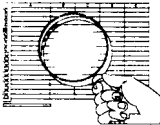
Intel CPU Standard *Spec: 3.135V - 3.365V*
       VR   *Spec: 3.300V - 3.465V*
      VRE   *Spec: 3.450V - 3.600V*
Cyrix 6x86^{TM}   *Spec: 3.150V - 3.600V*
AMDK5^{TM}   *Spec: 3.300V - 3.600V*
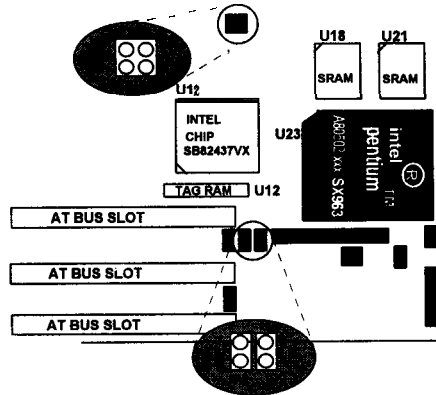. *Please consult CPU SPEC with your CPU dealer.*

## (C)JP14 Core Voltage level Select for Dual Voltage CPU

Open : 2.9V
s e d :   2.6V

(D)   JP5,JP8,JP9   CPU Clock Select
(a) INTEL CPU

CPU Speed	Bus Clock & Multiplier	JP5 (1-2)	JP5 (3-4)	JP8	JP9
75MHz	50MHz x 1.5	closed	closed	open	open
90MHz	60MHz x 1.5	closed	open	open	open
100MHz	66MHz x 1.5	open	closed	open	open
120MHz	60MHz x 2	closed	open	open	closed
133MHz	66MHz x 2	open	closed	open	closed
150MHz	60MHz x 2.5	closed	open	closed	closed
166MHz	66MHz x 2.5	open	closed	closed	closed
180MHz	60MHz x 3	closed	open	closed	open
200MHz	66MHz x 3	open	closed	closed	open
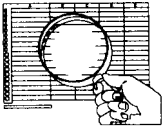
*JP5(1-2) closed & (3-4) closed : Bus Clock = 50MHz
*JP5(1-2) closed & (3-4) open   : Bus Clock = 60MHz
*JP5(1-2) open   & (3-4) closed : Bus Clock = 66MHz
*JP8 open & JP9 open   : Multiplier = 1.5
 VP8 open & JP9 closed : Multiplier = 2
*JP8 closed & JP9 closed : Multiplier = 2.5
*JP8 closed & JP9 open   : Multiplier = 3

(b) Cyrix 6x86^{TM} CPU

CPU Speed	Bus Clock & Multiplier	JP5 (1-2)	JP5 (3-4)	JP8	JP9
P-120+ 100MHz	50MHz x 2	closed	closed	open	Note **
P-133+ 110MHz	55MHz x 2	open	open	open	Note **
P-150+ 120MHz	60MHz x 2	closed	open	open	Note **
P-166+ 133MHz	66MHz x 2	open	closed	open	Note **

*JP5(1-2) closed & (3-4) closed : Bus Clock = 50MHz

*JP5(1-2) open & (3-4) open : Bus Clock = 55MHz

*JP5(1-2) closed & (3-4) open : Bus Clock = 60MHz

*JP5(1-2) open & (3-4) closed : Bus Clock = 66MHz
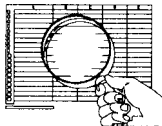
**JP8 open & JP9 open : Multiplier = 2 for P.C. B. Version is "MB-8500TVX-A Ver.2.2" and previous.

**JP8 open & JP9 closed : Multiplier = 2 for P.C.B. Version is "MB-8500TVX-A Ver 2.3" and afterwards.

(c) AMD-K5^{TM} CPU

CPU & Speed	JP5 (1-2)	JP5 (3-4)	JP8	JP9
PR-75	closed	closed	open	open
PR-90	closed	open	open	open
PR-100	open	closed	open	open
PR-120	closed	open	open	open
PR-133	open	closed	open	open
PR-166	open	closed	closed	closed

*JP5(1-2) closed & (3-4) closed : Bus Clock = 50MHz
*JP5(1-2) closed & (3-4) open : Bus Clock = 60MHz
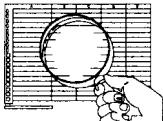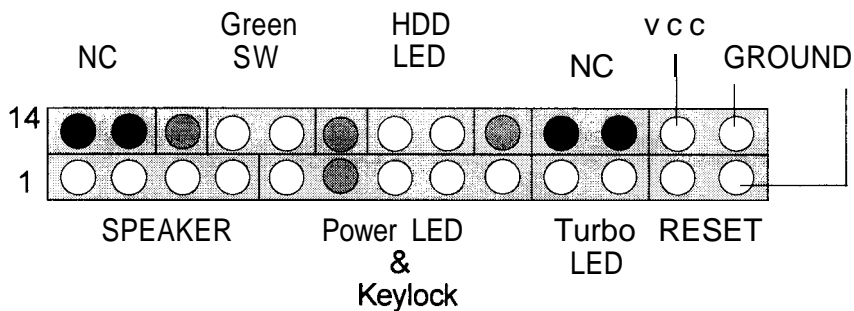*JP5(1-2) open & (3-4) closed : Bus Clock = 66MHz

Connectors

(A) J13

Green   HDD   v c c
NC   SW   LED   NC   GROUND

14 ● ● ● ○ ○ ● ○ ○ ● ● ● ○ ○
1   ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ○ ○

SPEAKER   Power LED   Turbo RESET
&   LED
Keylock

Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	Speaker	Speaker Connector	14	No Connection	No Connection
2	No Connection		15	No Connection	
3	Ground		16	No Connection	No Connection
4	VCC		17	Green Control	Green Switch
5	Power LED(+)	Power LED & Keylock	18	Ground	
6	No Connection		19	No Connection	No Connection
7	Ground		20	HDD LED(-)	HDD LED
8	Key lock		21	HDD LED(+)	
9	Ground		22	No Connection	No Connection
10	Turbo LED(-)	Turbo LED	23	No Connection	No Connection
11	Turbo LED(+)		24	Ground	
12	Reset Control	Reset	25	VCC	VCC
13	Ground		26	Ground	Ground

(B) JP13   **FAN Power Connector**

2 ⬚
1 ⬚

Pin 2 : GND

Pin 1 : +12V
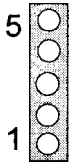
(C) J14   **IR Module Connector**
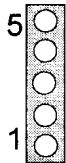
Pin 1 : IRTX

Pin 2 : GND

Pin 3 : IRRX

Pin 4 : NC

Pin 5 : VCC

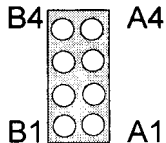**(D) J5**   **PS/2 Mouse Cable Connector**

Pin 1 : MS-DATA

Pin 2 : NC

Pin 3 : GND

Pin 4 : VCC

Pin 5 : MS_CLK

(E) J3   **USB Cable Connector**

Pin Al, B1: VCC

Pin A2 : Port0 DATA-

Pin A3 : Port0 DATA+

Pin A4, B4 : GND

Pin B2 : Port1 DATA-

Pin B3 : Port1 DATA+

DRAM Installation

DRAM Access Time: fast page mode 70ns required or EDO mode 60ns required.

DRAM Type: 4MB/8MB/16MB/32MB SIMM Module (72Pin)

Total Memory Size (MB)	Bank 0 (SIMM1-SIMM2)	Bank1 (SIMM3-SIMM4)
8M	4M x 2 pcs	—
8M	—	4M x 2 pcs
16M	8M x 2 pcs	—
16M	—	8M x 2 pcs
32M	16M x 2 pcs	—
32M	—	16M x 2 pcs
64M	32M x 2 pcs	—
64M	—	32M x 2 pcs
16M	4M x 2 pcs	4M x 2 pcs
24M	4M x 2 pcs	8M x 2 pcs
32M	8M x 2 pcs	8M x 2 pcs
40M	4M x 2 pcs	16M x 2 pcs
48M	8M x 2 pcs	16M x 2 pcs
64M	16M x 2 pcs	16M x 2 pcs
72M	4M x 2 pcs	32M x 2 pcs
80M	8M x 2 pcs	32M x 2 pcs
96M	16M x 2 pcs	32M x 2 pcs
128M	32M x 2 pcs	32M x 2 pcs
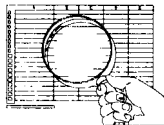
Each Bank can be installed and worked individually, the mainboard provides optimal performance and free choices depending on your needs.

The list above for DRAM configuration is just for reference.

EDO Type DRAM and FAST PAGE Type DRAM can be Mixed in each bank.

AMI BIOS Setup

BIOS Setup configures system information that is stored in CMOS RAM. BIOS Setup has an easy-to-use user interface that will be immediately recognized.

Starting BIOS Setup

As POST executes, the following appears:

Hit <Del > if you want to run setup.

Press <Del > to run BIOS Setup.

Using the Keyboard with BIOS Setup

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

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to previous item
Right arrow	Move to next item
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
F2 key / F3 key	Change color from total 8 colors. F2 to select color forward, F3 to select color backward
F10 key	Save all the CMOS changes, only for Main Menu

Main Menu

Once you enter AM1 BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter > to accept or enter the sub-menu.

■ **Figure 1. Main Menu**

```
              AMIBIOS SETUP - BIOS SETUP UTILITIES
        (C)1995 American Megatrends, Inc. All Rights Reserved

                      Standard CMOS Setup
                      Advanced CMOS Setup
                    Advanced Chipset Setup
                    Power Management Setup
                   PCI / Plug and Play Setup
                        Peripheral  Setup
                   Change  Supervisor  Password
             Auto Configuration with Optimal Settings
            Auto Configuration with Fail Safe Settings
                      Save Settings and Exit
                      Exit Without  Saving




      Standard CMOS setup for changing time, date, hard disk type, etc.
             ESC:Exit ↑↓:Sel F2/F3:Color F10:Save & Exit
```

Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS.

Advanced CMOS Setup

This setup page includes all the items of BIOS special enhanced features.

Advanced Chipset Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This setup page includes all the items of power management features.

PCI / Plug and Play Setup

This setup page includes the four PCI Bus Locations, IRQ Setting and Latency Timer by user define or default.

Peripheral Setup

This setup page includes all the items of peripheral features.

Change Supervisor Password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

Auto Configuration with Optimal Settings

These settings provide the best performance characteristics.

Boot Block BIOS update procedure

- Copy new BIOS file to floppy diskette in floppy drive A: ,and change new BIOS file name to AMIBOOT.ROM.

  The changing new BIOS file name procedure as the following:
  (1) Under DOS prompt ">"
  (2) Type ren xxxxxxxx.ROM AMIBOOT.ROM

- Turn off system power.

- Press < CTRL > C HOME> key and hold simultaneously; then switch on system power.

- Release < CTRL > <HOME > key after three seconds.

- System will update flash memory and cold start again automatically.

Application Software

- Please make sure if any Flash Memory in your system.
- Please use the "AMIFlash Memory Writer" utility to update the flash ROM.
- Under DOS prompt executing **AMIFLASH.COM,** and shows as follow.

■   **Figure 13. Flash Memory Writer**

```
AMIFLASH  Version  x.xx - Flash EPROM Programming Utility
Copyright     (C) 1992-1994 American Megatrends Inc.
Release  Date mm/dd/yy


Enter  BIOS  Filename:


                            Help/Error  Message
Enter the BIOS Filename from which Flash EPROM will be Programmed.
The Format :- [Drv : \ Pathname \ Filename.Ext]
The Filename must end with a <ENTER>.


                            Press <ESC> to Exit
```