FB65

Pentium 4/Celeron , 478-pin Processor Based MAIN BOARD

Shuttle® FB65

Pentium 4/Celeron , 478-pin Processor Based Mainboard
Manual Version 1.0

Copyright

Copyright© 2003 by Shuttle® Inc. All Rights Reserved.

No part of this publication may be reproduced, transcribed, stored in a retrieval system, translated into any language, or transmitted in any form or by any means, electronic, mechanical, magnetic, optical, chemical, photocopying, manual, or otherwise, without prior written permission from Shuttle® Inc.

Disclaimer

Shuttle® Inc. shall not be liable for any incidental or consequential damages resulting from the performance or use of this product.

This company makes no representations or warranties regarding the contents of this manual. Information in this manual has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. In the interest of continued product improvement, this company reserves the right to revise the manual or include changes in the specifications of the product described within it at any time without notice and without obligation to notify any person of such revision or changes. The information contained in this manual is provided for general use by the customers.

Trademarks

Shuttle is a registered trademark of Shuttle Inc.

Intel, Pentium is a registered trademarks of Intel Corporation.

PS/2 is a registered trademark of IBM Corporation.

AWARD is a registered trademark of Award Software Inc.

Microsoft and Windows are registered trademarks of Microsoft Corporation.

General Notice: Other product names used in this manual are ascribed to their respective owners and acknowledged.

Statement of Shuttle Mainboard via the EMI Test

Shuttle mainboards have been via the EMI test in terms of series of regulations: EN55022/ CISPR22/AS/NZS3548 Class B, EN55024 (1998/AS/NZS), EN4252.1 (1994), EN61000, ANSI C63.4 (1992), CFR47 Part 15 Subpart B, and CNS13438 (1997). The items tested are illustrated as follows:

(A) Voltage: AC 110V/60HZ & AC 230V/50HZ

(B) Tested Product Information:

Product Name: PC Mainboard
Status: Sample
Model Name: FB65
S/N:
CPU:
External Frequency: 100 MHz
Intel P4 1.8/2.0/2.2/2.4/2.5GHz
External Frequency: 133 MHz
Intel P4 2.26/2.4/2.53/2.66/2.80/3.06 GHz
External Frequency: 200 MHz
Intel P4 Northwood 2.4/2.6/2.80/3.0 GHz
Keyboard Port: one port with 6 pins
Mouse Port: one port with 6 pins
USB 2.0 Port: four ports with 4 pins respectively
Parallel Port: one port with 9 pins
LAN Port: one port with 8 pins
1394 Port: one port with 6 pins
Line-Out & Line-In & Mic-In Ports: one port for each
DDR Memory: 256 MB *2

All CPUs have completely been tested, and values offered by the worst EMI combination of CPU external frequency are listed as follows:

Test Mode	External Frequency	CPU	Power Supply	Case Open/Closed
1	133MHz	Pentium4 3.06GHz	ENP-2320	Closed
2	133MHz	Pentium4 3.06GHz	ENP-2320	Open
3	100MHz	Pentium4 2.4GHz	ENP-2320	Closed
4	100MHz	Pentium4 2.4GHz	ENP-2320	Open

(C) Remedy for the Tested Product & Its EMI Interference:

Remedy: N/A
EMI Interference:
Crystal: 32.768 KHz(X1)/14.318 MHz(X2)/25 MHz(X4)/24.576(X6)
Clock Generator: U5

(D) Supported Host Peripherals:

Host Peripheral	Product Name	Model Name	S/N	FCC ID
#1	Case	KF45A	N/A	
#2	Power Supply (300W)	ENP-0730 (ATX12V)	1000002885	
#3	IBM HDD (30.7GB)	91024UB	YKFY7981	3892I168
#4	MITSUMI FDD	D353M		
#5	SONY VCD Player	CDU4811		3892A291
#6	AGP Card	Winfast Geforce 2 MX		3892C520
#7	Power Cable	Detachable and Shielded		

(E) Notices for Assembling Computers:

1. Cases should be made of iron or other metal that has good electric conductivity.
2. Cylinders in a case should be made of metal, and as having a mainboard mounted in a case, make sure screws are all utilized and fastened on a mainboard.
3. An I/O shielding should be contacted with I/O metallic parts of a mainboard.
4. Cables should appropriately be arranged and fixed in a case. Follow instructions:
   - Leave IDE cables not crossed upon CPU and SDRAM;
   - Leave power cables minimum in length, and not crossed upon a mainboard;
   - Leave CPU fan cables minimum in length, and not near CPU;
   - Leave cables on panels and other spare cables tied in a computer case.
5. Make sure an EMI shielding attached to a case has properly been installed.
6. Make sure a 5.25" or 3.5" FDD and screws are fastened to an EMI shielding.
7. Make sure a case is closely in contact with EMI connected points.
8. Make sure there is no cleft in a case which is not deformed.
9. Make sure a PCI or AGP door is bound to a case.
10. Make sure cables of other devices (fans or some others) are fixed in a case.

TABLE OF CONTENTS

WHAT'S IN THE MANUAL 5

Quick Reference 5

About This Manual 5

1 INTRODUCTION 6

1.1 TO DIFFERENT USERS 6

FIRST-TIME DIY SYSTEM BUILDER 6

EXPERIENCED DIY USER 6

SYSTEM INTEGRATOR 6

1.2 ITEM CHECKLIST 7

2 FEATURES 8

2.1 SPECIFICATIONS 8

3 HARDWARE INSTALLATION 11

3.1 STEP BY STEP INSTALLATION 11

Accessories of FB65 11

STEP 1 CPU Installation 12

STEP 2 Set Jumpers 13

STEP 3 Install DDR SDRAM System Memory 13

STEP 4 Install Internal Peripherals in System Case 14

STEP 5 Mount the Mainboard on the Computer Chassis 15

STEP 6 Connect Front Panel Switches/LEDs/USB/1394a/MIC/Line-in/Line-out 16

STEP 7 Connect IDE, Floppy, and Serial ATA Disk Drives 18

STEP 8 Connect Other Internal Peripherals 19

STEP 9 Connect the Power Supply 21

STEP 10 Install Add-on Cards in Expansion Slots 21

STEP 11 Connect External Peripherals to Back-Panel 22

STEP 12 First Time System Boot Up 23

STEP 13 Install Drivers & Software Components 24

3.2 JUMPER SETTINGS 25

JUMPERS & CONNECTORS GUIDE 26

Jumpers

Clear CMOS Setting (JP1) 28

Back-Panel Connectors

COM1 Port Connector 29

IEEE 1394a Port Connectors 29

USB0/1 Port Connectors 29

10/100 base-T LAN Port Connector 29

USB2/3 Port Connectors 29

PS/2 Keyboard & PS/2 Mouse Connectors 30

Bass/Center-Out Port Connector 30

Rear-Out Port Connector ..... .30

Front-Out Port Connector 30

Front-Panel Connectors

ATX Power On/Off Switch Header (PWON) 31

HDD LED Header (HLED) 31

Green LED / Power LED Header (GLED/PLED) 32

Hardware Reset Header (RST) 32

Front Panel Connector (JP16) 33

Internal Peripherals Connectors

Enhanced IDE, Floppy ATA Connectors 34

Serial ATA Connectors 34

Other Connectors

ATX Power Supply Connector (ATX1 and ATX2) 35

CPU and System Fan Connector (FAN1/2/3) 36

Audio CD_IN Connector (JP11) (Black) 36
Wireless Keyboard and Mouse Headers (JP6) 36
Parallel Port Header (JP8) 37
IR Header (JP7) 37
SPDIF-Out/In Header (JP3) 38
Extend USB Header (USB4) 38
3.3 SYSTEM MEMORY CONFIGURATION 39
INSTALL MEMORY 39
UPGRADE MEMORY 39
4 SOFTWARE UTILITY 40
4.1 Mainboard CD Overview 40
4.2 Install Mainboard Software 41
4.2.A Install Intel Chipset Driver 42
4.2.B Install Realtek Audio Driver 42
4.2.C Install Realtek LAN Driver 43
4.2.D Install USB2.0 Driver 43
4.3 View the User's Manual 44
5 BIOS SETUP 45
5.1 ENTER BIOS 45
5.2 THE MAIN MENU 46
STANDARD CMOS FEATURES 48
ADVANCED BIOS FEATURES 51
ADVANCED CHIPSET FEATURES 55
INTEGRATED PERIPHERALS 58
POWER MANAGEMENT SETUP 65
PNP/PCI CONFIGURATIONS 69

PC HEALTH STATUS 71
FREQUENCY/VOLTAGE CONTROL 73
LOAD FAIL-SAFE DEFAULTS 75
LOAD OPTIMIZED DEFAULTS 75
SET PASSWORD 76
SAVE & EXIT SETUP 77
EXIT WITHOUT SAVING 77

WHAT'S IN THE MANUAL

Quick Reference

Hardware Installation >> Step-by-Step ..... Page 11

Jumper Settings >> A Closer Look ..... Page 25

Drivers/Software Utilities >> How to Install ..... Page 40

BIOS Setup >> How to Configure ..... Page 45

About This Manual

For First-Time DIY System Builder ..... Page 6

For Experienced DIY User ..... Page 6

For System Integrator ..... Page 6

1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the 3.1 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle FB65 mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle FB65 mainboard. You will find that installing your new Shuttle FB65 mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated FB65 mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections 3.2 Jumper Settings and Chapter 4 Drivers/Software Utilities to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains the relevant information on how to tune up your system to achieve higher performance.

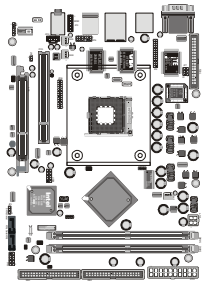
System Integrator

You have wisely chosen Shuttle FB65 to construct your system. Shuttle FB65 incorporates all the state-of-the-art technology of the Intel 82865PE + 82801EB chipset from Intel. It integrates the most advanced functions you can find to date in a compact Small Form Factor ATX board.

1.2 Item Checklist

Check all items with your FB65 mainboard to make sure nothing is missing. The complete package should include:

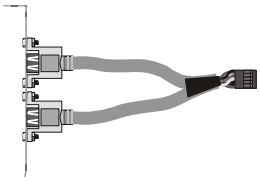
- One piece of Shuttle FB65 Mainboard



- One piece of ATA100/66 /33 Ribbon Cable

- One piece of Floppy Ribbon Cable

- One piece of twin ports USB Cable (optional)



- One piece of Serial ATA Cable

- FB65 User's Manual

- One piece of Bundled CD-ROM with containing:
  - FB65 user's manual saved in PDF format
  - Intel Chipset driver
  - Install Realtek Audio driver
  - Install Realtek LAN driver
  - Install USB2.0 driver
  - Award Flashing Utility

2 FEATURES

FB65 mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

2.1 Specifications

✸ CPU Support

Intel Pentium 4/Celeron, 478-pin supports Northwood processors with 400/533/800MHz FSB.

✸ Chipset

Features Intel 865PE N.B. and ICH5 S.B..

Onboard Lan

Realtek 8100B, support 10Mbps and 100Mbps operation.

Onboard 1394a

VIA VT6307, support 400Mb/s, 200Mb/s, or100Mb/s data transfer rate.

✸ Jumperless CPU Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100MHz to 255MHz in the Frequency/Voltage Control of BIOS setup program.)

✸ On Board 5.1 Channel AC97 Audio

C-Media 9793A compliant with AC'97 2.2 involves SPDIF-IN/OUT function.

5.1 channel slot selectable DAC Output for multi-channel applications.

✸ Versatile Memory Support

Features the dual-channel mode of 128 bit data transfer rate.
Two 184-pin DIMM slots to support up to 3.2GB of PC2100, PC2700 or PC3200 compliant DDR SDRAM module.

✸ AGP Expansion Slot

Provides one 32-bit AGP slot which support 4X/8X AGP device.

✸ PCI Expansion Slots

Provides one 32-bit PCI slot.

✸ 8 USB 2.0/1.1 Complaint Interface Onboard

- 4 x USB 2.0 connectors on back-panel and two sets of dual USB port headers on mid-board.

✸ I/O Interface

Provides a variety of I/O interfaces:

- 1 x Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, or 2.88MB format or for 5.25-inch FDD with 360K or 1.2MB format.
- 1 x DB9 Serial connectors 16550 UART compatible.
- 4 x USB2.0 ports.
- 1 x IEEE1394a connectors.
- 1 x RJ45 LAN connector.
- 1 x PS/2 mouse connector.
- 1 x PS/2 Keyboard connector.
- 1 x Front-Out port.
- 1 x Rear-Out port.
- 1 x Bass/Center-Out port.

✸ PCI Bus Master IDE Controller Onboard

Two Ultra DMA 100/66/33 Bus Master Dual-channel IDE ports provide support to a maximum of four IDE devices (one Master and one Slave per channel). The IDE Bus implements data transfer speeds of up to 100/66/33 MB/sec and also supports Enhanced PIO Modes.

80-pin Cable Backward Compatible Legacy ATAPI Devices, ATAPI IDE CD-ROM, CD-R, CD-RW, and LS-120 Supports.

✸ ATX Power Supply Connector

ATX power supply unit can connect to the onboard 20-pin Pentium 4 standard ATX power connectors, supporting Suspend and Soft-On/Off by dual-function power button.

The Pentium 4 ATX power include other 4-pin +12V ATX power connector.

✸ Advanced Configuration and Power Interface

Features four power saving modes: S1 (Snoop), S3 (Suspend to RAM), S4 (Suspend to DISK), and S5 (Soft-Off). ACPI provides more efficient Energy Saving Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

✸ System BIOS

Provides licensed Award BIOS V6.0 PG on 4Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

✸ Form Factor

System board conforms to Small from factor ATX specification.

Board dimension: 254mm x 185mm.

✸ Advanced Features

- Low EMI - Built in spread spectrum and automatic clock shut-off of unused PCI/SDRAMS slots to reduce EMI.
- Dual Function Power Button - The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode. When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.
- Modem Ring Power-On - The system can be powered on automatically by the activation of modem ringing.

✸ Intelligent Features

- Voltage Monitoring - Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through mainboard components.
- Fan Status Monitoring - To prevent CPU from overheating, the CPU fan is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required.)
- Temperature Monitoring - This item allows users to make sure whether the CPU or system runs in a suitable temperature.
- CPU Fan AutoGuardian - This SMART Bios enabled 3 phase Variable Fan Speed and CPU temperature Control feature.

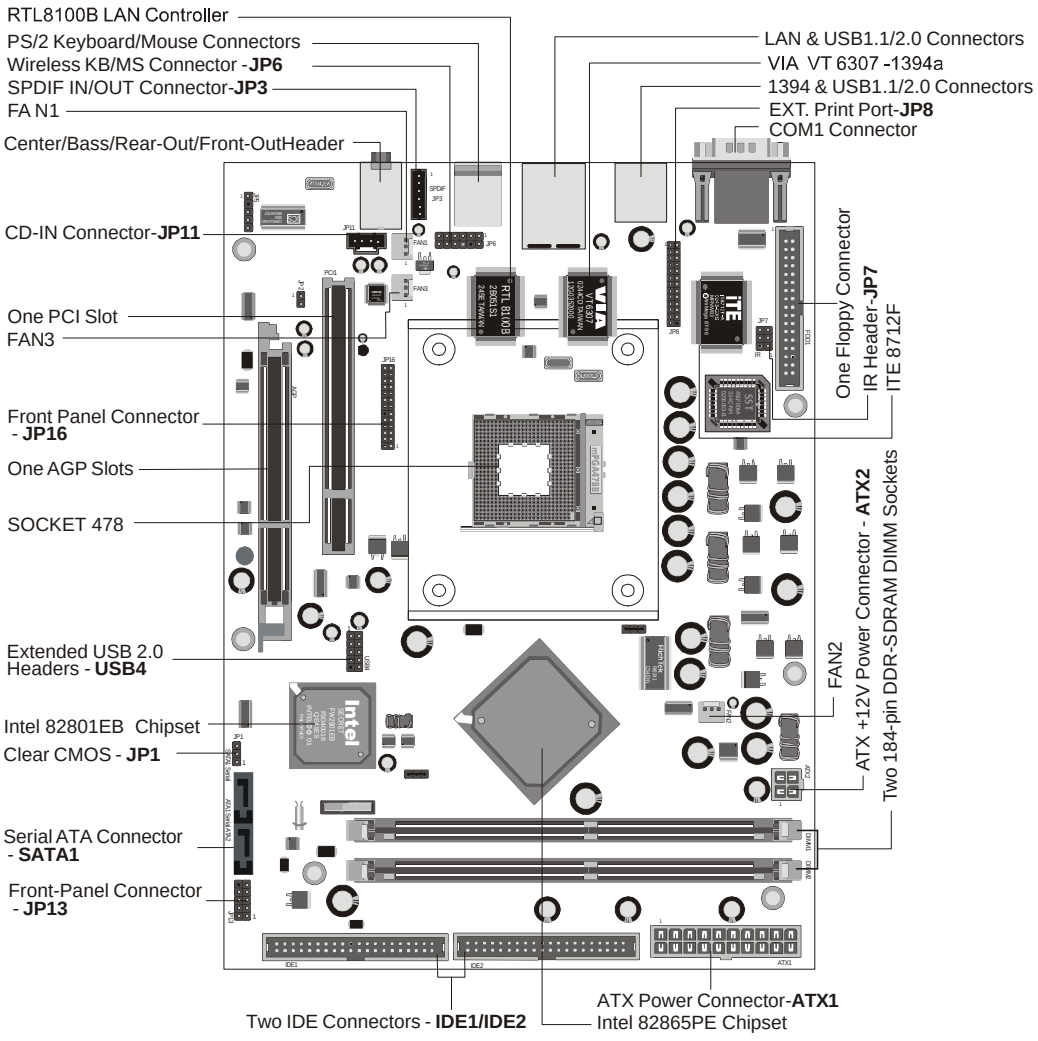
3 HARDWARE INSTALLATION

Before removing or installing any of these devices including CPU, DIMMs, Add-On Cards, Cables, please make sure to unplug the onboard power connector.

This section outlines how to install and configure your mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of FB65



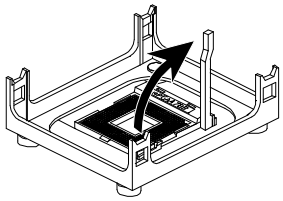
Step 1

CPU Installation:

This mainboard supports Intel Pentium 4/Celeron Socket 478 series CPU. Please follow the steps as follows to finish CPU installation.

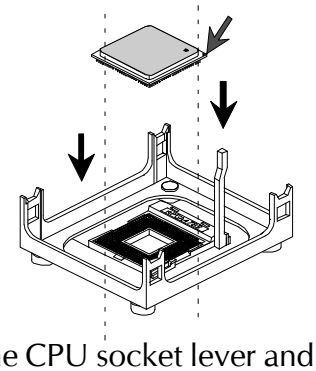
Note the CPU orientation when you plug it into CPU socket.

1. Pull up the CPU socket lever to 90-degree angle.



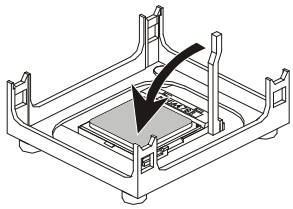
CPU socket lever up to 90-degree angle

2. Locate Pin 1 in the socket and look for a black dot or cut edge on the CPU upper interface. Match Pin 1 and cut edge, and insert the CPU into the socket.



CPU Pin 1 and cut edge

3. Press down the CPU socket lever and finish CPU installation.



Note: The CPU might be damaged if you do not match the CPU socket Pin 1 and cut edge well.

4. Intel Pentium 4/Celeron processors require a set of heatsink and fan to cool down the processor. You need to purchase a heatsink and fan if they are not bundled with your CPU. Required is that install the set and plug its cable in the CPU fan power connector. Note that there are kinds of CPU fan connectors. Normally, if your mainboard supports a hardware monitoring function, a 3-pin fan power connector can have your system detect the CPU fan's speed. A CPU fan with a 2-pin or 4-pin fan power connector does not support the detection of the CPU fan's speed, and must directly be connected to the system's power supply unit.

Step 2.

Set Jumpers

This mainboard is jumperless! The default jumper settings have been set for the common usage standard of this mainboard. Therefore, you do not need to reset the jumpers unless you require special adjustments as any of the following cases:

1. Clear CMOS

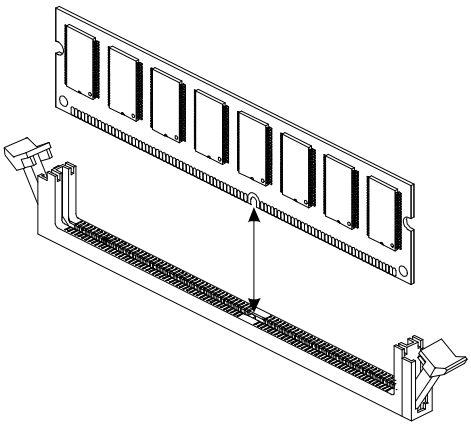
For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their system, section 3.2 Jumper Settings will provide detailed information on how to configure your mainboard manually.

Step 3

Install DDR SDRAM System Memory

To install memory, insert DDR SDRAM memory module(s) in DIMM slot(s). Note that DDR SDRAM modules are directional and will not go in the DIMM slots unless properly oriented. After the module is fully inserted into the DIMM slots, lift the clips of both sides of the DIMM slot to lock the module in place.

DDR SDRAM



Step 4

Install Internal Peripherals in System Case

Before you install and connect the mainboard into your system case, we recommend that you first assemble all the internal peripheral devices into the computer housing, including but not limited to the hard disk drive (IDE/ HDD), floppy disk drive (FDD), CD-ROM drive, and ATX power supply unit. This will greatly facilitate in making the connections to the mainboard described below.

To install IDE & FDD drives, follow this procedure:

1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM, have to set jumpers to Master or Slave mode depending on whether you install more than one device of each kind.)

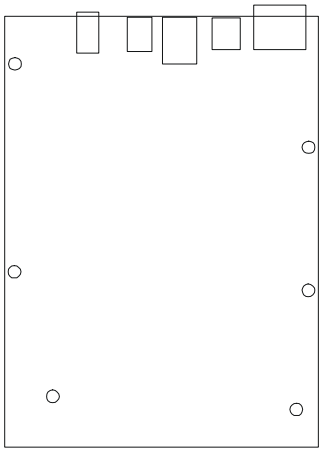
2. Connect IDE cable and FDD cable on the back-panel of the internal peripheral devices to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.

3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

Step 5

Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose correct mounting holes, the key point is to keep the back-panel of the mainboard in a close fit with your system case, as shown below.



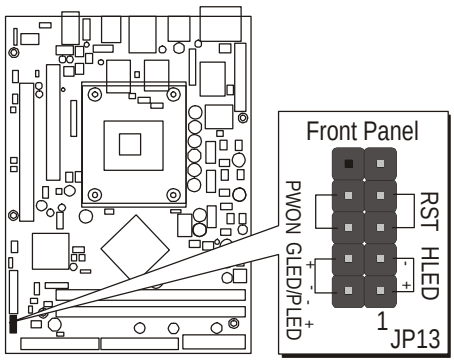
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system's chassis and the mainboard, in order to avoid any electrical shorts between the board and the metal frame of the chassis. (If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

Note: In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and then fix the mainboard. If there aren't enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

Step 6

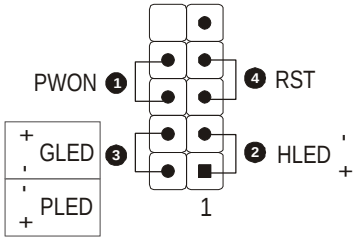
Connect Front Panel Switches/LEDs

You can find there are several different cables already existing in the system case and originatinting from the computer's front-panel devices (HDD LED, Power LED,or Reset Switch devices etc.) These cables serve to connect the front-panel switches and LEDs connectors to the mainboard's front-panel connectors group, as shown below.



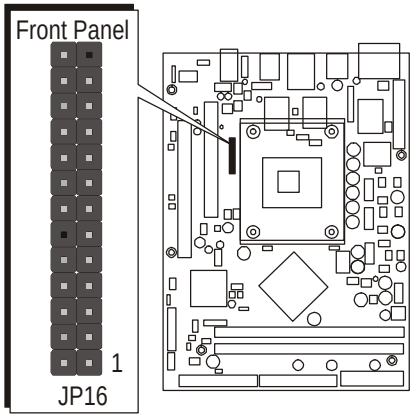
1. ATX Soft Power On/Off (PWON)
2. HDD-LED (HLED)
3. Green-LED and Power-LED (GLED/PLED)
4. Hardware Reset Switch Button (RST)

Front Panel-JP13



Connect Front Panel USB/1394a/MIC/Line-out/Line-in(optional)

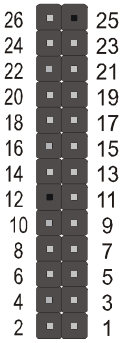
You can find there are several different cables already existing in the system case and originatinting from the computer's front-panel devices (USB4/5, 1394a, MIC, Line-in, or Line-out devices etc.) These cables serve to connect the USB4/5, 1394a, MIC, Line-in, or Line-out connectors to the mainboard's front-panel connectors group, as shown below.



Pin Assignments:

1 = USBVCC	2 = USBVCC	3 = Data5-
4 = Data4-	5 = Data5 +	6 = Data4 +
7 = GND	8 = GND	9 = TPA1 +
10 = TPA1-	11 = GND	12 = Key
13 = TPB1 +	14 = TPB1-	15 = GND
16 = GND	17 = Front FMIC	18 = FMIC Power
19 = Line-in-L	20 = Line-in-R	21 = Line-out-R(in)
22 = Line-out-R(out)	23 = Line-out-L(in)	24 = Line-out-L(out)
25 = Key	26 = Reserved	

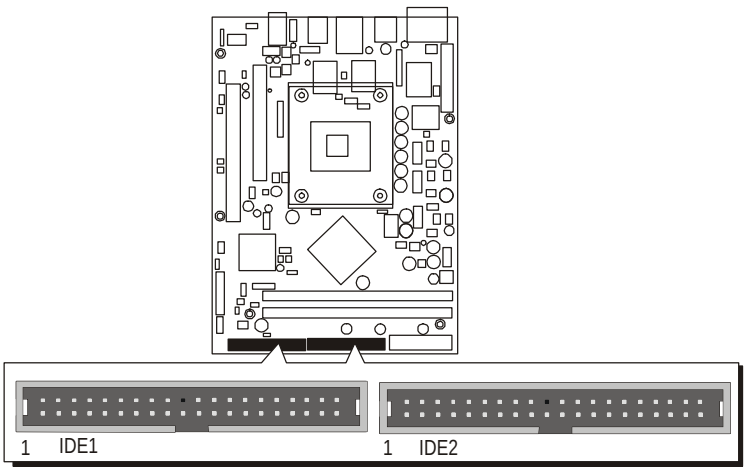
❺ Front Panel-JP16



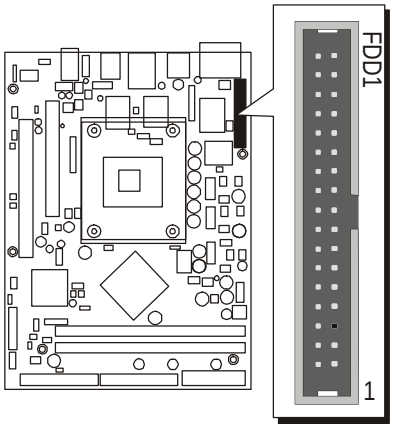
Step 7

Connect IDE, Floppy, and Serial ATA Disk Drives

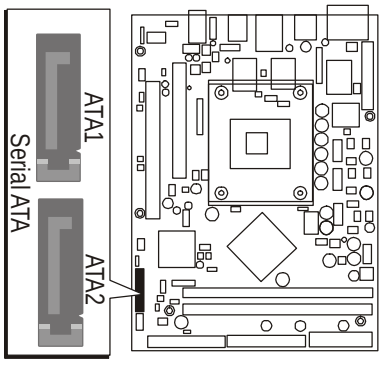
1. IDE cable connector



2. Floppy cable connector



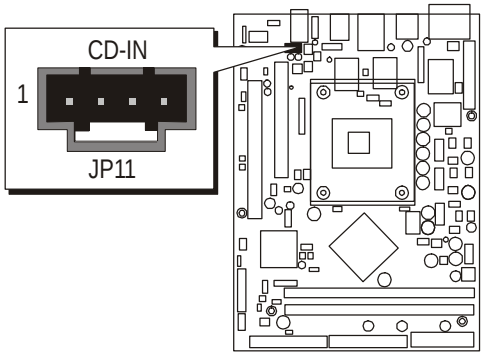
3. Serial ATA connector



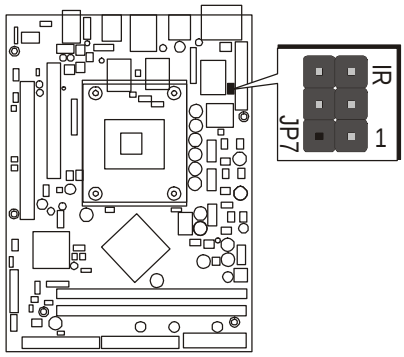
Step 8

Connect Other Internal Peripherals

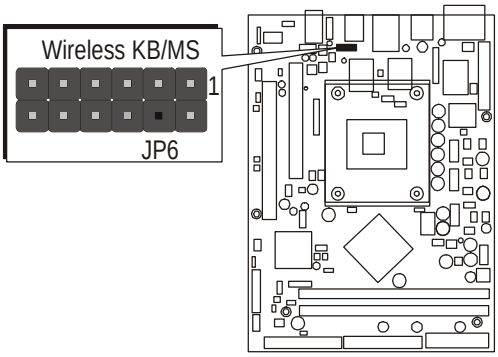
1. CD-IN Header (JP11)



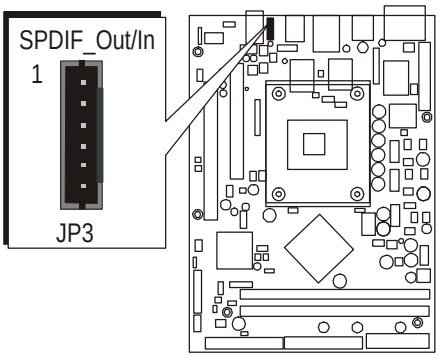
2. IR Header (JP7)



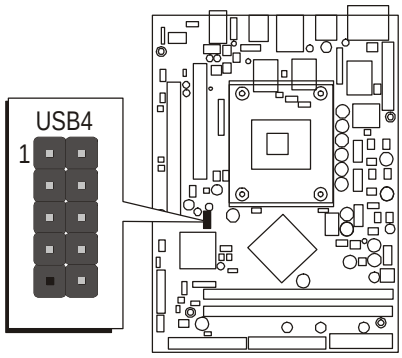
3. Wireless keyboard and mouse headers (JP6)



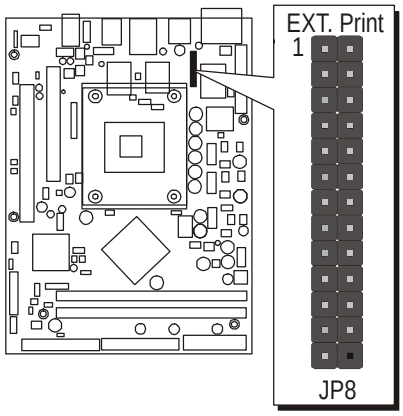
4. SPDIF_Out /IN header (JP3)



5. Extended USB Header (USB4)



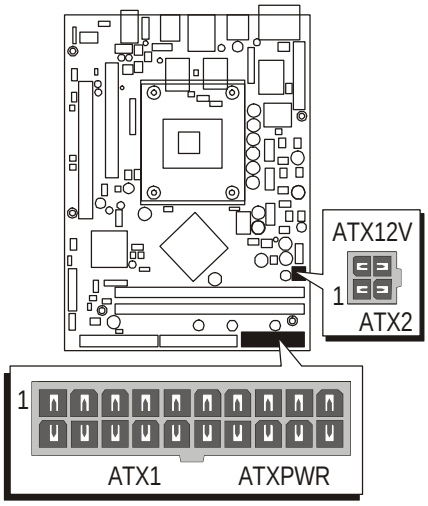
6. Parallel Port (EXT. Print) - (JP8)



Step 9

Connect the Power Supply

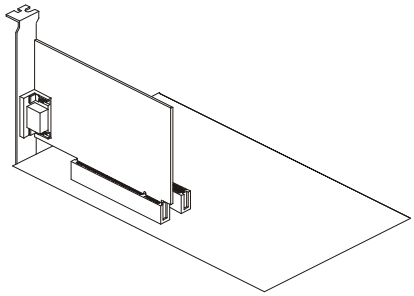
1. System power connector (ATX1/ATX2)



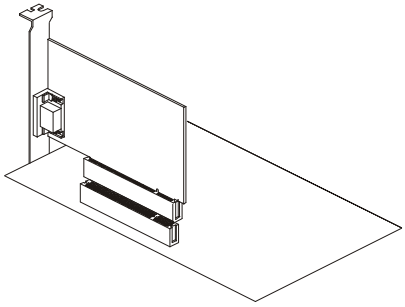
Step 10

Install Add-on Cards in Expansion Slots

1. Accelerated Graphics Port (AGP) Card



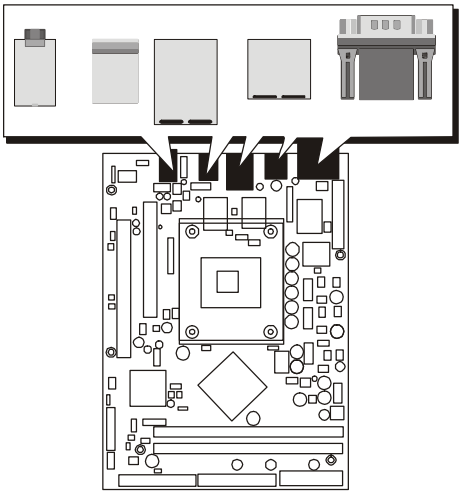
2. PCI Card



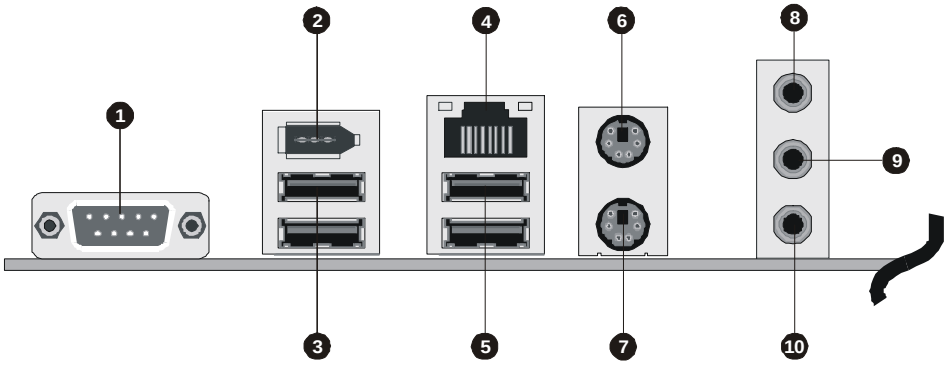
Step 11

Connect External Peripherals to Back-Panel

You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back-panel.



1. COM1 Port
2. 1394 Port
3. USB0/1 Ports
4. LAN Port
5. USB2/3 Ports
6. PS/2 Mouse
7. PS/2 Keyboard
8. Audio Bass/Center-Out Port
9. Audio Rear-Out Port
10. Audio Front-Out Port



Step 12

First Time System Boot Up

To assure the completeness and correctness of your system installation, you may check the above installation steps once again before you boot up your system for the first time.

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.

2. Turn on the system power.

3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available to the extended partition. The FDISK utility will assign a drive letter (i.e., C:, D:, E:,...) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

Note: DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only install your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you've created. When formatting the primary partition (C:), make sure to use the FORMAT C: /S command.

Note: FORMAT C: /S can transfer all the necessary system files into the primary partition of your hard disk. Then, your HDD will become a bootable drive.

5. Install all the necessary drivers for CD-ROM, Mouse, etc.

6. Setup the complete operating system according to your OS installation guide.

Step 13

Install Drivers & Software Components

Please note that all the system utilities and drivers are designed for Win 9x/ 2000/ME/XP/NT operating systems only. Make sure your operating system is already installed before running the drivers installation CD-ROM programs.

1. Insert the FB65 bundled CD-ROM into your CD-ROM drive. The autorun program will display the drivers main installation window on screen.
2. Choose "Install Intel Chipset Driver" and complete it.
3. Choose "Install Realtek Audio Driver" and complete it.
4. Choose "Install Realtek LAN Driver" and complete it.
5. Choose "Install USB2.0 Driver" and complete it.
6. Exit from the autorun drivers installation program.

❁ Please refer to section Chapter 4 Software Utility to install driver.

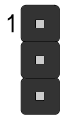
3.2 Jumper Settings

Several hardware settings are made through the use of mini jumpers to connect jumper pins on the mainboard. Pin #1 could be located at any corner of each jumper, you just find the location with a white right angle which stands for pin 1#. There are several types of pin 1# shown as below:

3-pin and multi (>3) pin jumpers shown as following:

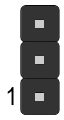
Pin #1 to the left:

Pin #1 on the top:



Pin #1 to the right:

Pin #1 on the bottom:



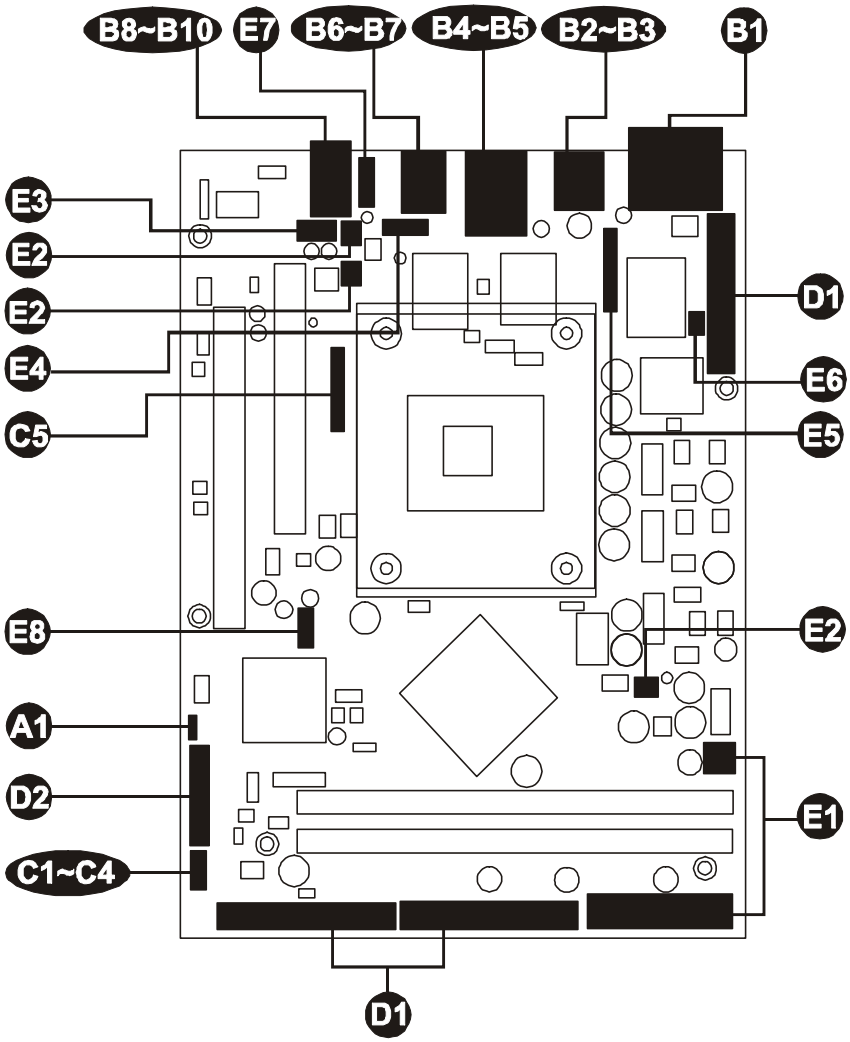
Jumpers with two pins are shown as for Close [On] or for Open [Off]. To Short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

Caution!

1. Do not remove the mainboard from its antistatic protective packaging until you are ready to install it.
2. Carefully hold the mainboard by its edges and avoid touching its components. When putting the mainboard down, place it on top of its original packaging film, on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent electrostatic discharge (ESD) whenever handling this equipment.

Jumpers & Connectors Guide

Use the mainboard layout on page 11 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:



CPU/Memory/Expansion Slots

Socket478	: CPU Socket for Pentium 4/Celeron processors
DIMM1/2	: Two184-pin DIMM Slots for 64, 128, 256, 512 MB, and 1GB of 2.5V DDR SDRAM (The total installed memory does not exceed 2GB)
AGP	: One AGP 4X/8X Slot
PCI	: One 32-bit PCI Expansion Slot

Jumpers

A1	JP1	: Clear CMOS setting

Back Panel Connectors

B1	COM1	: Serial port (DB9 male)
B2	1394a	: 1 x 1394a Port
B3	USB1	: 2 USB 2.0/1.1 (0/1) (Universal Serial Bus) ports
B4	LAN	: 10/100 base-T LAN Port
B5	USB2	: 2 USB 2.0/1.1 (2/3) (Universal Serial Bus) ports
B6	MS	: PS/2 mouse port
B7	KB	: PS/2 keyboard port
B8	BASS/CENTER	: Audio Bass/Center-Out Port
B9	Rear-OUT	: Audio Rear-Out Port
B10	Front-OUT	: Audio Front-Out Port

Front Panel Connectors

C1	PWON	: ATX power on/off momentary type switch
C2	HLED	: IDE drive active LED
C3	GLED/PLED	: Green LED (ON when system stays in power saving mode) / System power LED
C4	RST	: Hardware reset switch
C5	JP16	: Front Panel Header

Internal Peripherals Connectors

D1	FDD	: Floppy disk drive interface
D1	IDE1/2	: IDE primary / secondary interface (Dual-channel)
D2	ATA1/ATA2	: Serial ATA Connectors

Other Connectors

E1	ATX1/ATX2	: ATX/ATX + 12V power connectors
E2	FAN1/2/3	: System fan connectors
E3	JP11	: Audio CD_IN connector
E4	JP6	: Wireless Keyboard and Mouse connector
E5	JP8	: Parallel port
E6	JP7	: IR Header
E7	JP3	: SPDIF In/Out port
E8	USB4	: Extended USB Header

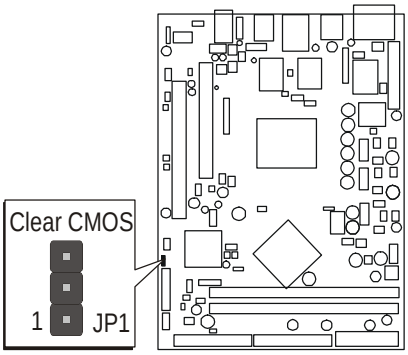
☞ *Jumpers*

A1 Clear CMOS Setting (JP1)

JP1 is used to clear CMOS data. Clearing CMOS will result in the permanently erasing previous system configuration settings and the restoring original (factory-set) system settings.

Pin 1-2 (Default)

Pin 2-3 (Clear CMOS)

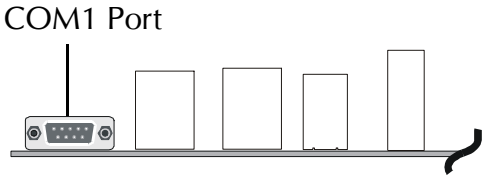


Step 1. Turn off the system power (PC-> Off).
Step 2. Remove ATX Power cable from ATX Power connector.
Step 3. Remove jumper cap from JP1 pins 1-2.
Step 4. Place the jumper cap on JP1 pin 2-3 for a few seconds.
Step 5. Return the jumper cap to pin 1-2.
Step 6. Plug ATX Power cable into ATX Power connector.
Step 7. Turn on the system power (PC-> On).

☞ *Back-Panel Connectors*

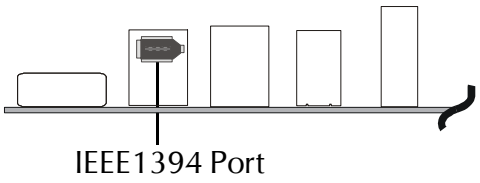
B1 COM1 Port Connector

This mainboard can accommodate two serial device on COM1.
Attach a serial device cable to the DB9 serial port COM1 at the back-panel of your computer.



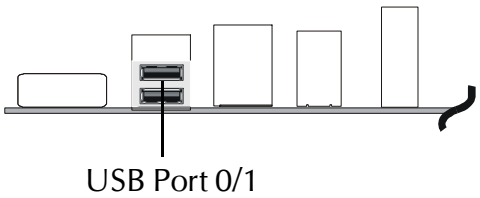
B2 IEEE 1394a Port Connectors

This mainboard offers one 1394a port on back-panel. Plug device jack into an available 1394a connector.



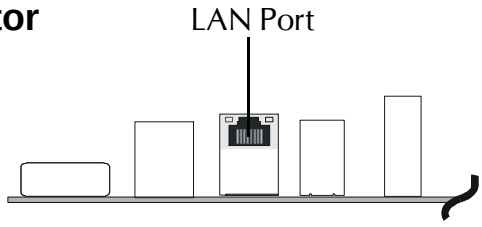
B3 USB Port 0/1 Connectors

Two female connectors USB0/USB1 share the same USB(Universal Serial Bus)bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB0/USB1 connector.



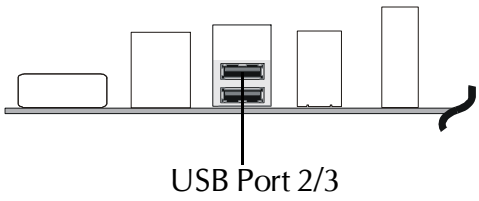
B4 10/100 base-T LAN Port Connector

This mainboard can accommodate one device on LAN.
Attach a CAT-5 cable to the LAN port at the back-panel of your computer.



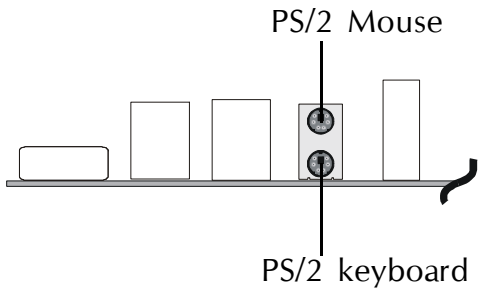
B5 USB Port 2/3 Connectors

Two female connectors USB2/USB3 share the same USB (Universal Serial Bus) bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB2/USB3 connector.



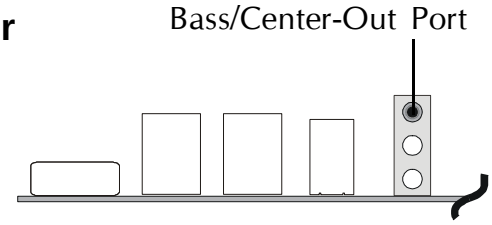
B6 PS/2 Keyboard & PS/2 Mouse Connectors

B7 Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a tower where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 keyboard and mouse jacks into their corresponding connectors.



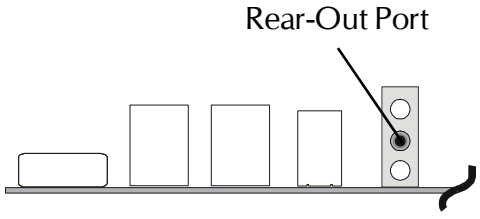
B8 Bass/Center-Out Port Connector

Bass/Center-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to bass/center amplified speakers.



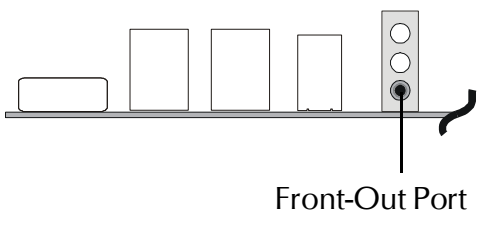
B9 Rear-Out Port Connector

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.



B10 Front-Out Port Connector

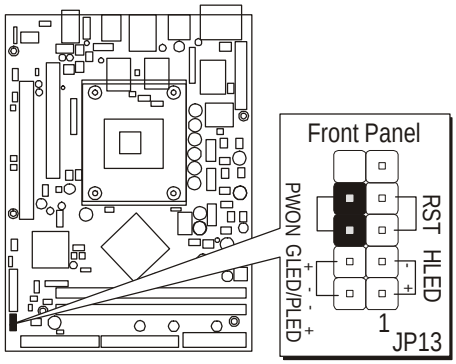
Line-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers.



☞ *Front-Panel Connectors*

ⓒ1 ATX Power On/Off Switch Connector (PWON)

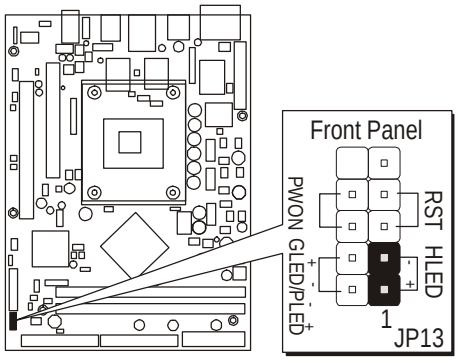
The Power On/Off Switch is a momentary type switch used for turning on or off the system ATX power supply. Attach the connector cable from the Power Switch to the 2-pin (PWON) header on the mainboard.



Note : Please notice all the LED connectors are directional. If your chassis's LED does not light up during running, please simply change to the opposite direction.

ⓒ2 HDD LED Connector (HLED)

Attach the connector cable from the IDE device LED to the 2-pin (HLED) header. The HDD LED lights up whenever an IDE device is active.



C3 Green LED / Power LED Connector (GLED/PLED)

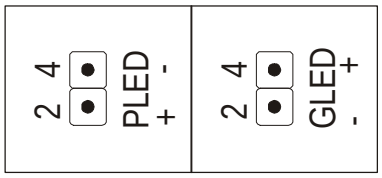
This header is dual color LED function.

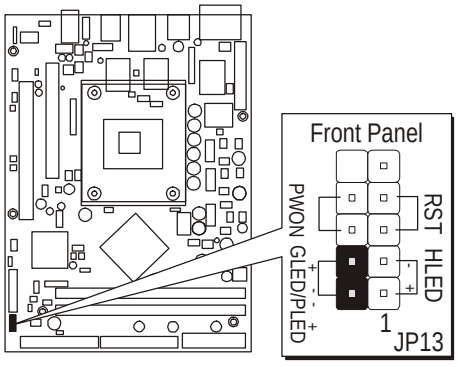
Dual color LED function is defined by either Power LED or Green LED, the header can be in these states.

The Green LED indicates that the system is currently in one of the power saving mode (Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off, power LED on.

This Power LED will go off during power saving mode.

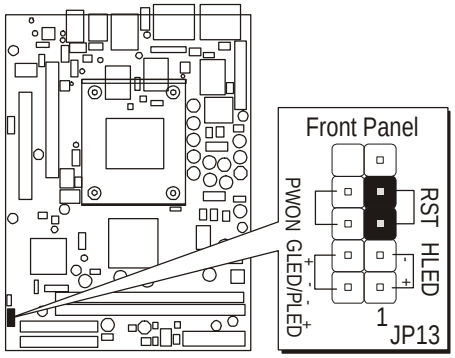
Attach a 2-pin Green LED/Power LED cable to (GLED/PLED) header.





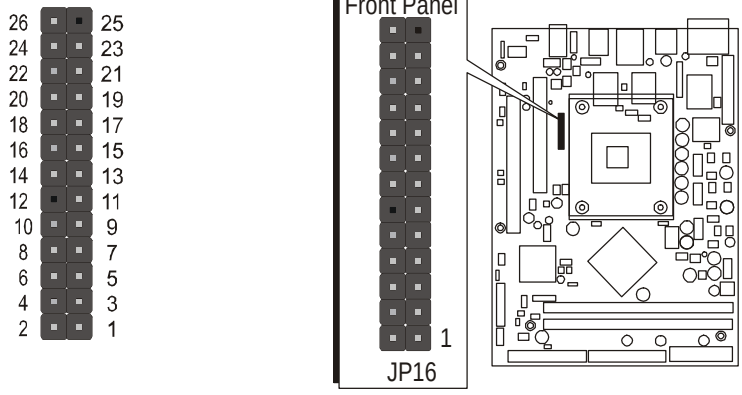
C4 Hardware Reset Connector (RST)

Attach the 2-pin hardware reset switch cable to the (RST) header. Pressing the reset switch causes the system to restart.



C5 Front Panel Connector (JP16)

Port JP16 can be used to connect special device.



Pin Assignments:

1 = USBVCC	2 = USBVCC	3 = Data5-	4 = Data4-
5 = Data5 +	6 = Data4 +	7 = GND	8 = GND
9 = TPA1 +	10 = TPA1-	11 = GND	12 = Key
13 = TPB1 +	14 = TPB1-	15 = GND	16 = GND
17 = Front FMIC	18 = FMIC Power	19 = Line-in-L	20 = Line-in-R
21 = Line-out-R(in)	22 = Line-out-R(out)	23 = Line-out-L(in)	
24 = Line-out-L(out)	25 = Key	26 = Reserved	

☞ *Internal Peripherals Connectors*

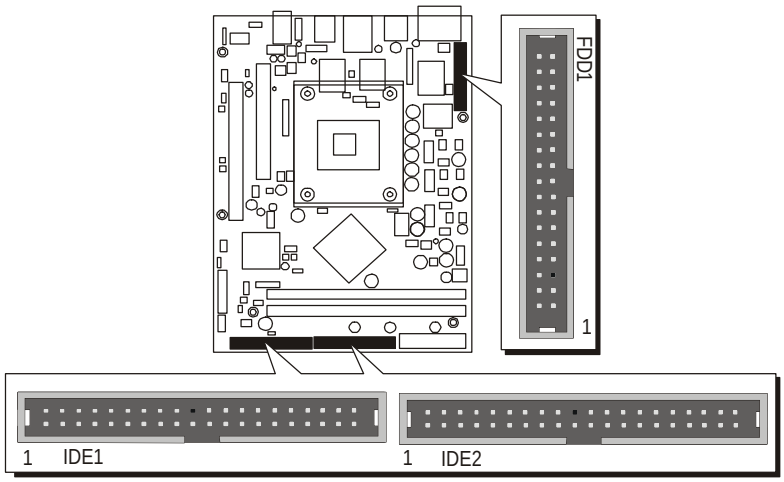
D1 Enhanced IDE, Floppy Connectors

The mainboard features two 40-pin dual-channel IDE device connectors (IDE1/IDE2) providing support for up to four IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.).

This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA 100/66/33 ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.

Important:

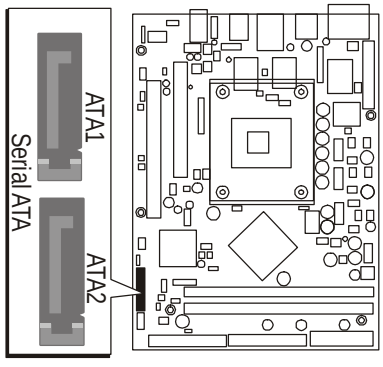
Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.



D2 Serial ATA Connectors

The Serial ATA is an enolutionary replacement for the Parallel ATA physical storge interface. Serial ATA is scalable and will allow future enhancements to the computing platform. The Serial ATA supports all ATA and ATAPI device, including CDs, DVDs, tapes devices, high capacity removeable devices, zip drivers, and CDRW's.

The Serial ATA interface supports data transfer rates up to 150MB/s.



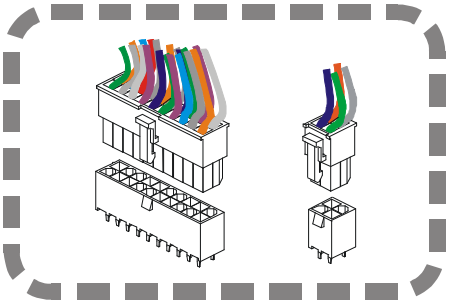
☞ *Other Connectors*

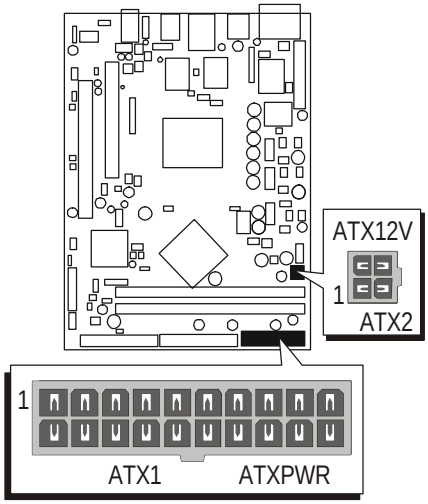
ATX Power Supply Connectors (ATX1 and ATX2)

This motherboard uses 20-pin (ATX1) Pentium 4 standard ATX power header, and ATX2 with 1X4-pin +12V PC ATX power supply headers. Please make sure you plug in the right direction.

P4 ATX Power supply headers

ATX1 **ATX2**





Note 1: The ATX power connector is directional and will not go in unless the guides match perfectly making sure that pin#1 is properly positioned.

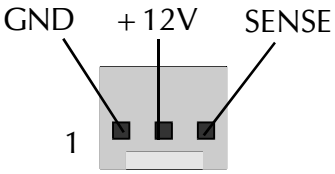
Note 2: Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.

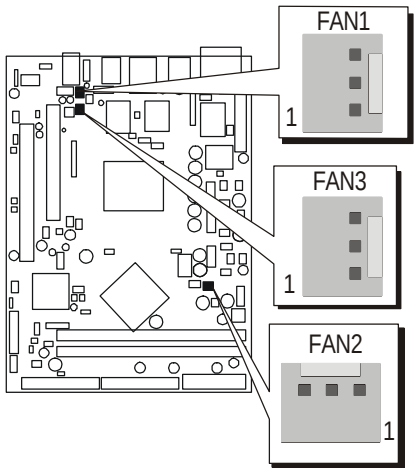
Note 3: Your ATX power supply must be supplied to ACPI +5V standby power and at least 720mA compatible.

Note 4: Make sure your power supply have enough power for higher speed processor installed.

E2 CPU and System Fan Connectors - FAN1/2/3

The mainboard provides three onboard 12V cooling fan power connectors to support System (FAN1), (FAN2), or (FAN3) cooling fans.



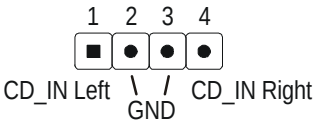


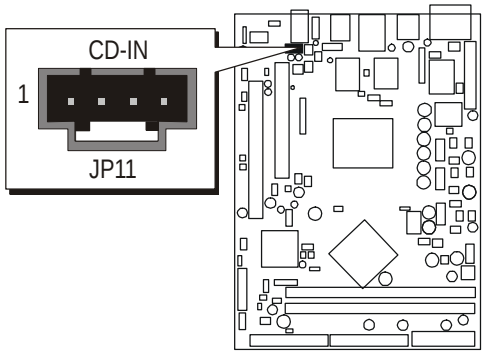
Note:

Both cable wiring and type of plug may vary , which depends on the fan maker. Keep in mind that the red wire should always be connected to the +12V header and the black wire to the ground (GND) header.

E3 Audio CD_IN Connector (JP11) (Black)

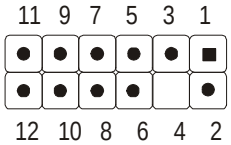
Port JP11 is used to attach an audio connector cable from the CD-ROM drive.

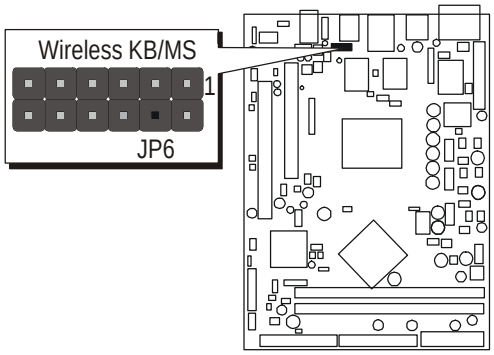




E4 Wireless Keyboard and Mouse Connector (JP6)

Port JP6 can be used to connect wireless keyboard and mouse device.



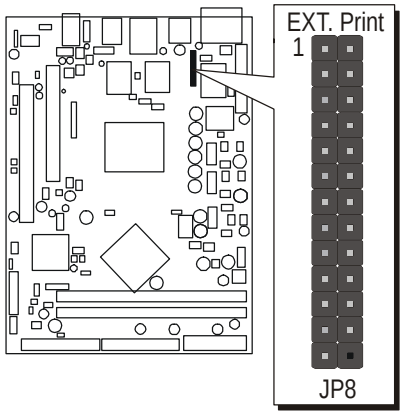


Pin Assignments:

1 = VCC	2 = VCC
3 = GND	4 = KEY
5 = MSCLK	6 = MS_CK
7 = MSDATA	8 = MS_DT
9 = KBCLK	10 = KB_CK
11 = KBDATA	12 = KB_DT

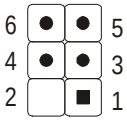
E5 Parallel Port Header-EXT. Print Port (JP8)

One DB25 male parallel port header is located at the rear panel of the maiboard. The header is used to connect the cable attached to parallel connector. But the parallel cable and connector os optional at the time of purchase.



E6 IR Header (JP7)

If you have an infrared device, this mainboard can implement IR tranfer function. To enable the IR transfer function, follow these steps:

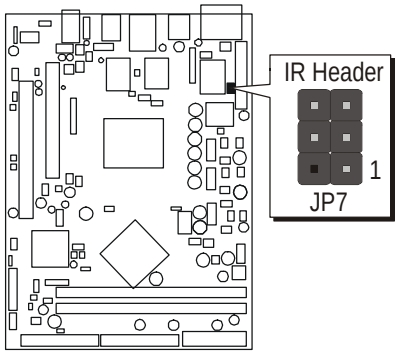


Pin Assignment:

1 = NC 2 = KEY

3 = VCC 4 = GND

5 = IRTX 6 = IRRX



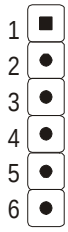
Note: Before connect your IR device, please be sure each IR on board pin allocation is matchable with the pin of the IR device. Other wise, incorrect IR connection may do damage to your IR device.

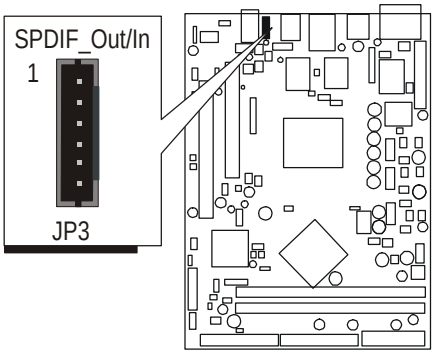
Step1: Attach the 6-pin infrared device cable to JP7.
(Refer to the above diagram for IR pin assignment.)

Step2: This mainboard support IrDA, or Normal transfer modes.

E7 SPDIF_Out/In Headers (JP3)

Port JP3 can be used to connect special device.



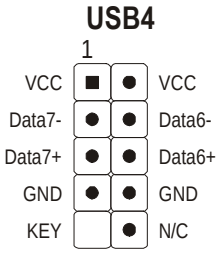


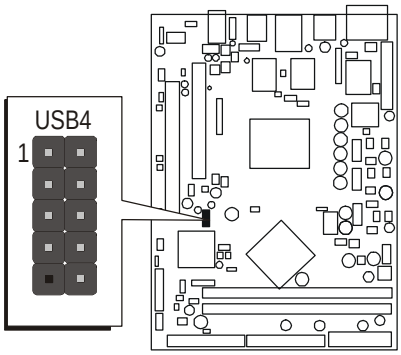
Pin Assignments:

1 = SPDIF_IN	2 = GND
3 = VCC	4 = GND
5 = VCC	6 = SPDIF_OUT

E8 Extended USB Header (USB4)

The headers are used to connect the cable attached to USB connectors which are mounted on front panel or back panel. But the USB cable is optional at the time of purchase.





Pins Assignment:

1 = VCC	2 = VCC	3 = Data7-
4 = Data6-	5 = Data7 +	6 = Data6 +
8 = GND	7 = GND	9 = KEY
10 = N/C		

3.3 System Memory Configuration

The FB65 mainboard has two 184-pin DIMM slots that allow you to install from 64MB up to 2GB of system memory.

Each 184-pin DIMM (Dual In-line Memory Module) Slot can accommodate 64MB, 128MB, 256MB, 512MB, and 1GB of PC2100, PC2700 or PC3200 compliant 2.5V single (1 Bank) or double (2 Bank) side 64-bit wide data path DDR SDRAM modules.

Install Memory:

Install memory in any or all of the slots and in any combination shown as follows.

Density	128Mbit		256Mbit		512Mbit	
Device Width	x8	x16	x8	x16	x8	x16
Single/ Double	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS
184pin DDR DIMMs	128/256MB	64MB/NA	256/512MB	128MB/NA	512/1024MB	256MB/NA

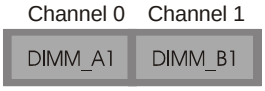
Note: Maximum installed memory is 2GB.

Note: You do not need to set any jumper to configure memory since the BIOS utility can detect the system memory automatically. You can check the total system memory value in the BIOS Standard CMOS Setup menu.

Don't support double-sided X16 DDR DIMMs.

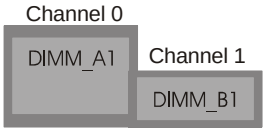
Note: DIMMs population:

1. 128 Bit Mode: Exactly the same size and type DIMMs on Channels 0 and 1.



2. 2*64 Bit Mode: DIMMs installed on different Channels.

Same size different type



Different type

Upgrade Memory:

You can easily upgrade the system memory by inserting additional DDR SDRAM modules in available DIMM slots. The total system memory is calculated by simply adding up the memory in all DIMM slots. After upgrade, the new system memory value will automatically be computed and displayed in the field " Standard CMOS Setup" of BIOS setup program.

4 SOFTWARE UTILITY

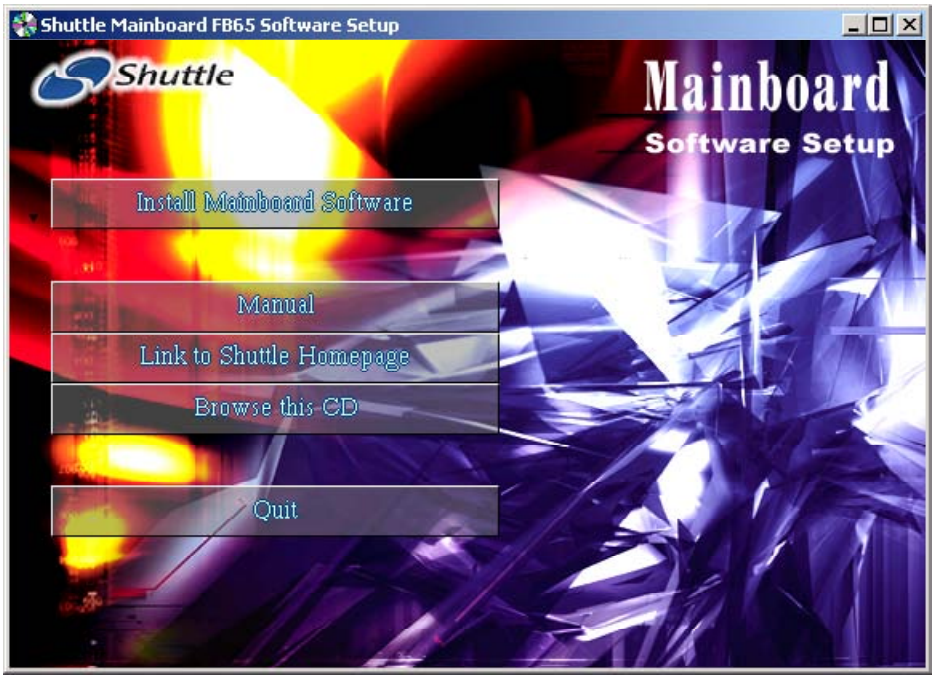
4.1 Mainboard CD Overview

Note: The CD contents attached in FB65 mainboard are subject to change without notice.

To start your mainboard CD disc, just insert it into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

Navigation Bar Description:

- ☞ Install Mainboard Software - Installing Intel Chipset,Realtek Audio, Realtek LAN , USB 2.0 drivers.
- ☞ Manual - FB65 Series mainboard user's manual in PDF format.
- ☞ Link to Shuttle Homepage - Link to shuttle website homepage.
- ☞ Browse this CD - Allows you to see contents of this CD.
- ☞ Quit - Close this CD.



4.2 Install Mainboard Software

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the “Install Mainboard Software" bar to install Mainboard Software.

The Mainboard FB65 Software include:

[4.2.A] Install Intel Chipset driver

[4.2.B] Install Realtek Audio driver

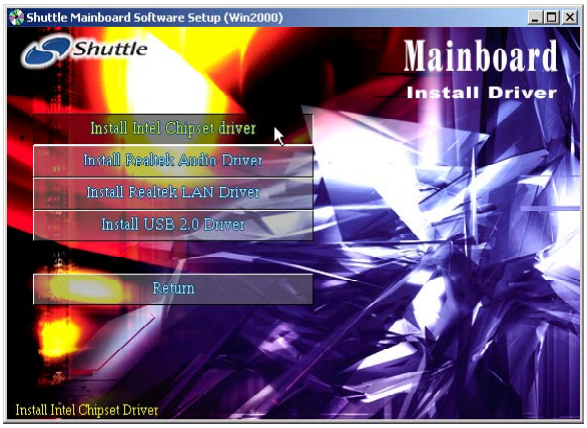
[4.2.C] Install Realtek LAN driver

[4.2.D] Install USB 2.0 driver

4.2.A Install Intel Chipset Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the “Install Intel Chipset Driver" bar to install Intel chipset driver.



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.B Install Realtek Audio Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

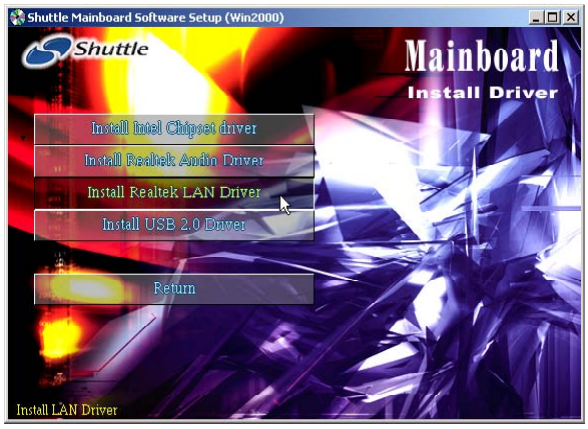
Select using your pointing device (e.g. mouse) on the “Install Realtek Audio Driver" bar to install Audio driver.

Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.C Install Realtek LAN Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Install Realtek LAN Driver" bar to install LAN driver.



Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.D Install USB2.0 Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Install USB2.0 Driver" bar to install USB2.0 driver.

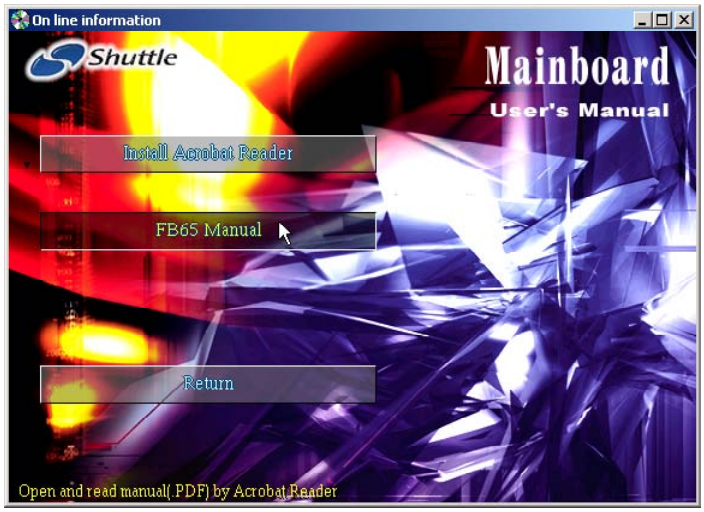
Once you made your selection, a Setup window run the installation automatically. When the copying files is done, make sure you reboot the system to take the installation effect.

4.3 View the User's Manual

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on AutoRun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Manual " bar.

Then Online Information windows will appear on your screen. Click on the " Install Acrobat Reader " bar if you need to install acrobat reader.



Then click on "FB65 Manual" bar to view user's manual.

5 BIOS SETUP

FB65 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

The system BIOS is managing and executing a variety of hardware related functions in the system, including:

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

Step 1. Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.

Step 2. Press <Del> key immediately, or at the following message: Press DEL to enter SETUP" ,or simultaneously press <Ctrl>, <Alt>, <Esc> keys

Note 1. If you miss trains of words meationed in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the <RESET> switch located at the computer's front-panel. You may also reboot by simultaneously pressing the <Ctrl>, <Alt>, <Del> keys.

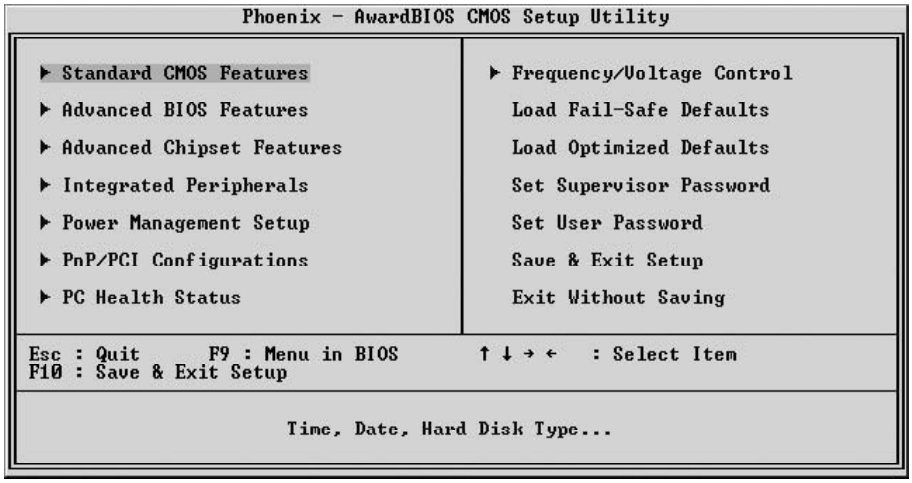
Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:

" Press F1 to Continue, DEL to Enter Setup "

Step 3. As you enter the BIOS program, the CMOS Setup Utility will prompt you the Main Menu, as shown in the next section.

5.2 The Main Menu

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



Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configurations

This entry appears if your system supports PnP / PCI.

PC Health Status

This entry shows the current system temperature, Voltage, and FAN speed.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance of your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

Set Supervisor / User Password

Use this menu to change, set, or disable password. It allows you to limit access to the system and Setup, or only to Setup.

Save & Exit Setup

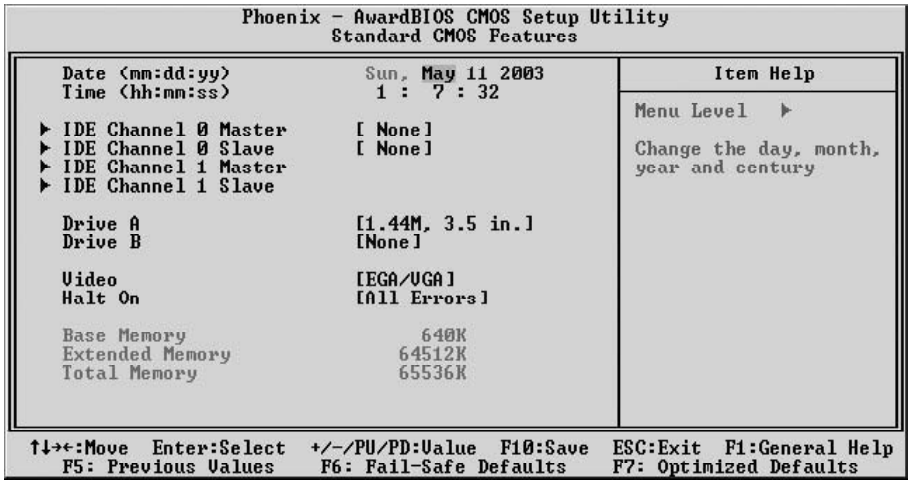
Save CMOS value changes in CMOS and exit from setup.

Exit Without Saving

Abandon all CMOS value changes and exit from setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

<Month> <DD> <YYYY>

Set the system date. Note that the 'Day' automatically changes when you set the date.

Time

<HH:MM:SS>

The time is converted based on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

IDE Primary Master

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Primary Slave

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Secondary Master

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Secondary Slave

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

Drive A/Drive B

Select the type of floppy disk drive installed in your system.

- The choice: None, 360K, 5.25 in, 1.2M, 5.25 in, 720K, 3.5 in, 1.44M, 3.5 in, or 2.88M, 3.5 in.

Video

Select the default video device.

- The choice: EGA/VGA, CGA 40, CGA 80, or MONO.

Halt On

Select the situation in which you want the BIOS to stop the POST process and notify you.

- The choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key.

Base Memory

Displays the amount of conventional memory detected during boot up.

- The choice: N/A.

Extended Memory

Displays the amount of extended memory detected during boot up.

- The choice: N/A.

Total Memory

Displays the total memory available in the system.

- The choice: N/A.

****

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

IDE HDD Auto-Detection

Press <Enter> to auto-detect HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

- Press Enter

IDE Primary Master
Selecting 'manual' lets you set the remaining fields on this screen and select the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc., Note: PRECOMP = 65535 means NONE !

- The choice: None, Auto, or Manual.

Access Mode
Choose the access mode for this hard disk.

- The choice: CHS, LBA, Large, or Auto.

Capacity
Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

- Auto-Display your disk drive size.

The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual', and Access mode set to CHS.

Cylinder
Set the number of cylinders for this hard disk.

- Min = 0, Max = 65535

Head
Set the number of read/write heads.

- Min = 0, Max = 255

Precomp
Warning: Setting a value of 65535 means no hard disk.

- Min = 0, Max = 65535

Landing zone
Set the Landing zone size.

- Min = 0, Max = 65535

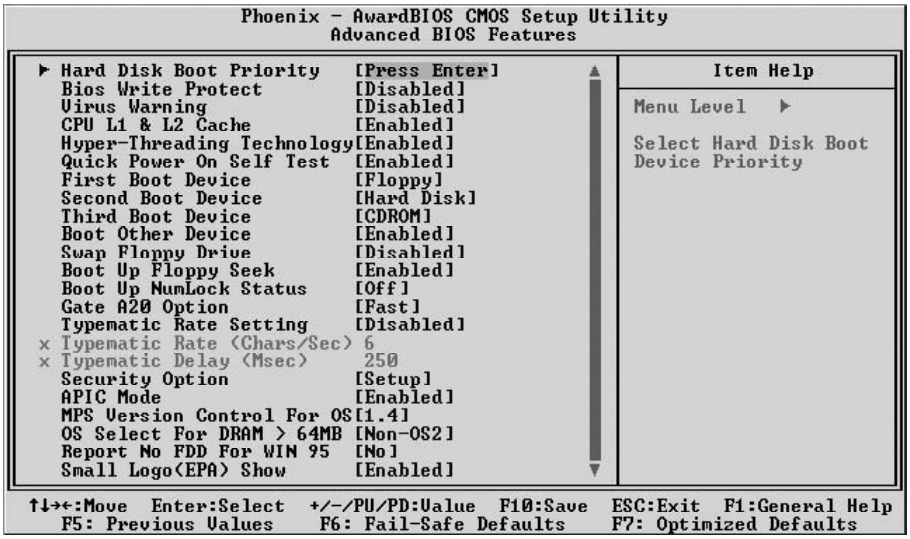
Sector
Number of sector per track.

- Min = 0, Max = 255

****

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.



Hard Disk Boot Priority

This item allows you to select Hard Disk Boot Device Priority.

Bios Write Protect

This item allows you to enable or disable the Bios Write Protect. If you want to flash BIOS, you must set it Disabled.

- The choice: Enabled or Disabled.

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enables and someone attempts to write data into this area, BIOS will show a warning message on screen, and an alarm beep.

Enabled Activates automatically when the system boots up, causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

- The choice: Enabled or Disabled.

CPU L1&L2 Cache

All processors that can be installed in this mainboard use internal level1(L1) and external 2(L2) cache memory to imporve performance. Leave this item at the default value for better performance.

- The choice: Enabled or Disabled.

Hyper-Threading Technology

The latest Intel application defines a high-speed calculating ability to optimize your system by two CUPs supported(one virtual, one physical) in a multi-task environment.

- The choice: Enabled, or Disabled.

Quick Power On Self Test

This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.

- The choice: Enabled, or Disabled.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

- The Choice: Floppy, LS120, Hard Disk, SCSI, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB- HDD,LAN, or Disabled.

Boot Other Device

If BIOS can't load O.S. from First/Second/Third boot device you select above, BIOS will search other devices and attempt to load O.S..

- The choice: Enabled or Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignment.

- The choice: Enabled or Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot-Up. Disabling speed boots up.

- The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

- The choice: Off or On.

Gate A20 Option

This entry allows you to select how the Gate A20 is handled. The gate A20 is a device used for above 1MByte of address memory. Initially, the gate A20 was handled via a pin on the keyboard. Today, while a keyboard still provides this support, it is more common and much faster in setting to fast for the system chipset to provide support for gate A20.

- The choice: Normal or Fast.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

- The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

This item sets how many times the keystroke will be repeat in a second when you hold the key down.

- The choice: 6, 8, 10, 12, 15, 20, 24, or 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

- The choice: 250, 500, 750, or 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered promptly.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

- The choice: System or Setup.

Note: To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Don't type anything and just press <Enter>; it will disable security. Once the security is disabled, the system will boot, and you can enter Setup freely.

APIC Mode

Via the routing, I/O APIC support a total of 24 interrupts. "Enabled" for Windows XP and Windows 2000.

- The choice: Enabled or Disabled.

MPS Version Control For OS

Selects the operating system multiprocessor support version.

- The choice: 1.1 or 1.4

OS Select For DRAM > 64MB

Selects the operating system that is running with greater than 64MB of RAM in the system.

- The choice: Non-OS2 or OS2.

Report No FDD For Win 95

Whether report no FDD runs for Win 95 or not.

- The choice: Yes or No.

Small Logo(EPA) Show

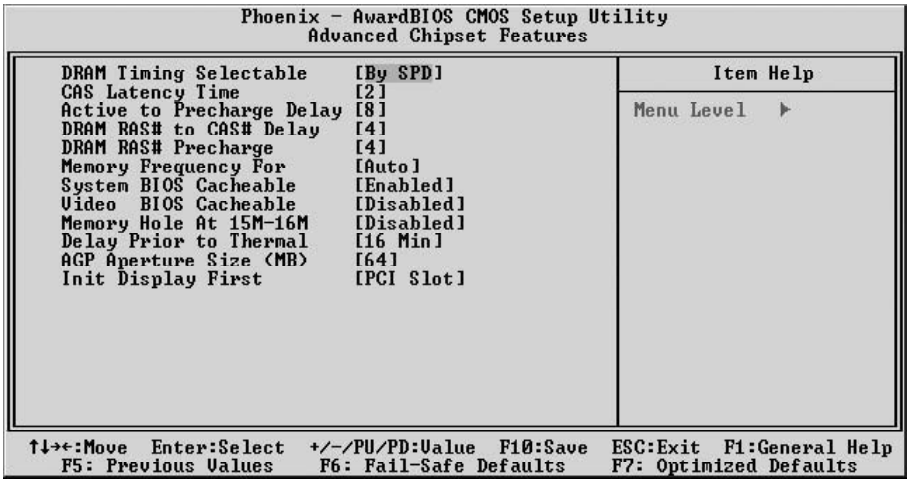
This item allows you to enable/disable the EPA Logo.

- The choice: Enabled or Disabled.

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.



DRAM Timing Selectable

The value in this field depends on performance parameters of the installed memory chips(DRAM). Don't change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

- The Choice: Manual or BySPD

CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Don't change this field from the default value specified by the system designer.

- The Choice: 2, 2.5, or 3.

Active to Precharge Delay

The precharge time is the number of cycles it takes for DRAM to accumulate its charge before refresh.

- The Choice: 8, 7, 6, or 5.

DRAM RAS # to CAS # Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, and you can use it when DRAM is written to, read from, or refreshed. Faster performance is gained in high speed, more stable performance, in low speed. This field is applied only when synchronous DRAM is installed in the system.

- The Choice: 4, 3 or 2.

DRAM RAS # Precharge

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be-incompleted, and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field is applied only when synchronous DRAM is installed in the system.

- The Choice: 4, 3 or 2.

Memory Frequency For

This item is select SDRAM Frequency.

CPU Frequency	The Choice
100~132	DDR266/AUTO
133~199	DDR266/DDR333/AUTO
200~232	DDR266/DDR320/DDR400/AUTO

- The Choice: DDR266, DDR333, DDR320, DDR400, or Auto.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h ~ FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can't be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- The Choice: Enabled or Disabled.

Delay Prior to Thermal

Enable this item to set the delay time before the CPU enters auto thermal mode.

- The Choice: 4Min, 8Min, 16Min, or 32Min.

AGP Aperture Size(MB)

This item defines the size of the aperture if you use an AGP graphics adapter. The AGP aperture refers to section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

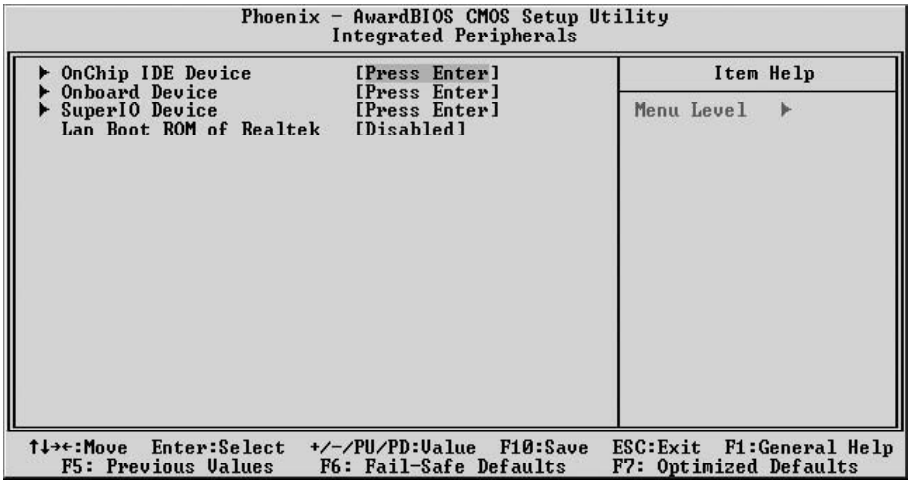
- The Choice: 4, 8, 16, 32, 64, 128, or 256.

Init Display First

This item allows you to decide to activate whether PCI slot or AGP first.

- The choice: PCI Slot or Onboard /AGP .

Integrated Peripherals



On-Chip IDE Device

Option are in its sub-menu.

Press < Enter > to enter the sub-menu of detailed options.

IDE HDD Block Mode

If your IDE hard disk drive supports block mode (most new drives do), select Enabled to automatic detect the optimal number of block read and writes per sector that the drive can support and improves the speed of access to IDE devices.

- The choice: Enabled, or Disabled.

On-Chip Primary /Secondary PCI IDE

Use these items to enable or disable the PCI IDE channels that are integrated on the mainboard.

- The choice: Enabled or Disabled.

IDE Primary Master/Primary Slave/Secondary Master/ Second ary Slave PIO

Each IDE channel supports a master device and a slave device. These four items let you assign which kind of PIO (Programmed Input / Output) is used by IDE devices. Choose Auto to let the system auto detect which PIO mode is best or select a PIO mode from 0-4.

- The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4.

IDE Primary Master/Primary Slave/Secondary Master/ Secondary Slave UDMA

Each IDE channel supports a master device and a slave device. This mainboard supports UltraDMA technology, which provides faster access to IDE devices.

If you install a device that supports UltraDMA, change the appropriate item on this list to Auto. You may have to install the UltraDMA driver supplied with this mainboard in order to use an UltraDMA device.

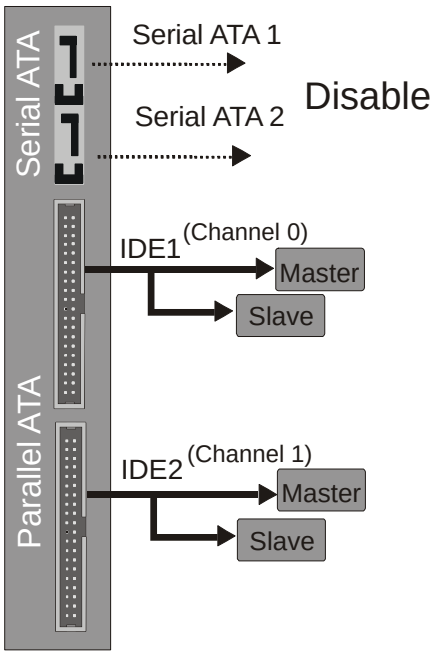
- The Choice: Auto or Disabled.

********** On -Chip Serial ATA Setting **********

On-Chip Serial ATA

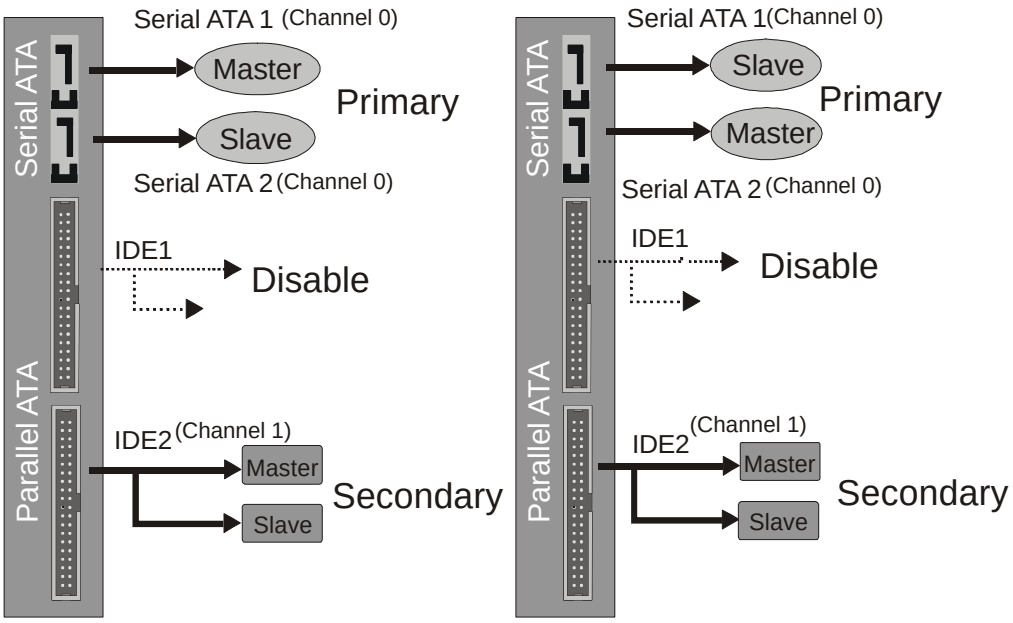
- The Choice: Disabled, Auto, Combined Mode, Enhanced Mode or SATA Only.

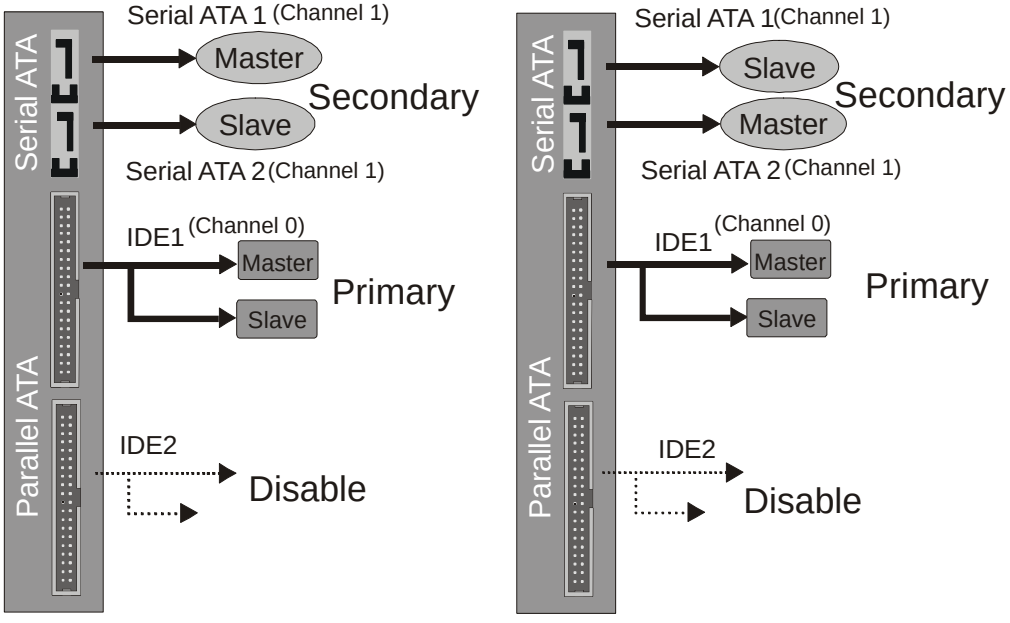
Disabled : Disabled SATA Controller.



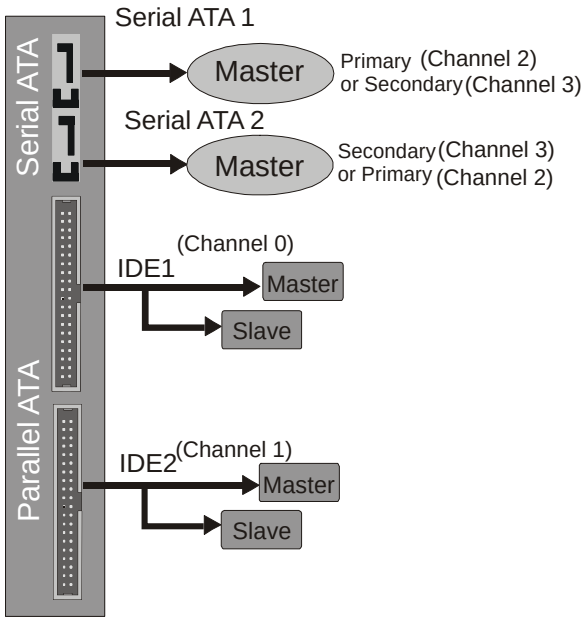
Auto: Auto arrange by BIOS.

Combined Mode:PATA and SATA are combined. Max. of 4 ATA drives are supported.
(DOS,Win2K,Win98/ME...) should set SATA and PATA to Compatible Mode.

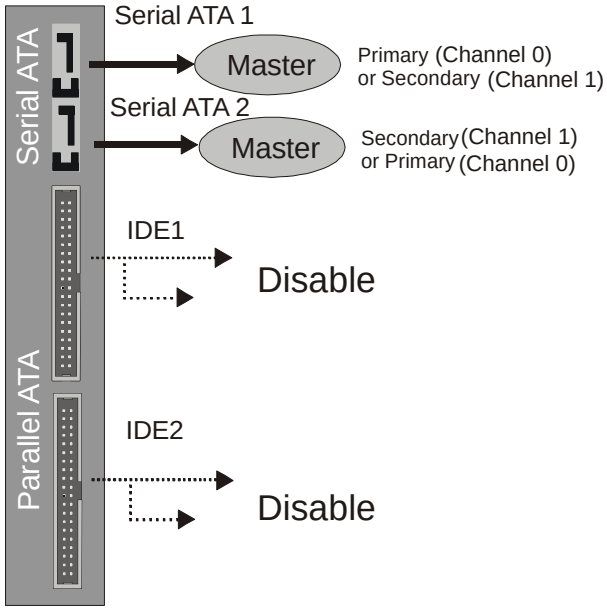




Enhanced Mode:Enable both SATA and PATA. Max. of 6 ATA drives are supported.
New OS that support switch to Enhanced mode (WinXP,Windows.NET Server) can set SATA and PATA to Enhanced Mode.



SATA-Only:SATA is operating in legacy mode.



Onboard Device

Option are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

USB Controller

Select Enabled if your system contains a Universal Serial Bus (USB) port on this mainboard.

- The choice: Enabled or Disabled.

USB 2.0 Controller

Select Enabled if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB peripherals.

- The choice: Enabled or Disabled.

USB Keyboard Support

Select Enabled if you plan to use a keyboard connected through the USB port in a legacy operating system (such as DOS) that doesn't support Plug and Play.

- The choice: Enabled or Disabled.

AC97 Audio

This item allows you to select AC 97 audio chip to support Audio. Disable this item If you are going to install a PCI audio add-on card.

- The Choice: Auto or Disabled.

SuperIO Device

Option are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

Onboard FDC Controller

This item specifices onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector.

- The choice: Enabled Disabled.

Onboard Serial Port1

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port1 (COM1).

- The choice: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

Onboard Infrared Port

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard infrared port.

- The choice: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

UART Mode Select

This field is available if the Onboard Serial Port 2 field is set to any option but disabled. UART Mode Select enables you to select the infrared communication protocol-Normal (default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps.

- The choice: SCR, IrDA, or ASKIR .

UR2 Duplex Mode

This item is available when UART 2 mode is set to either ASKIR or IrDA. This item enables you to determin the infrared function of the onboard infrared chip. The options are Full and Half (default).

Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.

- The choice: Full or Half.

Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address and interrupt request (IRQ).

- The choice:: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, or Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

- The choice: SPP, EPP, ECP, or ECP+EPP.

ECP Mode Use DMA

When the onboard parallel is set to ECP mode, the parallel port can use DMA3 or DMA1.

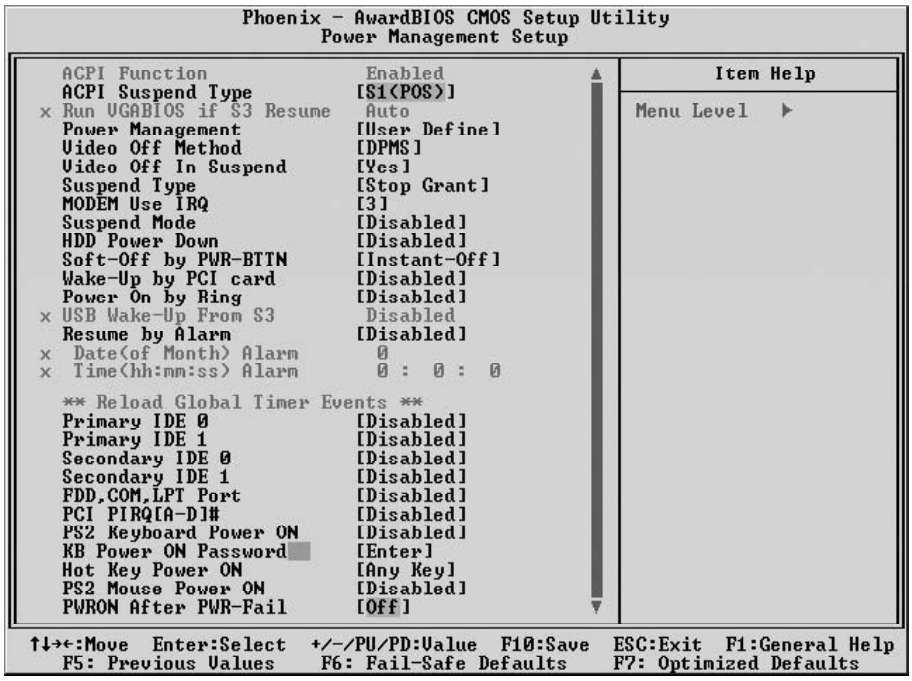
- The choice: 1 or 3.

Lan Boot ROM of Realtek

Decide whether to invoke the boot ROM of the onboard Realtek LAN chip.

- The choice: Enabled or Disabled.

Power Management Setup



The Power Management Setup allows you to configure your system to most effectively saving energy while operating in a manner consistent with your own style of computer use.

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

- Always "Enabled".

ACPI Suspend Type

This item allows you to select sleep state when suspend.

- The choice: S1(POS), S3(STR), or S1 & S3.

Run VGABIOS if S3 Resume(Auto)

This item allows the system to initialize the VGA BIOS from S3(Suspend to RAM) sleep state.

Power Management

This item allows you to decide the timing to enter suspend mode.

- The choice: User Define, Min Saving, Max Saving.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

- The choice: V/H SYNC + Blank, Blank Screen, or DPMS Supported.

Video Off In Suspend

This item determines the manner in which the monitor is blanked.

- The choice: Yes or No.

Suspend Type

This item allows you to select the Suspend Type.

- The choice: Stop Grant or PwrOn suspend.

MODEM Use IRQ

This determines the IRQ which the MODEM can use.

- The choice: 3, 4, 5, 7, 9, 10, 11, or NA.

Suspend Mode

When this item enabled and after the set up time of system inactivity, all devices except the CPU will be shut off.

- The choice: Disabled, 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min, or 1Hour.

HDD Power Down

When this item enabled and after the set up time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

- The choice: Disabled or 1 Min ~ 15 Min.

Soft-Off by PWR-BTTN

Under ACPI you can create a software power down. In a software power down, the system can be resumed by Wake UP Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay4 Sec. then you have to hold the power button down for 4 seconds to cause a software power down.

➢ The choice: Instant-Off or Delay 4 Sec.

Wake-Up by PCI card

This item Enabled/Disabled PCI Power Management Event to wake up system.

➢ The choice: Enabled or Disabled.

Power On by Ring

This item determine the system will resume by activating of modem ring.

➢ The choice: Enabled or Disabled.

USB Wake-up From S3

If you are using a USB KB/MS, and the ACPI suspend type is set to S3, you can enable this item to allow a KB/MS to wake up the system from power saving mode.

➢ The choice: Enabled or Disabled.

Resume by Alarm

When this item enabled, your can set the date (day of the month) and time to turn on your system.

➢ The choice: Disabled or Enabled.

Date(of Month) Alarm

This item selects the alarm Date (day of the month).

➢ Key in a DEC number: Min = 0, Max = 31.

Time(hh : mm : ss) Alarm

This item selects the alarm Time.

[hh] ➢ Key in a DEC number: Min = 0, Max = 23.

[mm/ss] ➢ Key in a DEC number: Min = 0, Max = 59.

*** Reload Global Timer Events ***

Global Timer (power management) events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such as a mode. In effect, the system remains alert for anything that occurs to a device that is configured as Enabled, even when the system is in a power-down mode.

Primary/Secondary IDE 0/1

When these items are enabled, the system will restart the power-saving time out counters when any activity is detected on any of the drives or devices on the primary or secondary IDE channels.

➢ The choice: Disabled or Enabled.

FDD, COM, LPT Port

When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the floppy disk drive, serial ports, or the parallel port.

- The choice: Disabled or Enabled.

PCI PIRQ [A-D] #

When this item is disabled, any PCI device set as the Master will not power on the system.

- The choice: Disabled or Enabled.

PS2 Keyboard Power ON

This item allows you to set the PS2 Keyboard Power On function

- The choice: Disabled, Password, or Hot Key.

KB Power ON Password

This item allows you to set the KB Power On Password.

- Press" Enter" to set Password.

Hot Key Power On

This item allows you to set the Hot Key Power On.

- The choice: Any Key, Ctrl-F1 ~ Ctrl-F12.

PS2 Mouse Power ON

This item allows you to enable or disable the PS2 Mouse Power On.

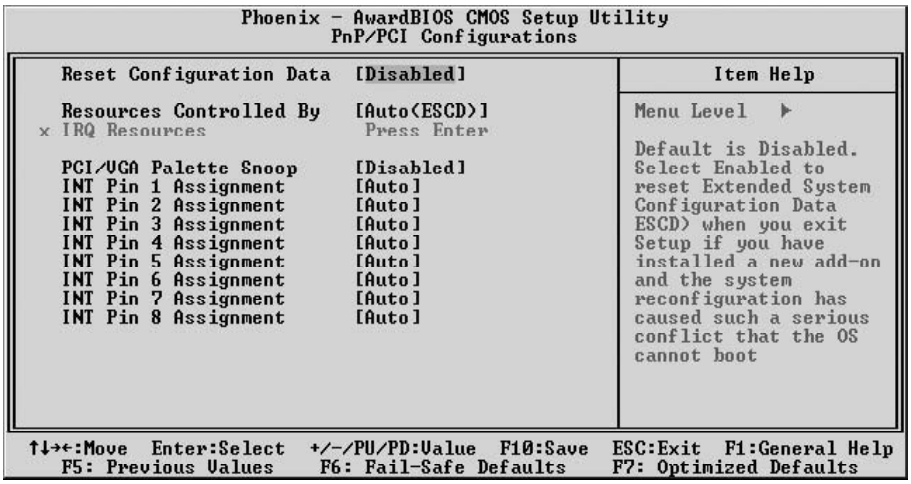
- The choice: Disabled or Enabled.

Pwron After PWR-Fail

This item defines if the system will be rebooted after the power fails.

- The choice: Off, On, Former-Sts.

PnP/PCI Configurations



This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.
This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

- The choice: Enabled or Disabled .

Resource controlled By

The Award Plug-and-Play BIOS has the capacity to automatically configure all of the boot and Plug-and-Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug-and-Play operating system such as Windows 95.

If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a ">").

- The choice: Auto(ESCD) or Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

- The choice: PCI Device or Reserved.

PCI/VGA Palette Snoop

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. If you have MPEG ISA/VESA VGA Cards and PCI/ VGA Card worked, Enable this field. Otherwise, please Disable it.

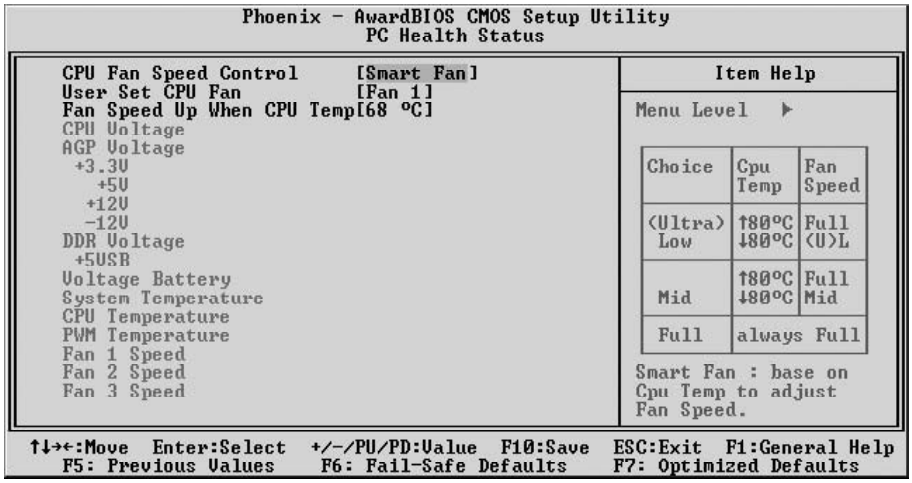
- The choice: Enabled or Disabled.

INT Pin1～8 Assignment

Names the interrupt request(IRQ) line assigned to a device connected to the PCI interface on your system.

- The choice: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

PC Health Status



CPU Fan Speed Control

This item allows you to set the CPU Fan Speed.

- The choice: Smart Fan, Ultra-Low , Low , Mid , or Full .

Note: Before manually modifying the CPU fan setting, please make sure fan connectors are plug into the correct fan connector designations on the mainboard.

User Set CPU Fan

Enabled you to choose one specific fan for further setting.

- The choice: Fan1, Fan2, or Fan3.

Fan Speed Up When CPU Temp

Enabled 3 phase smart control to the Selected fan. This feature ranges from 40 ^{0}C to 80 ^{0}C, in an increment of 4 ^{0}C.

- The choice: 40 ^{0}C,44 ^{0}C,48 ^{0}C, 52 ^{0}C, 56 ^{0}C, 60 ^{0}C, 64 ^{0}C, 68 ^{0}C, 72^{0}C, 76 ^{0}C,80 ^{0}C.

Take our default Setting for example, 1st and 2nd phase Variable Fan Speed and CPU temperature Control is as defined by "Fan Speed Up When CPU Temp". If actual CPU temp (reported by BIOS) stays below 72 ^{0}C then CPU fan speed will run at a quiet mode (1st phase) of approximately 2000 RPM.

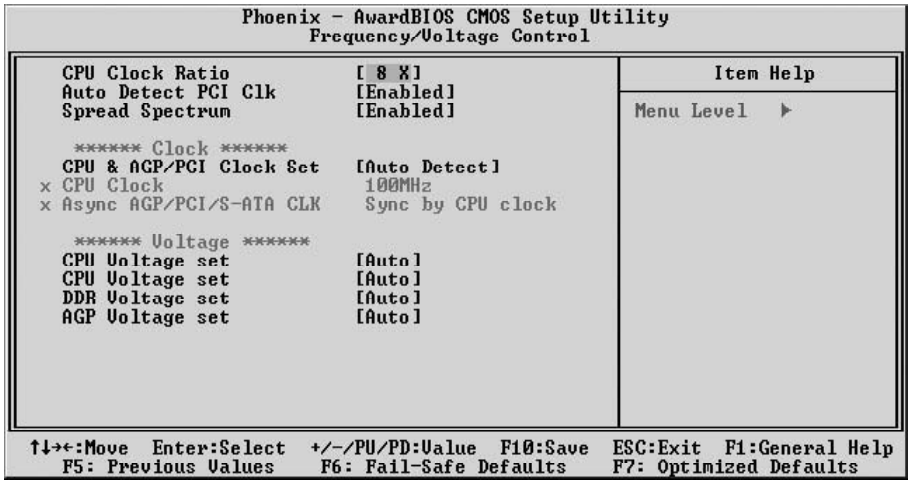
But when the actual CPU temp goes above the pre-selected 72 ^{0}C temperature threshold, then CPU fan speed will automatically engage into normal mode (2nd phase) of about 2500 RPM. Automatically by the Smart Bios feature, this increase of fan rotation speed will effectively cool down the CPU temperature. And when the CPU temperature drops back below the 72 ^{0}C temperature threshold, CPU fan speed will again automatically shift back to the quiet mode (1st phase) of about 2000 RPM in order to reduce fan noise level.

Fail-safe mode (4rd phase) Variable Fan Speed and CPU temperature Control is as predefined at user setting offset 10^{0}C. Where in the event of system and CPU operating under extreme working conditions, and if CPU temperature is raised above 82 ^{0}C then the Smart Bios will engage the CPU fan in Fail-safe mode to rotate at about 3500 RPM. Please note that the higher fan speed, the fan cooler will be become slightly noiseier in order to compensate for the increase in CPU temperature.

Warning: It is Strongly recommended to disable CPU Fan Auto Guardian feature, if you wish to use other fan cooler, allowing the fan to run at its default speed.

CPU Voltage
AGP Voltage
+3.3V
+5V
+12V
-12V
DDR Voltage
+5VSB
Voltage Battery
System Temperature
CPU Temperature
PWM Temperature
Fan1 Speed
Fan2 Speed
Fan3 Speed

Frequency/Voltage Control



CPU Clock Ratio

This item allows you to adjust CPU Ratio. If your CPU ratio is unlocked, the item is visible.

Min: 8
Max: 50

➢ Key in a DEC number: (Between Min and Max.)

Auto Detect PCI Clk

This item allows you to enable/disable auto disable empty PCI Slot Clock.

➢ The choice: Enabled or Disabled.

Spread Spectrum

This item allows you to enable or disable the spread spectrum modulation.

➢ The choice: Disabled or Enabled.

****** Clock ******

CPU & AGP/PCI Clock Set

This item allows you to set the CPU&AGP/PCI Clock.

➢ The choice: Auto Detect or Manual.

CPU Clock

This item allows the user to adjust CPU Host Clock.

Min: 100
Max: 255

➢ Key in a DEC number: (Between Min and Max.)

Async AGP/PCI/S-ATA CLK

This item allows you to set AGP/PCI clock and CPU clock asynchronous. You can select 66/33, 73/36, or 80/40 to fixed AGP/PCI clock even if you adjust CPU clock.

- The choice: Sync by CPU Clock, fixed 66/33/100 MHz, fixed 73/36/100 MHz, fixed 80/40/100.

Note: If you install S-ATA device, please do not select [Sync by CPU clock]. That will let S-ATA device fail. We strongly recommend you to select [fixed 66/33/100 MHz].

****** Voltage ******

CPU Voltage

This item allows you to set CPU Voltage.

- The choice: 1.850V ~ 1.100V.

DDR Voltage

This item allows you to set DDR Voltage.

- The choice: Auto, 2.65V, 2.70V, 2.75V.

AGP Voltage

This item allows you to set AGP Voltage.

- The choice: Auto, 1.55V, 1.60V, 1.65V.

Load Fail-Safe Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal performance system operations.

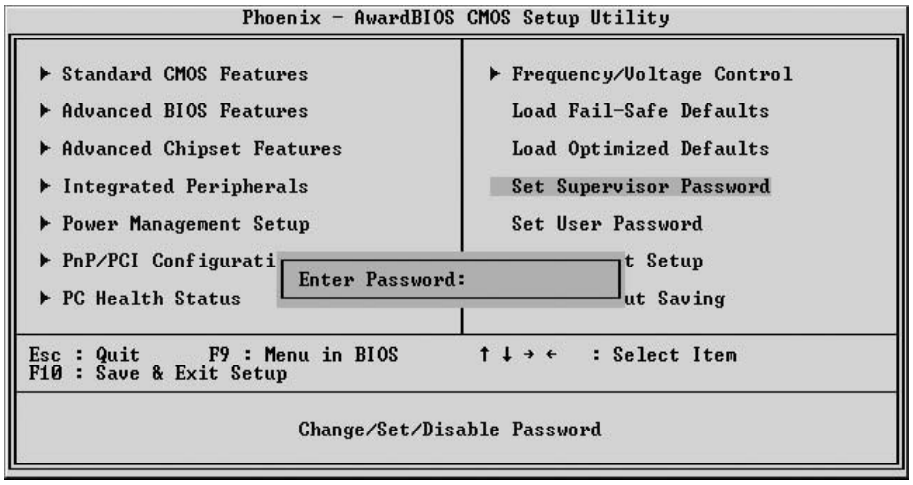
Load Optimized Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.

Set Password



This item is to set supervisor password. Please follow below steps.

New Password Setting :

1. While pressing <Enter> key to start setting password function, a dialog box appears to ask you "Enter password: ".
2. Key in a new password now. However, the password can not be over eight characters or numbers.
3. Then system will request you to confirm new password by asking you to key in new password again.
4. Once the confirmation is completed, new code takes effect.

No Password Setting :

5. If you want to delete password, just press <Enter> key instead of new password while password input is requested. And the other procedures are the same as above password setting.

If You Forget Password :

6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 29 for clear CMOS setting.

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.