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# ***Introduction***

# ***1***

The MS-6309 LE2 ATX mainboard is a high-performance computer mainboard based on VIA® VT82C694X chipset. The MS-6309 LE2 is designed for the Intel® Celeron™ or Coppermine(FC-PGA) processor for inexpensive business/personal desktop markets.

The Apollo Pro133A (VT82C694X) is a Socket-370 system logic north bridge with the addition of 133 MHz capability for both the CPU and SDRAM interfaces. Apollo Pro133A may be used to implement both desktop and notebook personal computer systems from 66MHz to 133MHz based on Socket-370. The primary features of the Apollo Pro133A-North Bridge are: Socket-370 CPU (Front Side Bus) Interface (66 / 100 / 133MHz), DRAM Memory Interface (66 / 100 / 133MHz), AGP Bus Interface (66MHz), PCI Bus Interface (33MHz), Mobile Power Management.

The VT82C686B PSIPC (PCI Super-I/O Integrated Peripheral Controller) is a high integration, high performance, power-efficient, and high compatibility device that supports Intel and non-Intel based processor to PCI bus bridge functionality to make a complete Microsoft PC99-compliant PCI/ISA system.

This chapter includes the following topics:

Mainboard Specification	1-2
Mainboard Layout	1-4
Mainboard Connectors	1-5

## **Chapter 1**

# **Mainboard Specification**

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### **CPU**

- Support Socket 370 for Intel® Pentium® III (FC-PGA)/Celeron™ (FC-PGA) processor.
- Support 500MHz, 553MHz, 600MHz, ... 1.1GHz.

### **Chipset**

- VIA® 694X chipset. (510 BGA)
  - Support 66/100/133MHz FSB
  - AGP 4x/2x and PCI plus Advanced ECC Memory Controller
  - Support PC100/133 SDRAM, VCM technology
- VIA® VT82C686B chipset. (352 BGA)
  - Advanced Power Management Features
  - Integrated Super I/O (FDC, LPT, COM 1/2, and IR)
  - DirectSound AC97 Audio
  - Dual bus Master IDE Ultra DMA33/66/100
  - ACPI

### **Clock Generator**

- 66.6MHz, 100MHz and 133MHz clocks are supported.

### **Main Memory**

- Support six memory banks using three 168-pin unbuffered DIMM.
- Support a maximum memory size of 1.5GB (32M x 8).
- Support ECC (1-bit Error Code Correct) function.
- Support 3.3v SDRAM DIMM.

### **Slots**

- One AGP (Accelerated Graphics Port) slot.
  - AGP specification compliant
  - AGP 66MHz 3.3v/1.5v for 2x/4x device support
- One AMR (Audio Modem Riser) slot.
- Five 32-bit Master PCI Bus slots and one 16-bit ISA bus slots.
- Supports 3.3v/5v PCI bus Interface.

### **On-Board IDE**

- An IDE controller on the VIA® VT82C686B Chipset provides IDE HDD/

CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100 operation modes.

- Can connect up to four IDE devices.

### **On-Board Peripherals**

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports (COMA + COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports

### **Audio**

- Chip Integrated (Software Audio)
  - AC'97 Compliant

### **BIOS**

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

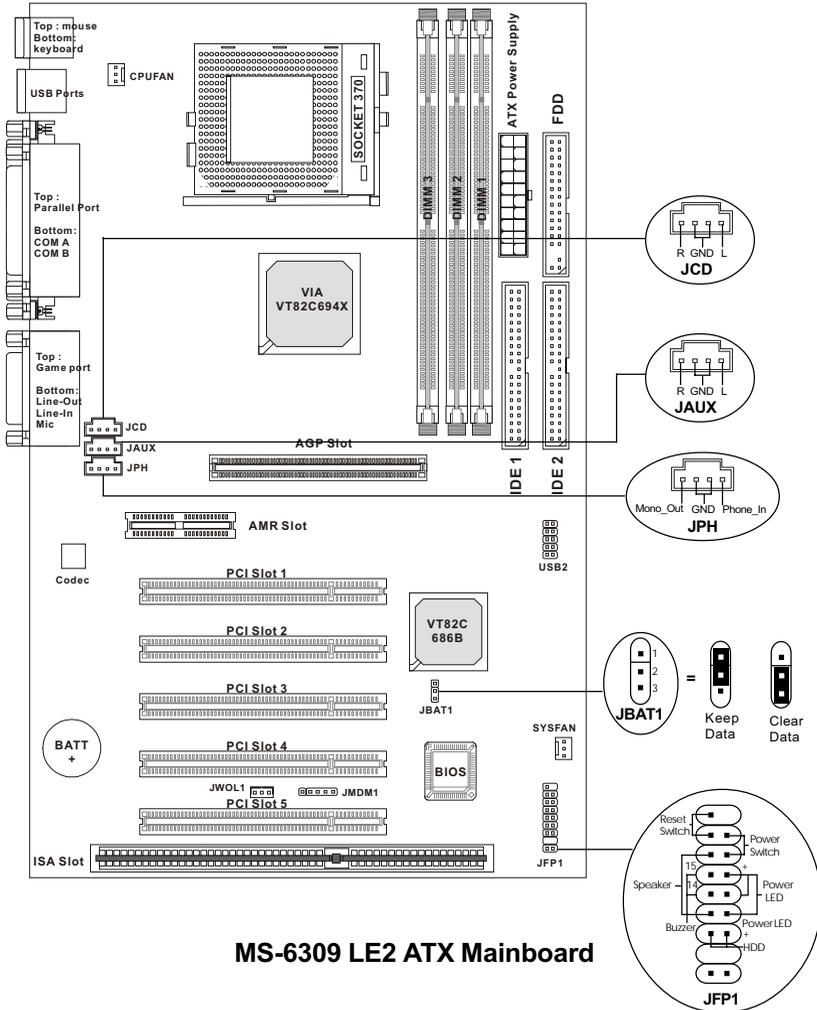
### **Dimension**

- ATX Form Factor : 30.5cm (L) x 19.2cm (W) x 4 layers PCB

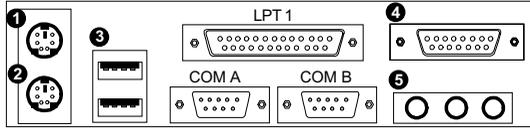
### **Mounting**

- 6 mounting holes.

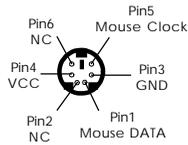
# Mainboard Layout



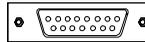
# Mainboard Connectors



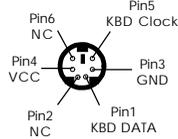
## 1 Mouse Connector



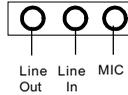
## 4 Joystick/MIDI



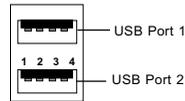
## 2 Keyboard Connector



## 5 Audio Ports



## 3 USB Ports



PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

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# AMI® BIOS Setup

# 2

The mainboard uses AMI® BIOS ROM that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

Entering Setup	2-2
Standard CMOS Setup	2-4
BIOS Features Setup	2-5
Chipset Features Setup	2-6
Power Management Setup	2-7
PNP/PCI Configuration	2-8
Integrated Peripherals	2-9
Hardware Monitor Setup	2-10
IDE HDD AUTO Detection	2-11
Supervisor/User Password	2-12

## Chapter 2

### Entering Setup

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Enter the AMI® setup Program's Main Menu as follows:

1. Turn on or reboot the system. The following screen appears with a series of diagnostic check.

```
AMIBIOS (C) 1999 American Megatrends Inc.  
A6309 VXXX XXXXXX
```

```
Hit <DEL> if you want to run setup
```

```
(C) American Megatrends Inc.  
61-XXXX-001169-00111111-071592-i82440FX-H
```

2. When the “Hit <DEL>” message appears, press <DEL> key to enter the BIOS setup screen.
3. After pressing <DEL> key, the BIOS setup screen will appear.

**Note:** *If you don't want to modify CMOS original setting, then don't press any key during the system boot.*

AMIBIOS SIMPLE SETUP UTILITIES - VERSION 1.20 (C) 1998 American Megatrends, Inc. All Rights Reserved	
Standard CMOS Setup	Integrated Peripherals
BIOS Features Setup	Hardware Monitor Setup
Chipset Features Setup	Supervisor Password
Power Management Setup	User Password
PNP/PCI Configuration	IDE HDD Auto Detection
Load BIOS Defaults	Save and Exit Setup
Load Setup Defaults	Exit Without Saving
Esc :Quit                                   ↑↓→← : Select Item   (Shift)F2: Change Color F5: Old Values F6 :Load BIOS Defaults               F7 :Load Setup Defaults               F10: Save & Exit	
Standard CMOS Setup for changing time, date , hard disk, etc.	

4. Use the <Up> and <Down> key to move the highlight scroll up or down.
5. Use the <ENTER> key to select the option.
6. To exit, press <ESC>. To save and exit, press <F10>.

## Chapter 2

# Standard CMOS Setup

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1. Press <ENTER> on “Standard CMOS Setup” of the main menu screen .

AMIBIOS SETUP - STANDARD CMOS SETUP										
(C)1999 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy):		Fri Oct 29, 1999								
Time (hh/mm/ss):		17:09:25								
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	:Auto						ON	ON	AUTO	ON
Pri Slave	:Auto						ON	ON	AUTO	ON
Sec Master	:Auto						ON	ON	AUTO	ON
Sec Slave	:Auto						ON	ON	AUTO	ON
Floppy Drive A:		1.44 MB 3 1/2								
Floppy Drive B:		Not Installed								
Boot Sector Virus Protection		Disabled								
							Base Memory : 0 Kb			
							Other Memory : 384 Kb			
							Extended Memory : 0 Mb			
							Total Memory : 1 Mb			
Available Options:							ESC:Exit			
Disabled							↑↓:Select Item			
Enabled							PU/PD/+/-:Modify			
							(Shift)F2:Color			

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Standard CMOS Setup, press <ESC> to go back to the main menu.

## BIOS Features Setup

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1. Press <ENTER> on “BIOS Features Setup” of the main menu screen.

AMIBIOS SETUP - BIOS FEATURES SETUP			
(C) 1999 American Megatrends, Inc. All Rights Reserved			
Quick Boot	:Enabled		
1st Boot Device	:Floppy	D800, 16K Shadow	:Disabled
2nd Boot Device	:IDE-0	DC00, 16K Shadow	:Disabled
3rd Boot Device	:CDROM		
Initial Display Mode	:BIOS		
S.M.A.R.T. For Hard Disk	:Disabled		
Boot Num-Lock	:On		
Floppy Drive Swap	:Disabled		
Floppy Drive Seek	:Disabled		
Password Check	:Setup		
Boot to OS/2 > 64M	:No		
CPU Serial Number	:Enabled		
L2 Cache	:Write Back		
Cache Bus ECC	:Disabled		
System BIOS Cacheable	:Enabled	ESC:Exit	↑↓←→:Select Item
C000, 32k Shadow	:Disabled	F1 :Help	PU/PD/+/-:Modify
C800, 16K Shadow	:Disabled	F5 :Old Values (Shift)	F2:Color
CC00, 16K Shadow	:Disabled	F6 :Load BIOS Defaults	
D000, 16K Shadow	:Disabled	F7 :Load Setup Defaults	
D400, 16K Shadow	:Disabled		

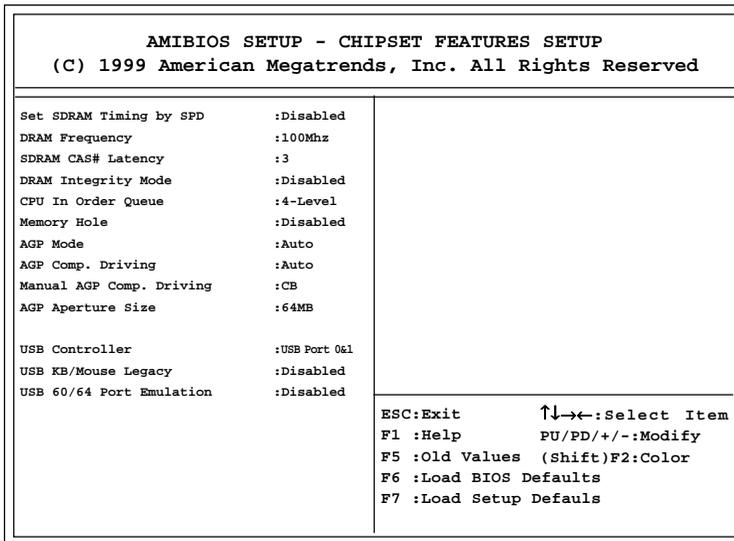
2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the BIOS Features Setup, press <ESC> to go back to the main menu.

## Chapter 2

# Chipset Features Setup

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1. Press <ENTER> on “Chipset Features Setup” of the main menu screen.



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Chipset Features Setup, press <ESC> to go back to the main menu.

## Power Management Setup

1. Press <ENTER> on “Power Management Setup” of the main menu screen.

AMIBIOS SETUP - POWER MANAGEMENT SETUP			
(C) 1999 American Megatrends, Inc. All Rights Reserved			
Compliance With O/S	:Yes	System Thermal	:Ignore
ACPI Standby State	:S1/POS	Thermal Slow Clock Ratio	:50%-56.25%
Power Management/APM	:Enabled	Power Button Function	:On/Off
Green PC LED Status	:Dual Color	Restore on AC/Power Loss	:Last State
Video Power Down Mode	:Suspend	Resume On Ring/LAN	:Enabled
Hard Disk Power Down Mode	:Stand-by	Resume On PME#	:Disabled
Standby Time Out (Minute)	:Disabled	Resume On RTC Alarm	:Disabled
Suspend Time Out (Minute)	:Disabled	RTC Alarm Date	:15
Throttle Slow Clock Ratio	:50%-56.25%	RTC Alarm Hour	:12
Display Activity	:Ignore	RTC Alarm Minute	:30
IRQ3	:Monitor	RTC Alarm Second	:30
IRQ4	:Monitor		
IRQ5	:Ignore		
IRQ7	:Monitor		
IRQ9	:Ignore	ESC:Exit	↑↓←→ :Select Item
IRQ10	:Ignore	F1 :Help	PU/PD/+/-:Modify
IRQ11	:Ignore	F5 :Old Values (Shift)	F2:Color
IRQ13	:Ignore	F6 :Load BIOS Defaults	
IRQ14	:Monitor	F7 :Load Setup Defaults	
IRQ15	:Ignore		

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Power Management Setup, press <ESC> to go back to the main menu.

## Chapter 2

# PNP/PCI Configuration

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1. Press <ENTER> on “PNP/PCI Configuration” of the main menu screen.

AMIBIOS SETUP - PNP/PCI CONFIGURATION		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
PnP Aware O/S	:No	
Clear NVRAM	:No	
PCI Latency Timer	:64	
Primary Graphics Adapter	:PCI	
PCI VGA Palette Snoop	:Disabled	
DMA Channel 0	:PnP	
DMA Channel 1	:PnP	
DMA Channel 3	:PnP	
DMA Channel 5	:PnP	
DMA Channel 6	:PnP	
DMA Channel 7	:PnP	
IRQ3	:PCI/PnP	
IRQ4	:PCI/PnP	
IRQ5	:PCI/PnP	
IRQ7	:PCI/PnP	
IRQ9	:PCI/PnP	ESC:Exit           ↑↓←→:Select Item
IRQ10	:PCI/PnP	F1 :Help            PU/PD/+/-:Modify
IRQ11	:PCI/PnP	F5 :Old Values (Shift)F2:Color
IRQ14	:PCI/PnP	F6 :Load BIOS Defaults
IRQ15	:PCI/PnP	F7 :Load Setup Defaults

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the PNP/PCI Configuration, press <ESC> to go back to the main menu.

## Integrated Peripherals

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1. Press <ENTER> on “Integrated Peripherals” of the main menu screen.

AMIBIOS SETUP - INTEGRATED PERIPHERALS	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
Onboard IDE	:Both
Onboard FDC	:Auto
Onboard Serial Port 1	:Auto
Onboard Serial Port 2	:Auto
Serial Port 2 Mode	:Normal
Duplex Mode	:N/A
Onboard Parallel Port	:Auto
Parallel Port Mode	:ECP
EPP Version	:N/A
Parallel Port DMA	:Auto
Parallel Port IRQ	:Auto
Onboard AC'97 Audio	:Enabled
Onboard MC'97 Modem	:Disabled
Codec Variable Rate	:Enabled
OnBoard Legacy Audio	:Enabled
Sound Blaster	:Disabled
ESC:Exit                   ↑↓→←:Select Item F1 :Help                    PU/PD/+/-:Modify F5 :Old Values (Shift)F2:Color F6 :Load BIOS Defaults F7 :Load Setup Defaults	

2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Integrated Peripherals, press <ESC> to go back to the main menu.

## Chapter 2

# Hardware Monitor Setup

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1. Press <ENTER> on “Hardware Monitor Setup” of the main menu screen.

AMIBIOS SETUP - Hardware Monitor Setup	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
ClkGen Spread Spectrum	:Enabled
CPU Host/PCI Clock (MHz)	:Auto
CPU Ratio Selection	:3.0X
CPU Vcore Selection	:Auto
-- System Monitor --	
Current CPU Temperature	:45°C/113°F
Current System Temperature	:32°C/89°F
Current CPU Fan Speed	:5200 RPM
Current Chassis Fan Speed	:0 RPM
Vcore	:2.112V
+2.500V	:2.575V
+3.300V	:3.373V
+5.000V	:4.946V
+12.000V	:11.986V
ESC:Exit	↑↓←→:Select Item
F1 :Help	PU/PD/+/-:Modify
F5 :Old Values (Shift)	F2:Color
F6 :Load BIOS Defaults	
F7 :Load Setup Defaults	

2. Use <up> and <down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.
3. After you have finished with the Peripheral Setup, press <ESC> to go back to the main menu.

## IDE HDD AUTO Detection

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You can use this utility to automatically detect the characteristics of most hard drives.

AMIBIOS SETUP - STANDARD CMOS SETUP										
(C)1999 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy):		Fri Oct 29, 1999								
Time (hh/mm/ss):		17:09:25								
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	:Auto						ON	ON	AUTO	ON
Pri Slave	:Auto						ON	ON	AUTO	ON
Sec Master	:Auto						ON	ON	AUTO	ON
Sec Slave	:Auto						ON	ON	AUTO	ON
Floppy Drive A:		1.44 MB 3 1/2								
Floppy Drive B:		Not Installed								
Boot Sector Virus Protection					Disabled					
							Base Memory : 0 Kb			
							Other Memory : 384 Kb			
							Extended Memory : 0 Mb			
							Total Memory : 1 Mb			
Available Options:							ESC:Exit			
Disabled							↑↓:Select Item			
Enabled							PU/PD/+/-:Modify			
							(Shift)F2:Color			

## Chapter 2

### Supervisor/User Password

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This Main Menu item lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program. Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Supervisor/User Password" in the Main Menu and press <Enter>. The following message appears:

"Enter New Supervisor/User Password:"

2. The first time you run this option, enter your password up to 6 characters only and press <Enter>. The screen will not display the entered characters. For no password, just press <Enter>.
3. After you enter the password, the following message appears prompting you to confirm the password:

"Retype New Supervisor/User Password:"

4. Enter exactly the same password you just typed in to confirm the password and press <Enter>.
5. Move the cursor to Save and Exit Setup to save the password.
6. If you need to delete the password you entered before, choose the Supervisor/User Password and press <Enter>. It will delete the password that you had before.
7. Move the cursor to Save and Exit Setup to save the option you did. Otherwise, the old password will still be there when you turn on your machine next time.