Preface

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Version 1.0

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Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Features and Packing List Translations

Liste de contrôle

Comparez ce qui est contenu dans l'emballage de la carte mère avec la liste suivante:

Eléments standards

- Une carte mère
- Un câble plat pour lecteur de disquette et équerre
- Un câble plat pour lecteur IDE et équerre
- Un CD du logiciel d'installation automatique
- Un panneau d'entrées/sorties
- Un module de fixation pour ventilateur de refroidissement

Ce manuel utilisateur

Processeur	La carte mère S648 utilise un Socket micro PGA 478 broches présentant les caractéristiques suivantes :
	• Supporte le bus système 400/533 MHz
	• Reçoit des processeurs Pentium 4 à 1.5G/1.6G/1.7G… 2.5G et plus
Chipset	Les chipsets SiS648 et SiS963 sont basés sur une architecture novatrice et dimensionnable avec une fiabilité et des performances prouvées. Quelques-unes des caractéristiques avancées des chipsets sont:
	• Supporte les CPU de la série Intel Pentium 4 avec des vitesses de transfet allant jusqu'à 533MHz
	• Supporte 12 transactions remarquables et une exécution hors norme
	• Supporte le Contrôleur de Mémoire 64 bits hautes performances DDR333/DDR266
	• Conforme à AGP v3.0 universel et supporte l'Interface AGP 8X/4X avec Fast Write Transaction
	• Stratégie d'arbitrage distribué avec transmission en continu contiguë longue
	• Conforme aux spécifications PCI 2.2
	• Maîtrise de lien Multiprocessus E/S intégré avec flux en pipeline de lecture
	• Supporte Ultra DMA 33/66/100/133
	Les caractéristiques clé supplémentaires incluent le support pour six ports USB, contrôleur Fast Ethernet MAC, interface AC97, contrôleur d'hôte IEEE 1394A, gestion d'alimentation avancée, contrôleur DMA intégré et contrôleur de clavier.
Mémoire	• Support de module mémoire DDR SDRAM jusqu'à 200/266/333 MHz
	• Peut recevoir trois logements sans mémoire tampon en 2.5V de 184 broches.
	• Chaque logement supporte jusqu'à 1 Go avec une capacité maximum totale de 3 Go.

AGP	La S648 inclus un logement 8xAGP qui offre huit fois la bande passante des spécifications AGP d'origine. L'AGP 3.0 (8xAGP) offre une amélioration significative de performances accompagnée d'améliorations de fonctionnalités sur l'AGP2.0. Cette interface représente l'évolution naturelle de l'AGP existante pour répondre à une demande toujours croissante d'interfaces graphiques en environnements de station de travail et de bureau.
Audio	Le codec Audio AC 97 est conforme aux spécifications de AC 97 2.2, et supporte la résolution ADC (Analog Digital Converter) 18 bits et DAC (Digital Analog Converter) ainsi que le codec stéréo 18 bits full-duplex avec des vitesses d'échantillonnage indépendantes et variables. Les fonctions supplémentaires comprennent le support de quatre entrées stéréo de niveau de ligne analogique.
Options d'Extensions	La carte mère est livrée avec les options d'extensions suivantes: • Cinq logements PCI 32 bits (Partage PCI 5 et RAID interne) • Un logement AGP 8X/4X • Un logement Communications Network Riser (CNR) (Interface AC97 seulement) • Deux connecteurs IDE supportant quatre canaux IDE et une interface de lecteur de disquette La S648 supporte la maîtrise de bus Ultra DMA avec des vitesses de transfert de 33/66/100/133 Mo/sec.
LAN Interne (optionnel)	RTL8201BL est un Fast Ethernet Phyceiver avec un MII (Media Independent Interface)/SNI (Serial Network Interface). Il peut être utilisé comme Adaptateur d'Interface Réseau, MAU, CNR, ACR, Hub Ethernet, ou Commutateur Ethernet.
	RTL8100B (L) est un contrôleur Fast Ethernet a puce unique d'un bon rapport qualité-prix hautement intégré offrant des performances de 32 bits et la capacité de maîtrise de bus PCI. Il supporte l'Interface de gestion d'Alimentation à Configuration Avancée (ACPI), la gestion d'alimentation PCI pour systèmes d'exploitation de modem capables de Gestion d'Alimentation Dirigée par Système d'Exploitation (OSPM) pour atteindre la gestion d'alimentation la plus efficace possible.
ATA Série Sil3112A (optionnel)	• Liaison ATA Série intégrée et PHY logic • Conforme aux spécifications ATA Série 1.0 • Supporte deux canaux ATA Série indépendants • Supporte la vitesse de transfert ATA Série Génération 1 de 1.5Go/s • Supporte l'Etalement du Spectre en récepteur • Architecture PLL unique, 1 PLL pour chacun des ports

E/S Intégrée	La carte mère possède un jeu complet de ports d'E/S et de connecteurs: • Deux ports PS/2 pour souris et clavier • Deux ports série • Un port parallèle • Un port MIDI/jeu • Deux ports USB • Un port LAN • Prises audio pour microphone, ligne d'entrée et ligne de sortie
Microprogramme BIOS	Cette carte mère utilise Award BIOS qui permet aux utilisateurs de configurer de nombreuses caractéristiques du système comprenant les suivantes: • Gestion d'alimentation • Alarmes de réveil • Paramètres de CPU • Synchronisation de CPU et de mémoire Le microprogramme peut aussi être utilisé pour définir les paramètres pour les vitesses d'horloges de différents processeurs.

Checkliste

Vergleichen Sie den Packungsinhalt des Motherboards mit der folgenden Checkliste:

Standard Items

- Ein Motherboard
- Ein Bandkabel und eine Halteklammer für Diskettenlaufwerke
- Ein Bandkabel und eine Halteklammer für IDE-Laufwerke
- Eine Auto-Installations-Support-CD
- Ein I/O-Feld
- Ein Lüfterhalter
- Dieses Benutzerhandbuch

Features

Prozessor	Das S648-Mainboard verwendet einen Mikro-PGA 478-Pin Sockel mit den folgenden Eigenschaften: • Unterstützt 400/533 MHz Systembus • Nimmt Pentium 4 Prozessoren mit 1.5G/1.6G/1.7G… 2.5G und darüber auf
Chipsatz	Die Chipsätze SiS648 und SiS963 basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung. Einige der modernen Eigenschaften des Chipsatzes: • Unterstützt Intel Pentium 4 Serie CPU mit einer Datentransferrate von bis zu 533MHz • Unterstützt 12 Outstanding-Transactions und Out-of-order-completion • Unterstützt 64-bit Hochleistungs- DDR333/DDR266 Speicher Controller • Entspricht Universal AGP v3.0 und unterstützt AGP 8X/4X Interface mit Fast-Write-Transaction • Distributed-Arbitration-Strategy mit lange fortlaufendem Datenstreaming • Entspricht PCI 2.2 Spezifikation • Eingebautes Multithreaded I/O-Link-Mastering mit Read-Pipelined-Streaming • Unterstützt Ultra DMA 33/66/100/133 Zusätzliche Schlüsseleigenschaften umfassen die Unterstützung für sechs USB-Anschlüsse, Fast Ethernet MAC Controller, AC 97-Interface, IEEE 1394A Host Controller, erweiterte Energieverwaltung, integrierter DMA Controller und Tastatur Controller.
Speicher	• Unterstützt DDR bis zu 200/266/333 MHz SDRAM-Speichermodul • Nimmt drei ungepufferte 2.5V 184-Pin Steckplätze auf • Jeder Steckplatz unterstützt bis zu 1 GB mit einer maximalen Gesamtkapazität von bis zu 3 GB

AGP	Das S648 enthält einen 8xAGP-Steckplatz mit der achtfachen Bandbreite der ursprünglichen AGP-Spezifikation. AGP 3.0 ((8xAGP) bietet gegenüber AGP2.0 eine erhebliche Leistungssteigerung und verbesserten Features. Dieses Interface stellt die natürliche Evolution des bestehenden AGP dar, um den stetig anwachsenden Anforderungen an die Grafikschnittstellen innerhalb der Workstations und Desktop-Umgebungen gerecht zu werden.
Audio	Der AC' 97 Audio-Codec ist kompatibel mit der AC' 97 2.2-Spezifikation und unterstützt 18-Bit ADC (Analog Digital Converter) und DAC (Digital Analog Converter)-Auflösungen sowie 18-Bit-Stereo-Vollduplex-Codec mit unabhängigen und variablen Samplingraten. Weitere Eigenschaften umfassen Unterstützung für vier analoge Line-Level-Stereoeingänge.
Erweiterungs-optionen	Das Mainboard bietet die folgenden Erweiterungsoptionen: • Fünf 32-bit PCI-Steckplätze (PCI 5 und integriertes RAID-Share) • Einen 8X/4X AGP-Steckplatz • Einen Steckplatz für Communications Network Riser (CNR) (nur AC97-Interface) • Zwei IDE-Stecker, die vier IDE-Kanäle und eine Schnittstelle für ein Floppydiskettenlaufwerk unterstützen Das S648 unterstützt Ultra DMA Bus-Mastering mit Übertragungsraten von 33/66/100/133 MB/s.
Integriertes LAN (optional)	RTL8201BL ist ein Fast Ethernet Phyceiver mit MII (Media Independent Interface)/SNI (Serial Network Interface). Er kann als Network Interface Adapter, MAU, CNR, ACR, Ethernet Hub oder Ethernet Switch verwendet werden.
	RTL8100B (L) ist ein hochgradig integrierter, kostengünstiger Single-Chip Fast Ethernet Controller, der 32-bit Leistung und PCI-Bus-Master-Fähigkeit bietet. Er unterstützt Advanced Configuration Power Management Interface (ACPI), PCI-Energieverwaltung für moderne Betriebssysteme mit Operating System Directed Power Management- (OSPM) Fähigkeit, um eine Energieverwaltung zu erreichen, die so effizient wie möglich ist.
Sil3112A Serial ATA (optional)	• Integriertes Serial ATA-Link und PHY-Logic • Entspricht Serial ATA 1.0 Spezifikationen • Unterstützt zwei unabhängige Serial ATA-Kanäle • Unterstützt Serial ATA Generation 1 Übertragungsrate von 1.5Gb/s • Unterstützt Spread Spectrum im Empfänger • Single-PLL Architektur, 1 PLL für beide Schnittstellen
Integrierte I/O	Das Mainboard verfügt über einen kompletten Satz von I/O-Schnittstellen und Anschlüssen: • Zwei PS/2-Schnittstellen für Maus und Tastatur • Zwei serielle Schnittstellen • Eine parallele Schnittstelle • Eine MIDI/Game-Schnittstelle • Zwei USB-Schnittstellen • Eine LAN-Schnittstelle (optional) • Audiobuchsen für Mikrofon, Line-in und Line-out

BIOS-Firmware	Dieses Mainboard setzt das Award BIOS ein, mit dem der Anwender viele Systemeigenschaften selbst konfigurieren kann, einschließlich der folgenden:
	• Energieverwaltung
	• Wake-up-Alarm
	• CPU-Parameter
	• CPU und Speichertiming
	Mit der Firmware können auch die Parameter für verschiedene Prozessortaktgeschwindigkeiten eingestellt werden.

Lista di controllo

Comparate il contenuto della confezione della scheda madre con la seguente lista di controllo:

Articoli standard

- Una scheda madre
- Un cavo a nastro per il drive dischetti con supporto
- Un cavo a nastro IDE con supporto
- Un CD di supporto software auto-installante
- Un pannello I/O
- Un modulo di ritenzione a raffreddamento
- Il manuale dell'utente

Caratteristiche

Processore	La scheda madre S648 è dotata di uno zoccolo di tipo micro PGA a 478 pin caratterizzato da: • Supporto per bus di sistema a 400/533 MHz • Compatibile con processori Pentium 4 1.5G/1/6G/1.7…2.5G e superiore
Chipset	I chipset SiS648 e SiS963 si basano su di una architettura innovativa e scalabile di comprovata affidabilità e potenza. Alcune delle funzioni più avanzate: • Compatibile le CPU Intel Pentium 4 con trasferimento dati sino a 533MHz • Support 12 outstanding transactions and out-of-order completion • Supporto del Memory Controller DDR333/DDR266 a 64 bit ad alte prestazioni • Compatibile con lo standard Universal AGP v3.0 e supporto dell'interfaccia AGP 8X/4X con Fast Write Transaction • Distributed arbitration strategy with long contiguous data streaming up to 1GB/s • Compatibile con le specifiche PCI 2.2 • Link mastering I/O multi-threaded integrato con read pipelined streaming • Supporto dell'Ultra DMA 33/66/100/133 Alcune altre funzioni principali comprendono: Supporto per sei porte USB 2.0, controller Fast Ethernet MAC, interfaccia AC 97, host controller IEEE 1394A, gestione energetica avanzata, controller DMA e tastiera integrata.
Memoria	La scheda madre supporta DDR fino a 266/333 MHz SDRAM. È dotata di tre slot di memoria unbuffered da 184 pin a 2,5V. Ciascuno slot supporta fino a 1 GB per una capacità massima totale di 3 GB. • Supporto moduli SDRAM DDR sino a 266/333 MHz • tre slot di memoria unbuffered da 184 pin a 2,5V • Ogni slot é in grado di gestire sino ad 1 GB arrivando ad una capacità massima di 3 GB

AGP	The S648 é dotato di uno slot 8xAGP con prestazioni otto volte superiori alle specifiche AGP originali. L' AGP 3.0 (8xAGP) offre una aumento significativo delle prestazioni insieme alle funzioni avanzate dello standard AGP2.0. Questa rappresenta l'evoluzione naturale dello standard esistente AGP per far fronte alle crescenti necessità delle interfacce grafiche di workstation e desktop.
Audio	L'Audio Codec AC' 97 è conforme alle specifiche AC' 97 2.2 e supporta ADC (Analog Digital Converter) e DAC (Digital Analog Converter) con risoluzione a 18 bit, e un codec full-duplex stereo a 18 bit con frequenza di campionamento indipendente e variabile. Supporta inoltre quattro ingressi analogici stereo a livello di linea.
Opzioni di espansione	La scheda madre offre le seguenti opzioni di espansione: • Cinque slot PC a 32 bit (PCI 5 a RAID share a bordo) • Uno slot 8X/4x AGP • Uno slot CNR (Communication Network Riser) solo con interfaccia AC97 • Due connettori IDE con supporto per quattro canali IDE e un'interfaccia per unità floppy. La scheda S648 è dotata di supporto bus mastering Ultra DMA con velocità di trasferimento di 33/66/100/133 MB/sec.
LAN a bordo (opzionale)	RTL8201BL é un Phyceiver Fast Ethernet dotata di MII (Media Independent Interface)/SNI (Serial Network Interface). Puó essere utilizzata come scheda di rete, MAU, CNR, ACR, Hub Ethernet o Switch Ethernet.
	RTL8100B (L) è un controller Fast Ethernet ad alta integrazione con un chip singolo ed efficace nei costi che fornisce prestazioni a 32 bit e capacità PCI bus master. Supporta l'interfaccia Advanced Configuration Power (ACPI), gestione energetica PCI per sistemi operativi moderni in grado di gestire la gestione energetica diretta del sistema operativo (OSPM) ottenendo in questo modo la gestione energetica più efficace possibile.
Sil3112A ATA Seriale (opzionale)	• Link ATA seriale integrato e logica PHY • Compatibile con le specifiche Serial TA 1.0 • Supporta due canali Serial ATA indipendenti • Supporta le velocità di taìrasferimento di 1Gb/s di Serial ATA Generation 1 • Supporta Spread Spectrum nel ricevitore. • Architettura PLL singola, 1 PLL per ambedue porte
I/O integrata	La scheda è dotata di una serie completa di connettori e porte di I/O: • Due porte PS/2 per mouse e tastiera • Due porte seriali • Una porta parallela • Una porta MIDI/game • Due porte USB • Una porta LAN (opzionale) • Spinotti audio per microfono, ingresso e uscita linea.

Firmware BIOS	Questa scheda utilizza un BIOS Award che consente la configurazione di molte funzioni del sistema, fra cui:
	• Risparmio energetico • Allarmi di attivazione • Parametri CPU • Timing CPU e memoria
	Il firmware consente anche l'impostazione di parametri per varie velocità di clock del processore.

Lista de Verificación

Compare los contenidos del paquete de la placa principal con la sigte. lista:

Ítems Estándares

- Una placa principal
- Un cable cinta y consola del lector de diskette
- Un cable cinta y consola de la unidad IDE
- Un CD de soporte en software de autoinstalación
- Un panel I/O
- Un módulo de retención de ventilador
- Este manual del usuario

Características

Procesador	La placa principal S648 usa un micro receptáculo PGA 478-pines que tiene la siguientes características: • Soporta un bus de sistema de 400MHZ (FSB) • Acomoda procesadores Pentium 4 en 1.5G/1.6G/1.7G… 2.5G y más
Chipset	Los Chipsets SiS648 y SiS963 se basan de una arquitectura innovadora y escalable con fiabilidad y rendimiento comprobados. Unas pocas características avanzadas de los chipsets son: • Permite Intel Pentium 4 series CPU con un valor de transmisión de datos hasta 533MHz • Permite 12 transacciones excelentes y terminación averiada • Permite 64-bit de alto rendimiento y Controlador de Memoria DDR333/DDR266 • AGP v3.0 universal adaptable y permite Interfaz AGP 8X/4X con Transacción de Escritura Rápida • Método de arbitraje distribuido con datos continuos largos que corren hasta 1GB/s • Especificación de conformidad PCI 2.2 • Entrada/Salida multi-ensartada integrada y enlace maestro con lectura yuxtapuesta de datos • Permite Ultra DMA 33/66/100/133 Las características claves adicionales incluyen soporte para seis puertos USB 2.0, controlador Fast Ethernet MAC, interfaz AC97, IEEE 1394A controlador de receptor, administración de energía avanzada, controlador DMA integrado y controlador de teclado.
Memoria	• Permite DDR hasta 200/266/333 MHz módulo de memoria SDRAM • Acomoda tres ranuras no reservadas 2.5V 184-pines • Cada ranura permite hasta 1GB con capacidad máxima total de 3 GB

AGP	La S648 incluye una ranura 8xAGP que provee ocho veces el ancho de banda de la especificación AGP original. La AGP 3.0 (8xAGP) ofrece un aumento significativo en el rendimiento junto con características mejoradas para AGP 2.0. Esta interfaz representa la evolución natural de la ya existente AGP para hacer frente a las demandas siempre en aumento de las interfases de gráficos dentro de los ambientes de estaciones de trabajo y computadoras.
Audio	El codec de sonido AC' 97 se conforma con la especificación AC' 97 2.2, y soporta la resolución 18-bit ADC (Conversor Digital Analógico/Analog Digital Converter) y DAC (Conversor Digital Analógico/Digital Analog Converter) y también el codec full duplex de estéreo 18-bit con índices de muestreo independiente y variable. Otras características incluyen soporte para cuatro entradas de estéreo a nivel de línea analógica.
Opciones de Expansión	La placa principal viene con las sigtes. opciones de expansión: • Cinco ranuras 32-bit PCI (PCI 5 y participación RAID incorporada) • Una ranura AGP 8X/4X • Una ranura Communications Network Riser (CNR) (Interfacio AC97 solamente) • Dos canales IDE y un interfacio de unidad de disco floppy La S648 soporta bus maestro Ultra DMA con índices de transferencia de 33/66/100/133 MB/seg.
LAN Abordo (optativo)	RTL8201BL es una Fast Ethernet Phyceiver con una MII (Interfaz Independiente Media)/SNI (Interfaz de Red Serie). Esta puede ser usada como un Adaptador de Interfaz de Red, MAU, CNR, ACR, Ethernet Hub, o Interruptor Ethernet. RTL8100B (L) es un altamente adaptado chip-individual económico controlador Fast Ethernet que provee 32-bit de rendimiento y capacidad maestro de bus PCI. Esto soporta la Interfaz Avanzada para la Configuración de la Potencia (ACPI), administración de energía PCI para sistemas operativos modernos que son capaces de Administración de Energía Dirigida de Sistemas Operativos (OSPM) para lograr la más eficiente administración de energía posible.
Sil3112A Serie ATA (opcional)	• Serie ATA Link integrado y PHY lógico • Conforme con especificaciones Serie ATA 1.0 • Soporta dos canales independientes Serie ATA • Soporta índice de transferencia de 1.5Gb/s de Serie ATA Generación 1 • Soporta Extensión de Espectro en el receptor • Estructura individual PLL, 1 PLL para ambos puertos
I/O Integrado	La placa principal tiene un juego completo de puertos I/O y conectores: • Dos puertos PS/2 para ratón y teclado • Dos puertos serie • Un puerto paralelo • Un puerto de juego MIDI • Dos puertos USB • Un puerto LAN (opcional) • Clavijas de sonido para micrófono, entrada y salida de línea

BIOS Firmware	Esta placa usa Award BIOS que habilita a los usuarios a configurar muchas características del sistema que incluyen las sigtes: • Administración de alimentación • Alarmas despertadoras • Parámetros de CPU y cronometraje de memoria • CPU y cronometraje de memoria El firmware también se usa para configurar parámetros para diferentes velocidades de reloj del procesador.

チェックリスト

下記のチェックリストに列挙されている製品が同封されているかを確認してください。

標準同封アイテム

- メインボード　1枚
- ディスクドライブケーブル及びブラケット　1個
- IDEドライブリボンケーブル及びブラケット　1個
- 自動インストール機能対応ソフトウェアCD　1枚
- I/Oパネル　1個
- 冷却ファンリテンションモジュール　1個
- ユーザーマニュアル

製品特徴

プロセッサ	S648メインボードに搭載されているマイクロPGAの478ピン式ソケットには次の特徴があります。 ・ 400/533MHzのシステムバスをサポート ・ 1.5G/1.6G/1.7G…2.5G以上のPentium4 プロセッサに対応
チップセット	搭載されているSiS648およびSiS963チップセットは最新且つ拡張性あるアーキテクチャを採用し、高い安定性およびパフォーマンスを兼ね備えたものです。次の特徴があります： ・ データ通信速度最大533MHzのIntel Pentium 4シリーズ対応 ・ 12の際立つ操作機能と順序不同な完成性に対応 ・ 64ビットの高性能DDR333/DDR266メモリコントローラ対応 ・ ユニバーサルAGP v3.0準拠、高速書込み操作のAGP 8X/4Xインターフェース対応 ・ 最大1GB/秒の長時間継続ストリーミングを備えた調整方法を搭載 ・ PCI 2.2仕様対応 ・ 読取パイプラインストリーミングによるマルチスレッドI/Oを統合 ・ Ultra DMA 33/66/100/133対応 その他に、次の重要機能をサポートしています：6つのUSBポートをサポート、高速Ethernet MACコントローラ、AC97インターフェース、IEEE 1394Aホストコントローラ、アドバンスパワーマネジメント、統合DMAコントローラ、キーボードコントローラ。
メモリ	・ 最大266/333MH z までのSDRAMをサポート ・ 3つの非バッファー2.5V仕様の184ピンスロット搭載 ・ 各スロット1GB、計3GBまで対応

AGP	S648には、本来のAGP仕様の8倍のバンド幅を提供する8xAGPスロットが搭載されています。AGP 3.0（8xAGP）は、AGP2.0への向上機能に合わせて、性能も画期的にパワーアップしています。このインターフェースは、ワークステーションやデスクトップ環境いおいて絶えず更新されるグラフィックインターフェースのニーズに応えるために、既存のAGPからの自然なアップグレードを遂げるものです。
オーディオ	AC'97 オーディオコーデックはAC'97 2.2仕様に適合したもので、18-bit ADC（Analog Digital Converter）およびDAC（Digital Analog Converter）解像度、ならびに独立および各種サンプルレートに対応した18ビットステレオ全二重コーデックをサポート。また、4つのアナログラインレベルのステレオ入力をサポートします。
拡張オプション	メインボードには次に拡張オプションが搭載されています： • 32ビットPCI スロット（PCI 5およびオンボードRAIDが共有）　X 5 • 8X/4X AGPスロット　X 1 • 通信ネットワークライザー（CNR）スロット（AC97インターフェースのみ）X 1 • IDEコネクタ X 2、トータルで4つのIDEチャネルおよび 1つのフロッピーディスクドライブインターフェースをサポート S648は転送レート33/66/100/133 MB/secに対応するUltra DMAバスマスタ機能をサポートします。
オンボードLAN（オプション）	RTL8201BLはMII（メディア独立インターフェース）／ SNI（シリアルネットワークインターフェース）を搭載した高速Ethernet Phyceiverです。ネットワークインターフェースアダプタ、MAU、CNR、ACR、Ethernetハブ、Ethernetスイッチとしてお使いいただけます。
	RTL8100B（L）は効果的に統合された経済的なシングルチップFast Ethernetコントローラであり、32ビットの性能とPCIバスマスター機能を搭載しています。現在主流のオペレーションシステムで、アドバンス構成パワーマネジメントインターフェース（ACPI）とPCIパワーマネジメントに対応しており、オペレーションシステムによる電源管理（OSPM）機能を搭載し、効果的なパワーマネジメントを実現しています。
Sil3112A Serial ATA（オプション）	• 統合Serial ATA LinkとPHYロジック • Serial ATA 1.0仕様に準拠 • 2つの独立したSerial ATAチャンネルをサポート • 1.5Gb/秒のSerial ATA Generation 1転送速度をサポート • 受信機のスペクトラム拡散をサポート • 単一PLL構造、両ポートに対し1 PLL

統合されたI/O	このメインボードにはフルセットのI/Oポートおよびコネクタが搭載されています。 • マウスおよびキーボードのPS/2ポート X 2 • シリアルポート X 2 • パラレルポート X 1 • MIDI/ゲームポート X 1 • USBポート X 2 • LANポート X 1（オプション） • マイクロフォンやラインイン、ラインアウト向けのオーディオジャック
BIOS ファームウェア	本メインボードは次のシステム機能を含めた設定をすることができるAward BIOSを採用しています： • 電源管理 • Wake-up警告 • CPUパラメータ • CPUおよびメモリタイミング その他に、プロセッサクロック速度パラメータを変更することもできます。

품목 목록

다음 품목들이 메인보드 패키지에 모두 포함되어 있는지 확인해 보십시오:

표준 품목

- 메인 보드 1개
- 디스켓 드라이브 리본 케이블 및 브래킷 1개
- IDE 드라이브 리본 케이블 및 브래킷 1개
- 자동 설치 소프트웨어 지원 CD 1개
- I/O 패널 1개
- 냉각팬 리텐션 모듈 1개
- 본 사용자 설명서

기능

프로세서	S648 메인보드는 마이크로 PGA 478핀 소켓을 사용하며 다음과 같은 특징이 있다: • 400 MHz 시스템 버스 지원 • 1.5G/1.6G/1.7G··· 2.5G 이상에서 Pentium 4 프로세서 호환
칩셋	SiS648 와 SiS963 칩셋은 혁신적인 기술과 측정 가능한 아키텍쳐를 바탕으로 인정된 신뢰성과 성능을 지닌다. 이 칩셋이 지닌 주요 고급 특징은 다음과 같다: • Intel Pentium 4 시리즈 CPU의 데이터 전송 속도를 최대 533MHz로 지원 • 12개의 우수한 transactions 과 out-of-order comple-tion 지원 • 64-bit 고 성능 DDR333/DDR266 메모리 컨트롤러 지원 • Universal AGP v3.0 호환 및 AGP 8X/4X Fast Write Transaction의 인터페이스 지원 • 최대 1GB/s의 데이터 스트리밍 조정 전략 • PCI 2.2 사양 호환 • 읽기 파이프라인 스트리밍의 통합 multi-threaded I/O 링크 마스터링 • Ultra DMA 33/66/100/133 지원 그밖의 주요 기능으로 6개의 USB 2.0 포트, 패스트 이더넷 MAC 컨트롤러, ,AC97 인터페이스, IEEE 1394A 호스트 컨트롤러, 고급 전원 관리, 통합 DMA 컨트롤러 및 키보드 컨트롤러가 있다.
메모리	• 메인 보드는 DDR 을 최대 200/266/333 MHz SDRAM 지원 • 3 개의 unbuffered 2.5V 184-pin 슬롯 사용 • 각 슬롯의 용량은 1 GB이며, 최대 용량은 3 GB 이다.
AGP	S648 는 기존 AGP 사양보다 8배의 대역폭을 제공하는 8xAGP 슬롯을 사용한다. AGP 3.0 (8xAGP) 는 AGP 2.0의 기능을 보강한 우수한 성능을 제공한다. 이 인터페이스는 워크스테이션과 데스크 탑 환경에서 새롭게 요구되는 그래픽 인터페이스의 요구에 부합되도록 진화된 AGP이다.

오디오	AC' 97 Audio codec 은 AC' 97 2.2 사양과 호환하며, 18-bit ADC (아날로그 디지털 전환기) 와 DAC (디지털 아날로그 전환기) 솔루션 및 독립적이고 다양한 샘플링 속도의 18-bit 스테레오 full-duplex codec 을 지원한다. 그 외에도 4개의 아날로그 line-level 스테레오 입력 기능이 포함된다.
확장 옵션	메인보드는 다음과 같은 확장 옵션이 있다: • 32-bit PCI 슬롯 (PCI 5 및 onboard RAID 공유) 5 개 • 8X/4x AGP 슬롯 1개 • Communications Network Riser (CNR) 슬롯 1개 (AC97 인터페이스의 경우) • 4개의 IDE 채널을 지원하는 IDE 커넥터 2개와 플로피 디스크 드라이브 인터페이스 1 개 • Promise PDC20265R 컨트롤러 (선택사항) 지원 IDE RAID 1, 0 • RAID 0 과 RAID 1은 공존하지 않음. S648 전송 속도 33/66/100/133 MB/sec로 Ultra DMA bus mastering 을 지원한다.
Onboard LAN (선택 사항)	RTL8201BL은 MII (Media Independent Interface)/SNI (Serial Network Interface) 의 패스트 이더넷 Phy-ceiver이다. 이것은 네트워크 인터페이스 어댑터, MAU, CNR, ACR, 이더넷 허브, 또는 이더넷 스위치로 쓰일 수 있다.
	RTL8100B (L) 는 고도로 통합된 효율적 가격의 단일 칩 패스트 이더넷 컨트롤러로 32-비트-성능과 PCI 버스 마스터 기능을 제공한다. 이것은 모뎀 작동 시스템에 고급 구성 전원 관리 인터페이스 (ACPI), PCI 전원 관리를 지원하여 가장 효율적인 전원 관리를 위해 Operating System Directed Power Management (OSPM)를 가능하게 한다.
Sil3112A 시리얼 ATA (선택 사항)	• 통합 시리얼 ATA 링크 및 PHY 로직 • 시리얼 ATA 1.0 사양 호환 • 2개의 독립된 시리얼 ATA 채널 지원 • 시리얼 ATA Generation 1 전송 속도 1.5Gb/s 지원 • 수신기에 Spread Spectrum 지원 • 단일 PLL 아키텍쳐, 두 포트에 1 PLL
통합 I/O	메인보드는 풀 세트의 I/O 포트와 커넥터가 있다: • 마우스 및 키보드 용 PS/2 포트 2개 • 시리얼 포트 2개 • 패러럴 포트 1개 • MIDI/게임 포트 1개 • USB 포트 2개 • LAN 포트1개 • 마이크 용 오디오 잭, line-in 과 line-out

BIOS펌웨어	본 메인보드는 Award BIOS 를 사용하여 사용자는 다음과 같은 시스템 기능을 구성할 수 있다:
	• 전력 관리 • 기상 알람 • CPU 파라미터 • CPU 및 메모리 타이밍 펌웨어는 다른 프로세서 클럭 속도의 파라미터를 설정하는데도 사용될 수 있다.

校验表

将本主板的组件内容与以下校验表进行对照:

标准组件

- 一只主板
- 一套软盘驱动器带状电缆和托架
- 一套 IDE 驱动器带状电缆和托架
- 一张自动安装软件支持光盘
- 一个散热风扇保持模块
- 本用户手册

特性

处理器	S648 主板使用一个 micro PGA 478-pin 插座,此插座具有以下特点: - 支持 400 MHz 系统总线 - 支持 Pentium 4 1.5G/1.6G/1.7G/2.5G 和以上处理器
芯片组	SiS648 和 SiS963 芯片组是基于一种新型的、可扩展的架构,能提供已经证明的可靠性和高性能。此芯片组具有以下一些高级功能: - 支持 Intel Pentium 4 系列 CPU,数据传输速率可达 533MHz - 支持 12 个未完成的事务处理,并不按顺序完成 - 支持 64-位高性能 DDR333/DDR266 存储控制器 - 兼容常规 AGP v3.0,支持带有 Fast Write Transaction 的 AGP 8X/4X 接口 - 分布式的检验策略,可达 1GB/s 的连续数据流 - 符合 PCI 2.2 规格 - 集成多线程 I/O 连接,通过可读传输信号流控制 - 支持 Ultra DMA 33/66/100/133 其它主要功能包括支持 6 个 USB 2.0端口、快速以太网 MAC 控制器、AC97 接口、IEEE 1394A 主控制器、高级电源管理、集成 DMA 控制器和键盘控制器。
内存	- 支持 200/266/333 MHz DDR SDRAM 内存条 - 它有 3 个非缓冲 2.5V 184 pin 插槽, - 每个插槽支持 1 GB,总共最大可支持 3 GB
AGP	S648 包括一个 8xAGP 插槽,可提供普通 AGP 规格 8 倍的带宽。在增强了 AGP2.0 功能的同时,极大地提高了 AGP 3.0 (8xAGP) 的性能。此接口反映了 AGP 的发展规律,它进一步满足了在工作站和桌面环境中对图形接口的不断增长的要求。
音频	AC' 97 Audio codec 兼容 AC' 97 2.1 规格,支持 18 位 ADC(模拟数字转换器)和 DAC(数字模拟转换器)精度,并支持具有独立和可调采样速率的 18 位立体声全双工编解码器。其它功能包括支持 4 路模拟线路级立体声输入。
扩展 选项	此主板提供如下扩展选项: - 5 个 32 位 PCI 扩展插槽(PCI 5 和板上 RAID 共享) - 1 个 8X/4x AGP 插槽

	• 1 个通信网络转接（CNR）插槽（仅对于 AC97 接口） • 2 个 IDE 接口，可支持 4 个 IDE 通道；1 个软驱接口 S648 支持 Ultra DMA 总线控制，传输速率可达 33/66/100/133 MB/sec。
Onboard LAN （可选）	RTL8201BL 为一个带有 MII（媒体独立接口）/SNI（串行网络接口）的快速以太网 Phyceiver。它可以被当作一个网络接口适配器、MAU、CNR、ACR、以太网集线器或以太网交换机来使用。
	RTL8100B（L）是高度集成的、节约成本的单芯片快速以太网控制器，能够提供 32-位性能和 PCI 总线主控功能。它支持先进的配置电源管理接口（ACPI），用于最新操作系统的 PCI 电源管理可以提供操作系统控制的电源管理（OSPM），从而实现最有效的电源管理。
Sil3112A Serial ATA（可选）	• 集成串行 ATA 连接和 PHY 逻辑 • 兼容串行 ATA 1.0 规格 • 支持 2 个独立的串行 ATA 通道 • 支持串行 ATA 第一代传输速率（1.5Gb/s） • 接收器中支持扩频通信 • 单 PLL 架构，1个 PLL 用于两个端口
集成 I/O	此主板具有完整的 I/O 端口和插孔： • 2 个 PS/2 端口用于连接鼠标和键盘 • 2 个串口 • 1 个并口 • 1 个 MIDI/游戏端口 • 2 个 USB 端口 • 1 个 LAN 端口 • 麦克风、线入和线出声音插孔
BIOS	此主板使用 Award BIOS，可以让用户自己配置以下系统功能： • 电源管理 • 唤醒报警 • CPU 参数 • CPU 和记忆定时 还可用于设置不同处理器时钟速度的参数。

檢查表

請依下列檢查表，核對主機板包裝之內容：

標準項目

- 主機板一片
- 磁碟機排線及接頭一條
- IDE驅動器排線及接頭一條
- 自動安裝CD一片
- 輸出入(I/O)控制板一片
- 風扇固定模組一個
- 本使用手冊

性能

處理器	S648主機板採用了具有下列功能之 PGA478針插槽： - 支援400MHz的系統匯流排 - 支援1.5G/1.6G/1.7G/2.5G及以上之 Pentium 4 CPU
晶片組	SiS648及SiS963晶片組，採用了獨創且具有擴充功能的架構，能夠發揮最佳的穩定性及功能。本晶片組具有下列先進的功能： - 支援Intel Pentium 4系列CPU，傳輸速度高達533MHz. - 支援12個未結束傳送 (outstanding transactions) 和不按序完成執行 (out-of-order completion) 功能 - 支援64位元高性能DDR333/DDR266記憶體控制器 - 相容於通用AGP v3.0，並支援具快速寫入處理之AGP 8X/4X介面 - 分散型調派策略，可對應高達1GB/s長時連續資料流 - 相容於PCI 2.2規格 - 內建有多緒輸出入連結器，能夠以R指令管線化指令集進行主控 - 支援Ultra DMA 33/66/100/133傳輸功能 其他重要功能包括：支援6個USB2.0埠，高速乙太MAC控制器，AC97介面，IEEE 1394A主控制器，進階電源管理，內建DMA控制器以及鍵盤控制器。
記憶體	- 本主機板支援高達200/266/333MHz的SDRAM記憶體模組 - 配裝3個無緩衝功能之插槽，採用2.5伏特電壓規格，具184根接腳 - 每一插槽可支援至1GB之記憶體，三插槽可安裝高達3GB之記憶體
AGP	S648主機板配有一個8x AGP插槽，其可提供舊型AGP規格八倍之頻寬。此AGP 3.0 (8x AGP)能夠顯著增強AGP2.0之性能以及增其特色。本介面係順應工作站與個人電腦環境中對圖形介面不斷升高之要求，由既有之AGP規格所發展出來的成果。
Audio	配備之AC'97音效解碼/編碼器，係採用AC'97 2.2 規格，支援18位元的ADC (類比數位轉換器)及DAC (數位類比轉換器)解析度，同時也支援具有18位元的獨立或可變取樣率之立體全雙工解碼/編碼器。此外，尚支援4聲道立體聲的類比輸入

擴充選項	本主機板具有下列的擴充選擇： • 5個32位元 PCI插槽 (PCI 5與機載RAID共享) • 1個8X/4x AGP 槽 • CNR (Communications Network Riser) 槽 (僅支援AC97介面) 1個 • 2個IDE連接器，支援4個IDE 通路及1個軟碟槽介面 S6482主機板具有Ultra DMA 匯流排控制功能，能夠支援 33/66/100/133 MB/sec的傳輸速度。
機載LAN (選購)	RTL8201BL係一個具有媒體無關介面/串列網路介面 (MII/SNI) 之高速乙太網路收發器。亦可作爲網路介面配接器、MAU、CNR、ACR、乙太集線器、或乙太交換器。藉由將其內建於晶片組中，使本主機板具有10/100Mbps高速乙太控制器以及整合型乙太PCI區域網絡功能。
	RTL8100B (L) 是一個高度整合、高效率之單晶片高速乙太網路控制器。其提供32位元效能與PCI匯流排主控功能。此晶片支援高等組態電源介面標準 (ACPI)，以及PCI電源管理。PCI電源管理可讓具有作業系統直接電源管理 (OSPM)之新型作業系統，達到最佳效率之電源管理。
Sil3112A Serial ATA (選購)	• 2個 PS/2 埠，分供滑鼠及鍵盤連接 • 整合Serial ATA傳輸連結和實體層邏輯電路 • 相容於Serial ATA 1.0 規格 • 支援2個獨立Serial ATA通道 • 支援傳輸速率爲每秒1.5Gb之第一代Serial ATA • 支援接收器內之展頻功能 • 單一相鎖迴路設計(PLL)結構，兩個埠共享一個PLL
已整合的I/O	本主機板完整地支援各種 I/O埠及連接器： • 2個 PS/2 埠，分供滑鼠及鍵盤連接 • 2個序列埠 • 1個平行埠 • 1個樂器數位/遊戲搖桿埠 • 2個通用序列匯流排埠 • 1個LAN埠 • 麥克風、line-in及line-out音效端子
BIOS韌體	本主機板使用了Award BIOS，使用者可藉此對包括下列之系統功能進行設定： • 電源管理 • Wake-up警示 • CPU參數 • CPU及記憶體的定時 本BIOS也可用以設定各種不同的處理器頻率參數。

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CHAPTER 4   52

Introducing the Mainboard

Introduction

Thank you for choosing the S648 mainboard. The S648 mainboard is a high–performance, enhanced function mainboard that supports Socket 478 Pentium 4 processors with system speeds up to 533MHz for high-end business or personal desktop markets.

The mainboard incorporates the SiS648 Northbridge and SiS963 Southbridge chipsets. The SiS648 Northbridge chipset provides an 8XAGP and 12-level In-Order-Queue to support maximum outstanding transactions on host up to 12. The memory controller offers high-bandwidth up to 2.7GB/s under DDR333 in order to sustain the bandwidth demand from the host processor, as well as the multi I/O masters and AGP masters. While the SiS963 Southbridge integrates the Universal Serial Bus 2.0 Host Controllers, 1394a and Audio Controller with AC 97 interface.

The S648 is designed to give customers an advanced, multimedia solution. It provides advanced features such as 2 USB ports and an optional LAN connector. There is also an EPP/ECP parallel port and a 16550 high-speed serial I/O port. A range of audio ports is supplied, comprising line-in, line-out, microphone-in, CD-in and game port. . One AGP slot, five PCI local bus slots and one communication and networking riser (CNR) slot provide expandability for add-on peripheral cards.

Checklist

Compare the mainboard's package contents with the following checklist:

Standard Items

- One mainboard
- One diskette drive ribbon cable
- One IDE drive ribbon cable
- One auto-install software support CD
- One I/O panel
- One cooling fan retention module
- This user's manual

Features

Processor	The S648 mainboard uses a micro PGA 478-pin socket that has the following features: • Supports 400/533 MHz system bus • Accommodates Pentium 4 processors at 1.5G/1.6G/1.7G… 2.5G and above
Chipset	The SiS648 and SiS963 chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are: • Supports Intel Pentium 4 series CPU with data transfer rate up to 533MHz • Support 12 outstanding transactions and out-of-order completion • Supports 64-bit high performance DDR333/DDR266 Memory Controller • Universal AGP v3.0 compliant and supports AGP 8X/4X Interface with Fast Write Transaction • Distributed arbitration strategy with long contiguous data streaming • PCI 2.2 specification compliance • Integrated multi-threaded I/O link mastering with read pipelined streaming • Supports Ultra DMA 33/66/100/133 Additional key features include support for six USB ports, Fast Ethernet MAC controller, AC97 interface, IEEE 1394A host controller, advanced power management, integrated DMA controller and keyboard controller.
Memory	• Supports DDR up to 200/266/333 MHz SDRAM memory module • Accommodates three unbuffered 2.5V 184-pin slots • Each slot supports up to 1 GB with a total maximum capacity of 3 GB
AGP	The S648 includes an 8xAGP slot that provides eight times the bandwidth of the original AGP specification. The AGP 3.0 (8xAGP) offers a significant increase in performance along with feature enhancements to AGP2.0. This interface represents the natural evolution from the existing AGP to meet the ever-increasing demands placed on the graphic interfaces within the workstation and desktop environments.
Audio	The AC' 97 Audio codec is compliant with the AC' 97 2.2 specification, and supports 18-bit ADC (Analog Digital Converter) and DAC (Digital Analog Converter) resolution as well as 18-bit stereo full-duplex codec with independent and variable sampling rates. Further features include support for four analog line-level stereo inputs.
Expansion Options	The mainboard comes with the following expansion options: • Five 32-bit PCI slots (PCI 5 and onboard RAID share) • One 8X/4X AGP slot • A Communications Network Riser (CNR) slot (AC97 interface only) • Two IDE connectors which support four IDE channels and

	a floppy disk drive interface
	The S648 supports Ultra DMA bus mastering with transfer rates of 33/66/100/133 MB/sec.
Onboard LAN (optional)	RTL8201BL is a Fast Ethernet Phyceiver with an MII (Media Independent Interface)/SNI (Serial Network Interface). It can be used as a Network Interface Adapter, MAU, CNR, ACR, Ethernet Hub, Ethernet Switch.
	RTL8100B (L) is a highly integrated, cost-effective single-chip Fast Ethernet controller that provides 32-bit performance and PCI bus master capability. It supports the Advanced Configuration Power management Interface (ACPI), PCI power management for modern operating systems that are capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management possible.
Sil3112A Serial ATA (optional)	• Integrated Serial ATA Link and PHY logic • Compliant with Serial ATA 1.0 specifications • Supports two independent Serial ATA channel • Supports Serial ATA Generation 1 transfer rate of 1.5Gb/s • Supports Spread Spectrum in receiver • Single PLL architecture, 1 PLL for both ports
Integrated I/O	The mainboard has a full set of I/O ports and connectors: • Two PS/2 ports for mouse and keyboard • Two serial ports • One parallel port • One MIDI/game port • Two USB ports • One LAN port • Audio jacks for microphone, line-in and line-out
BIOS Firmware	This mainboard uses Award BIOS that enables users to configure many system features including the following: • Power management • Wake-up alarms • CPU parameters • CPU and memory timing The firmware can also be used to set parameters for different processor clock speeds.

Choosing a Computer Case

There are many types of computer cases on the market. The mainboard complies with the specifications for the ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The mainboard can support one or two floppy diskette drives and four enhanced IDE drives. Ensure that your case has sufficient power and space for all the drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the mainboard.

This mainboard has an ATX form factor of 305 x 244 mm. Choose a case that accommodates this form factor.

Mainboard Components

RETENTION MODULE

PWRFAN1	
CPUFAN1	
DIMM1 DIMM2 DIMM3	
LED1	
CPU SOCKET	
CDIN2	ATX2
CDIN1	ATX1
AUDIO1	
SPDIF1	
IDE2 IDE1	
AGP1	
USB2	USB3
SPEAKER1	
PCI1	
PANEL1	
PCI2	1394A-J2
SJ1	
PCI3	1394A-J1
J1	FDD1
PCI4	
J4 J2	
JP1	CASFAN1
PCI5	
CNR1	IR1

5
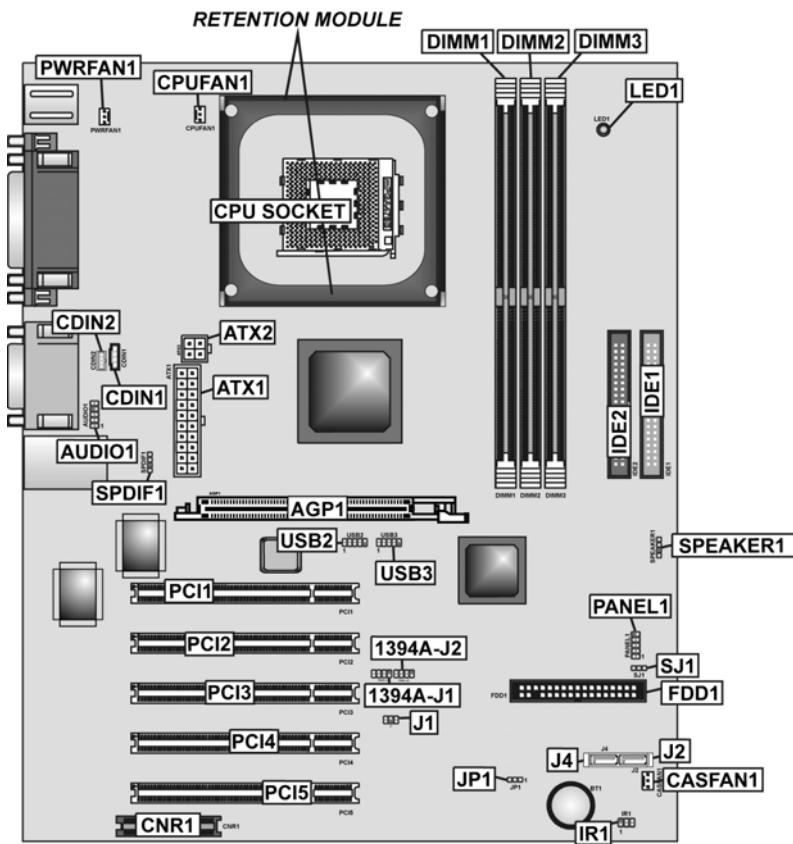
Table of Mainboard Components

Label	Component
1394A_J1/1394A_J2	IEEE 1394A header
AGP1	Accelerated Graphics Port
ATX1	Standard 20-pin ATX power connector
ATX2	ATX12V power connector
AUDIO1	Front audio connector
BT1	Three volt realtime clock battery
CASFAN1	Case fan connector
CDIN1	Primary CD-in connector
CDIN2	Secondary CD-in connector
CNR1	Communications Networking Riser slot
CPU SOCKET	Micro PGA 478-pin socket for Pentium 4 CPUs
CPUFAN1	Cooling fan for CPU
DIMM1~ DIMM3	Three 184-pin DDR SDRAM
FDD1	Floppy disk drive connector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
IR1	Infrared port
J4/J2	Serial ATA connector
JP1	Clear CMOS jumper
LED1[1]	Memory module LED
PANEL1	Connector for case front panel switches and LED indicators
PCI1 ~ PCI5	Five 32-bit add-on card slots
PWRFAN1	Power fan connector
SJ1	Single color LED header
SPEAKER1	Speaker connector
SPDIF1	SPDIF out header
USB2 ~ USB3	Connector for front panel USB ports

This concludes Chapter 1. The next chapter explains how to install the mainboard.

---

[1] The red indicator LED1 turns on if your system is still powered, at which time memory modules cannot be installed or uninstalled.

Safety Precautions

Follow these safety precautions when installing the mainboard:

- Wear a grounding strap attached to a grounded device to avoid damage from static electricity.
- Discharge static electricity by touching the metal case of a safely grounded object before working on the mainboard.
- Leave components in the static-proof bags they came in.
- Hold all circuit boards by the edges. Do not bend circuit boards.

Quick Guide

This Quick Guide suggests the steps you can take to assemble your system with the mainboards.

The following table provides a reference for installing specific components:

Installing the Mainboard in a Case

Refer to the following illustration and instructions for installing the mainboard in a case:

This illustration shows an example of a mainboard being installed in a tower-type case:

> **Note:** Do not overtighten the screws as this can stress the mainboard.

Most system cases have mounting brackets installed in the case, which correspond to the holes in the mainboard. Place the mainboard over the mounting brackets and secure the mainboard onto the mounting brackets with screws.

2. Secure the mainboard with screws where appropriate.

1. Place the mainboard over the mounting brackets.
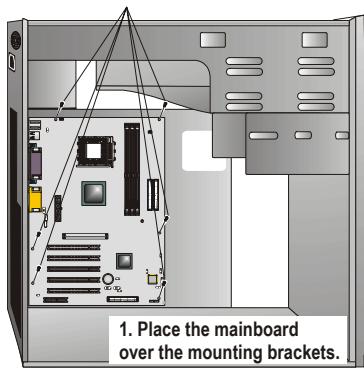
Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your mainboard.

Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the mainboard.

Setting Jumpers

Use the mainboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations below show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.
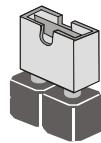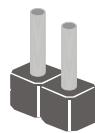
This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.

Short   **Open**
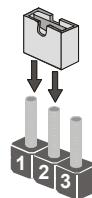
Checking Jumper Settings

The following illustration shows the location of the mainboard jumpers. Pin 1 is labeled.
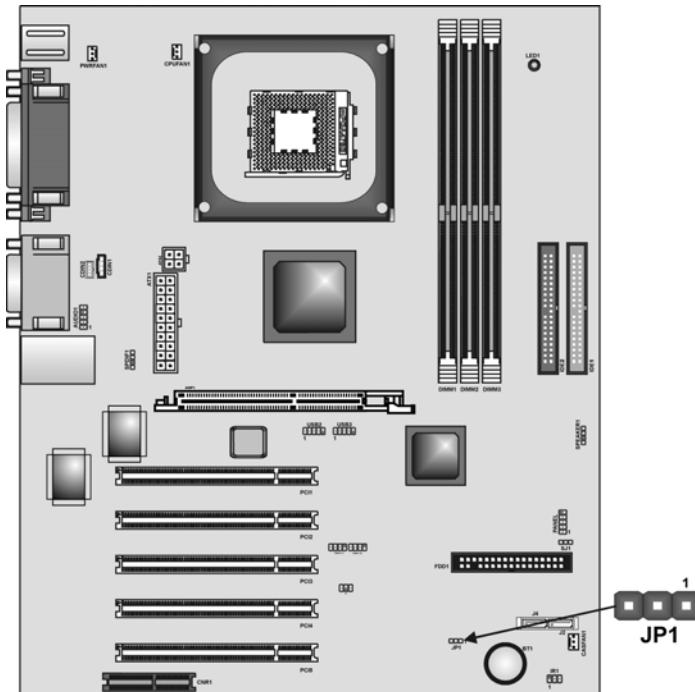
Jumper Settings

Jumper	Type	Description	Setting (*default*)	
JP1	3-pin	Clear CMOS	1-2: Normal *2-3: Clear CMOS*	**JP1** ▢◼◼ 1

Jumper 1 –   This jumper is use to clear all the current data stored in the CMOS memory. Refer to the following instructions:

1. Turn the system off.

2. Short pins 2 and 3 on jumper 1.

3. Return the jumper to the normal setting.

4. Turn the system on. The BIOS is returned to the default settings.

Connecting Case Components

After you have installed the mainboard into a case, you can begin connecting the mainboard components. Refer to the following:

1. Connect the Pentium 4 processor auxiliary case power supply connector to **ATX2**.
2. Connect the standard power supply connector to **ATX1**.
3. Connect the CPU cooling fan cable to **CPUFAN1**.
4. Connect the power cooling fan connector to **PWRFAN1**.
5. Connect the case cooling fan connector to **CASFAN1**.
6. Connect the case speaker cable to **SPEAKER1**.
7. Connect the case LED cable to **SJ1**.
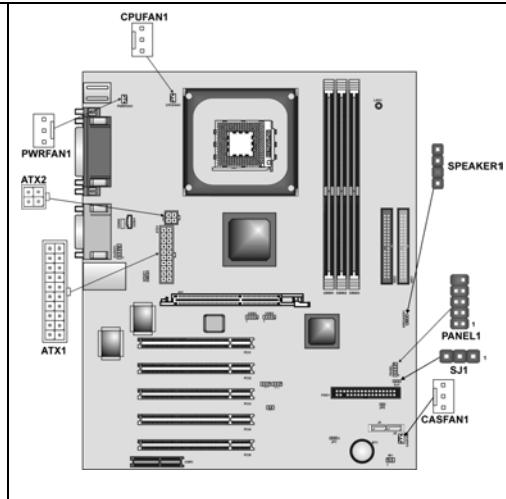
ATX1: ATX 20-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS ON#
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWRGD	18	+5V
9	+5VSB	19	+5V
10	+12V	20	+5V

ATX2: ATX 12V Power Connector

Pin	Signal Name
1	+12V
2	+12V
3	Ground
4	Ground

CPUFAN1/PWRFAN1/CASFAN1: FAN Power Connectors

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

SPEAKER1: Internal speaker

Pin	Signal Name
1	Signal
2	Key
3	Ground
4	VCC

SJ1: Single color LED header

Pin	Signal Name	Function
1	ACPI LED	MSG LED (-) green
2	ACPI LED	MSG LED (-) green
3	SB5V	Power LED (+)

ACPI LED function:

SJ1	S0	S1	S3	S4/S5
	Light	Blinking	Blinking	Dark

Front Panel Connector

The front panel connector (PANEL1) provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. Refer to the table below for information:
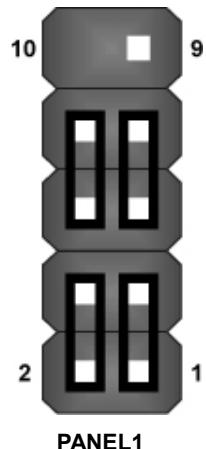
Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED pull up (330 ohm) to +5V
2	FP PWR/SLP	MSG LED pull up (330 ohm) to +5V
3	HD_LED_N	Hard disk active LED
4	GND	Ground
5	RST_SW_N	Reset Switch low reference pull down (100 ohm) to GND
6	PWR_SW_P	Power Switch high reference pull up (10000 ohm) to +5V
7	RST_SW_P	Reset Switch high reference pull up (1000 ohm) to +5V
8	PWR_SW_N	Power Switch high reference pull down (100 ohm) to GND
9	RSVD	Reserved (do not use)
10	NC	No pin

PANEL1

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power / Sleep / Message Waiting LED

Connecting pins 2 and 4 to a single- or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pins 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal debounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

Installing Hardware

Installing the Processor

> Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the mainboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the mainboard, you may cause serious damage to the mainboard or its components.
>
> On most mainboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.
>
> Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the mainboard and processor socket.

Before installing the Processor

This mainboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the mainboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not overclock processors or other components to run faster than their rated speed.

> Warning: Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

This mainboard has a Socket 478 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components:
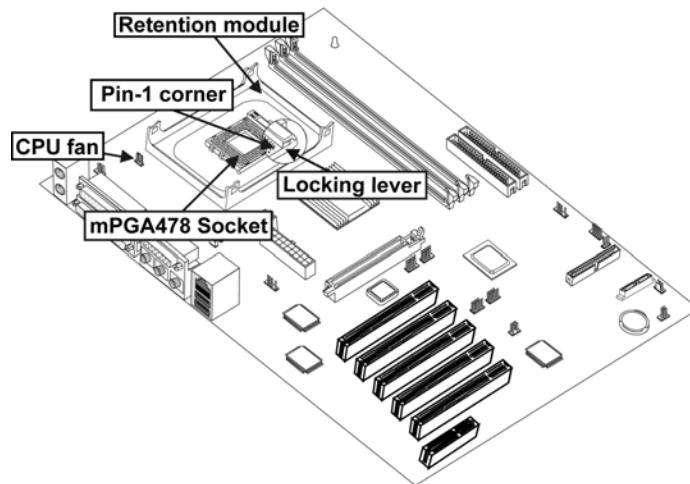
Note: The pin-1 corner is marked with an arrow ▶

Follow these instructions to install the Retention Module and CPU:

1. Remove the existing retention module (if applicable).

2. Position the backplate against the underside of the mainboard, secure the 4 screws firmly on the retention module.

   Note: Do not over tighten the screws.
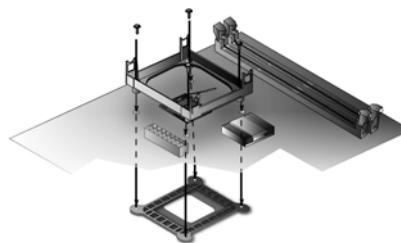
3. Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
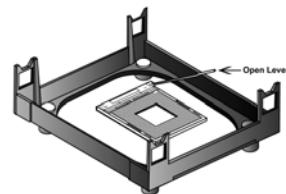
4. Locate the CPU cut edge (the corner with the pinhole noticeably missing). Align and insert the CPU correctly.
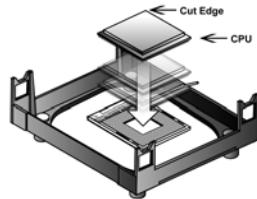
5. Press the lever down.
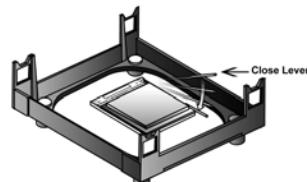
6. Apply thermal grease on top of the CPU.

7. Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.

8. Flip the levers over to lock the heat sink in place.

9. Connect the CPU Cooling Fan power cable to the CPUFAN1 connector. This completes the installation.
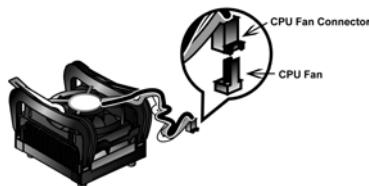
Note: CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This mainboard accommodates three 184-pin 2.5V unbuffered Double Data Rate (DDR) SDRAM memory modules. The memory chips must be standard or registered SDRAM (Synchronous Dynamic Random Access Memory). The memory bus can run up to 166 MHz.

When you installed DDR333 memory modules, the memory bus can run up to 166 MHz. If you have DDR266, this can operate over a 133 MHz. For DDR200, it can only run up to 100 MHz.

> **Note:** SDRAM provides 800 MBps or 1 GBps data transfer depending on whether the bus is 100MHz or 133MHz. Double Data Rate SDRAM (DDR SDRAM) doubles the rate to 1.6 GBps and 2.1 GBps. DDR SDRAM uses additional power and ground lines and requires 184-pin DIMM modules rather than the 168-pin DIMMs used by SDRAM.

The mainboard accommodates three memory modules. You must install at least one module in any of the three slots. Each module can be installed with 32 MB to 1 GB of memory; total memory capacity is 3 GB.

Do not remove any memory module from its antistatic packaging until you are ready to install it on the mainboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

1. This mainboard supports unbuffered DDR SDRAM only. Do not attempt to insert any other type of DDR SDRAM into the slots.

2. Push the latches on each side of the DIMM slot down.
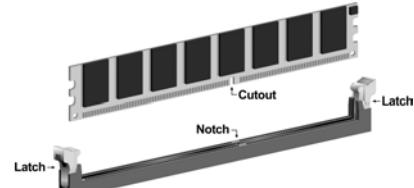
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
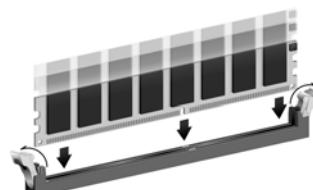
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.

5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.

6. Install any remaining DIMM modules.
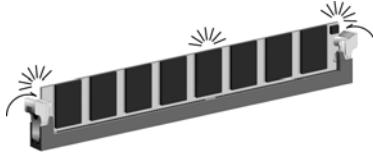
DDR SDRAM memory module table:

DDR 266	3 DIMMS
DDR 333	2 DIMMS
DDR 400	1 DIMM

Note: We do not guarantee that all DDR 400 memory modules will work properly with your mainboard.

Installing a Hard Disk Drive/CD-ROM

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

About IDE1 and IDE2 Devices

Your mainboard has a primary and secondary IDE channel interface (IDE1 and IDE2). An IDE ribbon cable supporting two IDE devices is bundled with the mainboard.

If you want to install more than two IDE devices, get a second IDE cable and you can add two more devices to the secondary IDE channel.

IDE devices have jumpers or switches that are used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. When installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About UltraDMA

This mainboard supports UltraDMA 66/100/133. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100/133.

Installing a Hard Disk Drive

1.	Install the hard disk drive into the drive cage in your system case.

2. Plug the IDE cable into IDE1 (**A**): **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	

3.	Plug an IDE cable connector into the hard disk drive IDE connector (**B**). It doesn't matter which connector on the cable you use.
4.	Plug a power cable from the case power supply into the power connector on the hard disk drive (**C**).

When you first start up your system, the BIOS should automatically detect your hard disk drive. If it doesn't, enter the Setup Utility and use the IDE Hard Disk Auto Detect feature to configure the hard disk drive that you have installed. See IDE HDD Auto-Detection on page 31 for more information.

Installing a CD-ROM/DVD Drive

1.	Install the CD-ROM/DVD drive into the drive cage in your system case.

2. Plug the IDE cable into IDE1 (**A**). If you have already installed an HDD, use the other connector on the IDE cable. **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	

3.	Plug an IDE cable connector into the CD-ROM/DVD drive IDE connector (**B**). It doesn't matter which connector on the cable you use.
4.	Plug a power cable from the case power supply into the power connector on the CD-ROM/DVD drive (**C**).
5.	Use the audio cable provided with the CD-ROM/DVD drive to connect to the mainboard CD-in connector CDIN1 or CDIN2 (**D**).

When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. See IDE Primary/Secondary Master/Slave on page 31 for more information.

Installing a Floppy Diskette Drive

The mainboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.

1. Install the FDD into the drive cage in your system case.	
2. Plug the FDD cable into FLOPPY1 (**A**): **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	
3. Plug the correct connector on the FDD cable for the 5.25-inch or 3.5-inch drive into the FDD connector (**B**).	
4. Plug a power cable from the case power supply into the power connector on the FDD (**C**).	
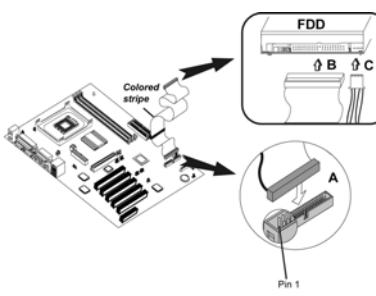
When you first start up your system, go immediately to the Setup Utility to configure the floppy diskette drives that you have installed. See Standard CMOS Features on page 30 for more information.

Installing Add-on Cards

This mainboard has five 32-bit PCI (Peripheral Components Interconnect) expansion slots, one 8xAGP slot (supports 1.5V AGP Interface only), and one Communications and Networking Riser (CNR) slot.
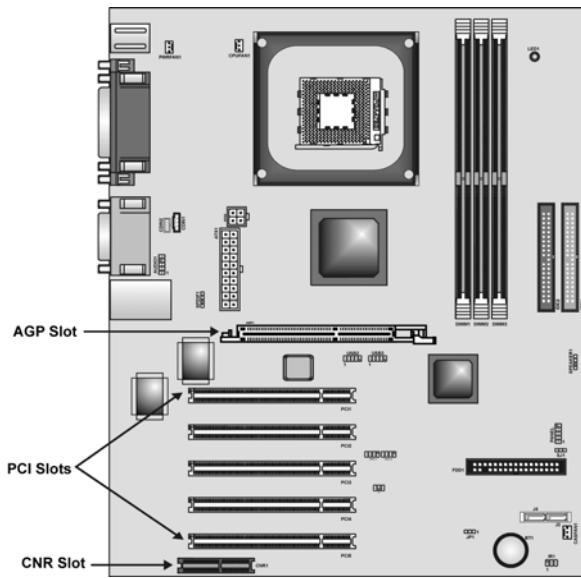
PCI Slots	PCI slots are used to install expansion cards that have the 32-bit PCI interface.
8xAGP Slot	The 8xAGP slot is used to install a graphics adapter that supports the 8xAGP specification and has a 4xAGP edge connector.

> **Note:** The above layout is for reference only. The AGP slot may be different from your mainboard. Please refer to actual shipment.

CNR Slot	This slot is used to insert CNR cards with Modem and Audio functionality.

Note: Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

1.	Remove a blanking plate from the system case corresponding to the slot you are going to use.

2.	Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.	
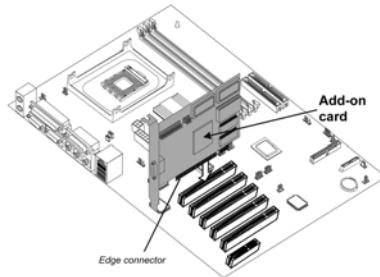
3.	Secure the metal bracket of the card to the system case with a screw.

Note: For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
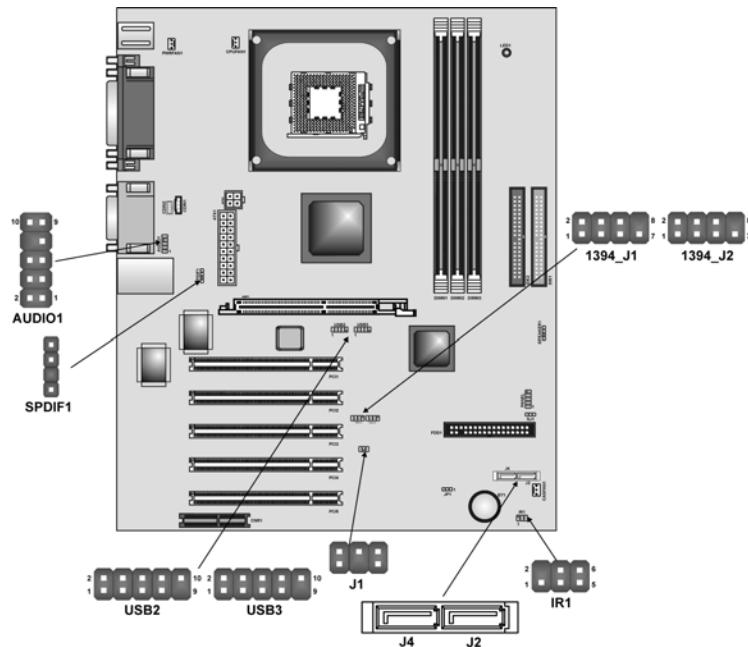
AUDIO1: Front Panel Audio connector

This connector allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Function
1	AUD_MIC	Front Panel Microphone input signal
2	AUD_GND	Ground used by Analog Audio Circuits
3	AUD_MIC_BIAS	Microphone Power
4	AUD_VCC	Filtered +5 V used by Analog Audio Circuits
5	AUD_FPOUT_R	Right Channel Audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	HP_ON	Reserved for future use to control Head-phone Amplifier
8	KEY	No Pin
9	AUD_FPOUT_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal Return from Front Panel

USB2/USB3: Front panel USB connectors

The mainboard has two USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB2 and USB3 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Function
1	VREG_FP_USBPWR0	Front Panel USB Power
2	VREG_FP_USBPWR0	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	KEY	No pin
10	USB_FP_OC0	Overcurrent signal

Note: Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

IR1: Infrared port

Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal Name	Function
1	Not assigned	Not assigned
2	KEY	No pin
3	+5V	IR Power
4	GND	Ground
5	IRTX	IrDA serial output
6	IRRX	IrDA serial input

SPDIF1: SPDIF out header

You can purchase an optional 24-bit digital audio extension bracket from a third-party vendor. You can use the audio RCA jacks to connect to digital audio devices. If your CD-ROM/DVD drive has digital audio output, you can connect it to the input pins of the SPDIF connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog power
3	NC	Not connected
4	GND	Ground

1394A-J1/1394A-J2: IEEE 1394A header

Use this header to connect to any IEEE 1394A interface.

Pin	Signal Name	Pin	Signal Name
1	Cable-power	5	TPA-
2	GND	6	TPA+
3	TPB-	7	Chassis GND
4	TPB+	8	NC

J1: Serial IRQ header

This connector is use to connect certain add-ons like a PCIMCIA card, infra-red port, additional USB ports, power supply temperature monitoring for smart fans, chassis intrusion and SMBus.

Pin	Signal Name	Function
1, 3, 4	NC	Not connected
2, 5	GND	Ground
6	SIRQ	Serial IRQ

J2/J4: Serial ATA connector

This connector is use to support the new Serial ATA devices for the highest date transfer rates (1.5 Gbps burst), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Connecting I/O Devices

The backplane of the mainboard has the following I/O ports:
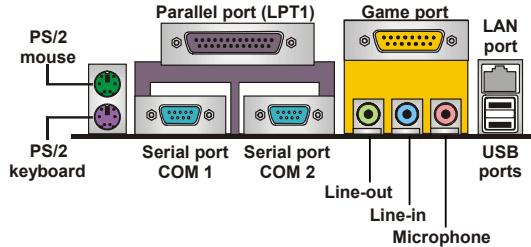
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
LPT1	Use LPT1 to connect printers or other parallel communications devices.
COM1/2	Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3. COM2 is identified by the system as COM2/4.
Game Port	Use the game port to connect a joystick or a MIDI device.
Audio Ports	Use the three audio ports to connect audio devices. The left side jack is for a stereo line-out signal. The middle jack is for a stereo line-in signal. The right side jack is for a microphone.
LAN Port (optional)	Connect an RJ-45 jack to this port to connect your PC to the LAN.
USB Ports	Use the USB ports to connect USB devices.

External Connector Color Coding

Many connectors now use standard colors as shown in the table below.

Connector	Color
Audio line-in	Light blue
Audio line-out	Lime
Digital monitor/flat panel	White
IEEE 1394	Grey
Microphone	Pink
MIDI/game	Gold
Parallel	Burgundy
PS/2-compatible keyboard	Purple
PS/2-compatible mouse	Green
Serial	Teal or Turquoise
Speaker out/subwoofer	Orange
Right-to-left speaker	Brown
USB	Black
Video out	Yellow
SCSI, network, telephone, modem	None

This concludes Chapter 2. The next chapter covers the BIOS.

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the mainboard contains the ROM setup instructions for configuring the mainboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Pressing the delete key ⌫ accesses the BIOS Setup Utility:

Phoenix – AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency/Voltage Control
►Advanced BIOS Features	Load Fail-Safe Defaults
►Advanced Chipset Features	Load Optimized Defaults
►Integrated Peripherals	Set Supervisor Password
►Power Management Setup	Set User Password
►PnP/PCI Configurations	Save & Exit Setup
►PC Health Status	Exit Without Saving

Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

Time, Date, Hard Disk Type . . .

BIOS Navigation Keys

The BIOS navigation keys are listed below:

Key	Function
Esc	Exits the current menu
←↑↓→	Scrolls through the items on a menu
+/–/PU/PD	Modifies the selected field's values
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions
F5	Loads previously saved values to CMOS
F6	Loads a minimum configuration for troubleshooting.
F7	Loads an optimum set of values for peak performance

Updating the BIOS

You can download and install updated BIOS for this mainboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your mainboard has a BIOS protection jumper, change the setting to allow BIOS flashing.

2.   If your mainboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)

3.   Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)

4.   Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.

5.   Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)

6.   At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:

```
              FLASH MEMORY WRITER V7.33
   (C) Award Software 1999 All Rights Reserved

 For (MAINBOARD NAME)            DATE: 10/26/2000
 Flash Type
 File Name to Program :

 Error Message
```
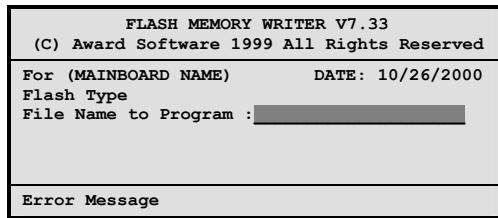
7.   Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the mainboard BIOS.

8.   When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your mainboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

Standard CMOS Features

This option displays basic information about your system.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Feature

		Item Help
Date (mm:dd:yy)	Tue, Jun 11 2002	
Time (hh:mm:ss)	15 : 6 : 23	Menu Level ►
► IDE Primary Master		Change the day, month,
► IDE Primary Slave	[None]	year and century.
► IDE Secondary Master	[None]	
► IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

↑↓→←: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
    F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Date and Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

▶ IDE Devices (None)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu:

Phoenix – AwardBIOS CMOS Setup Utility
IDE Primary Master

		Item Help
IDE HDD Auto-Detection	[Press Enter]	
IDE Primary Master	[Auto]	Menu Level ►►
Access Mode	[Auto]	
Capacity	0 MB	To auto-detect the HDD's size, head . . . on this channel
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

↑↓→←: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
    F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

IDE HDD Auto-Detection

Press <Enter> while this item is highlighted to prompt the Setup Utility to automatically detect and configure an IDE device on the IDE channel.

Note: If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists LBA for an LBA drive.

IDE Primary/Secondary Master/Slave

Leave this item at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below.

Refer to your drive's documentation or look on the drive casing if you need to obtain this information. If no device is installed, change the value to None.

Note: Before attempting to configure a hard disk drive, ensure that you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

Access Mode

This item defines ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive.

Press <Esc> to return to the Standard CMOS Features page.

Drive A/Drive B (1.44M, 3.5 in./None)

These items define the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

Floppy 3 Mode Support (Disabled)

Floppy 3 mode refers to a 3.5-inch diskette with a capacity of 1.2 MB. Floppy 3 mode is sometimes used in Japan.

Video (EGA/VGA)

This item defines the video mode of the system. This mainboard has a built-in VGA graphics system; you must leave this item at the default value.

Halt On (All Errors)

This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

Base Memory, Extended Memory, and Total Memory

These items are automatically detected by the system at start up time. These are display-only fields. You cannot make changes to these fields.

Advanced BIOS Setup Option

This option defines advanced information about your system.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Anti-Virus Protection	[Disabled]	**Item Help**
CPU L1 & L2 Cache	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	Menu Level ►
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	Allows you to choose
Second Boot Device	[HDD-0]	the VIRUS warning
Third Boot Device	[CDROM]	feature for IDE Hard
Boot Other Device	[Enabled]	Disk boot sector
Swap Floppy Drive	[Disabled]	protection. If this
Boot Up Floppy Seek	[Disabled]	function is enabled
Boot Up NumLock Status	[On]	and someone attempts
Gate A20 Option	[Fast]	to write data into this
BIOS Write Protect	[Disabled]	area, BIOS will show a
ATA 66/100 IDE Cable Msg.	[Disabled]	warning message on
Typematic Rate Setting	[Disabled]	screen and alarm beep
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
OS Select For DRAM > 64MB	[Non-OS2]	

↑↓→← : Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Anti-Virus Protection (Disabled)

When enabled, this item provides protection against viruses that try to write to the boot sector and partition table of your hard disk drive. You need to disable this item when installing an operating system. We recommend that you enable this item as soon as you have installed an operating system.

> **Note:** For complete protection against viruses, install virus software in your operating system and update the virus definitions regularly.

CPU L1 and L2 Cache (Enabled)

All processors that can be installed in this mainboard use internal level 1 (L1) and external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

CPU L2 Cache ECC Checking (Enabled)

This item allows you to enable or disable the CPU L2 Cache ECC Checking.

Quick Power On Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

First/Second/Third Boot Device (Floppy/HDD-0/CDROM)

Use these three items to select the priority and order of the devices that your

system searches for an operating system at start-up time.

Boot Other Device (Enabled)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second, and Third boot devices.

Swap Floppy Drive (Disabled)

If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

Boot Up Floppy Seek (Disabled)

If this item is enabled, it checks the size of the floppy disk drives at start-up time. You don't need to enable this item unless you have a legacy diskette drive with 360K capacity.

Boot Up NumLock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

Gate A20 Option (Fast)

This item defines how the system handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

BIOS Write Protect (Disabled)

This item protects the BIOS from accidental corruption by unauthorized users or computer viruses. When set to disabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. If you want to update the BIOS, you need to set this item to enable.

ATA 66/100 IDE Cable Msg. (Disabled)

This item enables or disables the display of the ATA 66/100 Cable MSG.

Typematic Rate Setting (Disabled)

If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

- **Typematic Rate (Chars/Sec):** Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (Msec):** Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option (Setup)

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.

APIC Mode (Enabled)

This item allows you to enable or disable the APIC (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP)

for systems, allowing support for up to 60 processors.

OS Select For DRAM > 64 MB (Non-OS2)

This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default.

HDD S.M.A.R.T Capability (Disabled)

The S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

The disk drive software monitors the internal performance of the motors, media, heads, and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software, through the Client WORKS S.M.A.R.T applet, warns the user of the impending condition and advises appropriate action to protect the data.

Report No FDD For WIN 95 (Yes)

If you are running a system with no floppy drive and using Windows 95, select Yes for this item to ensure compatibility with the Windows 95 logo certification. Otherwise, select No.

Video BIOS Shadow (Enabled)

This item determines whether the BIOS will be copied to RAM for faster execution.

Small Logo (EPA) Show (Disabled)

Enables or disables the display of the EPA logo during boot.

Advanced Chipset Features Option

These items define critical timing parameters of the mainboard. You should leave the items on this page at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly, you may introduce fatal errors or recurring instability into your system.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

► **DRAM Clock/Timing Control** **[Press Enter]**	**Item Help**
► **AGP & P2P Bridge Control** **[Press Enter]**	
Prefetch Caching **[Disabled]**	**Menu Level** ►
System BIOS Cacheable **[Disabled]**	
Video RAM Cacheable **[Disabled]**	
Memory Hole at 15M-16M **[Disabled]**	

↑↓→← **: Move**   **Enter : Select**   **+/-/PU/PD:Value:**   **F10: Save**   **ESC: Exit**   **F1:General Help**
     F5:Previous Values   **F6:Fail-Safe Defaults**   **F7:Optimized Defaults**

►DRAM Clock/Timing Control

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
DRAM Clock/Timing Control

DRAM Timing Control **[By SPD]**	**Item Help**
x **DRAM CAS Latency** 2.5T	
x **RAS Active Time (tRAS)** 6T	**Menu Level** ►
x **RAS Precharge Time (tRP)** 3T	
x **RAS to CAS Delay (tRCD)** 3T	
DRAM Addr/Cmd Rate **[Auto Mode]**	

↑↓→← **: Move**   **Enter : Select**   **+/-/PU/PD:Value:**   **F10: Save**   **ESC: Exit**   **F1:General Help**
     F5:Previous Values   **F6:Fail-Safe Defaults**   **F7:Optimized Defaults**

DRAM Timing Control (By SPD)

Enables you to select the CAS latency time in HCLKs of 2, 2.5, or 3. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

DRAM CAS LATENCY (2.5T)

This item controls the timing delay (in clock cycles) before the DRAM starts a

read command after receiving it.

RAS Active Time (tRAS) (6T)

This item allows you to set the amount of time a RAS can be kept open for multiple accesses. High figures will improve performance.

RAS Precharge Time (tRP) (3T)

This is the duration of the time interval during which the Row Address Strobe signal to a DRAM is held low during normal Read and Write Cycles. This is the minimum interval between completing one read or write and starting another from the same (non-page mode) DRAM. Techniques such as memory interleaving, or use of Page Mode DRAM are often used to avoid this delay. Some chipsets require this parameter in order to set up the memory configuration properly. The RAS Precharge value is typically about the same as the RAM Access (data read/write) time.

RAS to CAS Delay (tRCD) (3T)

This is the amount of time a CAS is performed after a RAS. The lower the better, but some DRAM does not support low figures.

DRAM Addr/Cmd Rate (AUTO)

This option allows you to set the lead off DRAM read and write cycles. When set to Delay 1T, memory read/write commands are sent one clock cycle behind the memory address. When set to Normal, read/write and memory address commands are sent simultaneously.

Press <Esc> to return to the Advanced Chipset Features screen.

►AGP & P2P Bridge Control

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	[128MB]	Item Help
Graphic Window WR Combin	[Enabled]	
		Menu Level　►

↑↓→← : Move　　Enter : Select　　+/-/PU/PD:Value:　　F10: Save　ESC: Exit　F1:General Help
　　　　F5:Previous Values　　　　F6:Fail-Safe Defaults　　　F7:Optimized Defaults

AGP Aperture Size

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

Graphic Window WR Combin

This item determines whether the graphic windows base address is valid or not.

Prefetch Caching (Disabled)

Enables PCI slave prefetch caching. Enabling this increased performance.

System BIOS Cacheable (Disabled)

When this item is enabled, the System BIOS will be cached for faster execution.

Video RAM Cacheable (Disabled)

When this is enabled, the Video RAM will be cached resulting to better performance. However, if any program was written to this memory area, this may result to system error.

Memory Hole at 15M-16M (Disabled)

When enabled, you can reserve an area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. Refer to the user documentation of the peripheral you are installing for more information.

Press <Esc> to return to the Advanced Chipset Features screen.

Integrated Peripherals

These options display items that define the operation of peripheral compo-
nents on the system's input/output ports.

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

► **SIS OnChip IDE Device**	**[Press Enter]**	**Item Help**
► **SIS OnChip PCI Device**	**[Press Enter]**	
► **Onboard SuperI/O Device**	**[Press Enter]**	**Menu Level** ►
Serial ATA Mode Select	**[RAID Mode]**	
IDE HDD Block Mode	**[Enabled]**	
Init Display First	**[PCI Slot]**	
IDECH0 Access Interface	**[EDB Bus]**	
IDECH1 Access Interface	**[EDB Bus]**	
USB0 Access Interface	**[EDB Bus]**	
USB1 Access Interface	**[EDB Bus]**	
USB2 Access Interface	**[EDB Bus]**	
USB2.0 Access Interface	**[EDB Bus]**	
MAC Access Interface	**[EDB Bus]**	
Audio Access Interface	**[EDB Bus]**	

↑↓→←: Move　Enter: Select　+/-/PU/PD: Value:　F10: Save　ESC: Exit　F1:General Help
　　　F5:Previous Values　　F6:Fail-Safe Defaults　　F7:Optimized Defaults

► SIS OnChip IDE Device

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
SIS OnChip IDE Device

Internal PCI/IDE	**[Both]**	**Item Help**
IDE Primary Master　PIO	**[Auto]**	
IDE Primary Slave　PIO	**[Auto]**	**Menu Level** ►►
IDE Secondary Master　PIO	**[Auto]**	
IDE Secondary Slave　PIO	**[Auto]**	
Primary Master　UltraDMA	**[Auto]**	
Primary Slave　UltraDMA	**[Auto]**	
Secondary Master　UltraDMA	**[Auto]**	
IDE DMA Transfer Access	**[Enabled]**	
Secondary Slave　UltraDMA	**[Auto]**	
IDE Burst Mode	**[Enabled]**	

↑↓→←: Move　Enter: Select　+/-/PU/PD: Value:　F10: Save　ESC: Exit　F1:General Help
　　　F5:Previous Values　　F6:Fail-Safe Defaults　　F7:Optimized Defaults

Internal PCI/IDE (Both)

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

IDE Primary/Secondary Master/Slave PIO (Auto)

Each IDE channel supports a master device and a slave device. These four
items let you assign the kind of PIO (Programmed Input/Output) was used by

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the IDE devices. Choose Auto to let the system auto detect which PIO mode is best, or select a PIO mode from 0-4.

IDE Master/Slave Drive PIO (Auto)

This option allows you to set the PIO (Programmed Input/Output) mode for the two IDE devices (Master and Slave drives) attached to a particular IDE channel. Normally you should leave it as Auto and let the BIOS auto-detect the IDE drive's PIO mode. You should only set it manually for the following reasons:

- If the BIOS cannot detect the correct PIO mode
- If you want to try to run the IDE device with a higher PIO mode that it was designed for
- If you have overclocked the PCI bus and one or more of your IDE devices cannot function properly (you can correct the problem by using a slower PIO mode)

Note: Overclocking the PIO transfer rate can cause loss of data.

Master/Slave Drive UltraDMA (Auto)

This option allows you to enable or disable UltraDMA support (if available) for the two IDE devices (Master and Slave drives) attached to that particular IDE channel. Normally, you should leave it as Auto and let the BIOS auto-detect if the drive supports UltraDMA. If it does, the proper UltraDMA transfer mode will be enabled for that drive, allowing it to burst data at up to 100MB/s. You should only disable it for troubleshooting purposes.

Note: Setting this to Auto does not enable the UltraDMA or any of the slower DMA mode for IDE devices that do not support UltraDMA. Also, in order for any of those DMA modes to work (including UltraDMA modes), you will have to enable DMA transfer via the OS.

IDE DMA Transfer Access (Enabled)

This item allows you to enabled the transfer access of the IDE DMA.

IDE Burst Mode (Enabled)

This option, when enabled will instruct the system to send every write transaction to the write buffer. Burstable transactions then burst onto the PCI bus and nonburstable transactions do not.

Press <Esc> to return to the Integrated Peripherals screen.

► **SIS OnChip PCI Device**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
SIS OnChip PCI Device

SIS USB Controller	[Enabled]	**Item Help**
USB Ports Number	[6 Ports]	
USB 2.0 Support	[Enabled]	Menu Level ►►
USB Keyboard Support	[Disabled]	
SIS AC97 AUDIO	[Enabled]	
SIS S/W Modem	[Enabled]	
SIS 10/100M ETHERNET	[Enabled]	
Onboard LAN Boot ROM	[Disabled]	
SIS 1394 Controller	[Disabled]	

↑↓→←: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

SIS USB Controller (Enabled)

This item enables the USB controller. Leave this at the default "Enabled" if you want to connect USB devices to your computer.

USB Ports Number (6 Ports)

This item enables you to determine the number of USB ports.

USB 2.0 Support (Enabled)

Enable this item if your system supports USB 2.0

USB Keyboard Support (Disabled)

Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.

SIS AC97 AUDIO (Enabled)

This option allows you to control the onboard AC97 audio. Disable this item if you are going to install a PCI audio add-on card.

SIS S/W Modem (Enabled)

This option allows you to control the onboard S/W modem. Disable this item if you are going to install an external modem.

SIS 10/100M ETHERNET (Enabled)

This option allows you to control the onboard LAN.

Onboard LAN Boot ROM (Disabled)

Use this item to enable and disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

SIS 1394 Controller (Disabled)

This option allows you to control the onboard 1394 controller.

► **Onboard SuperIO Device**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
Onboard SuperIO Device

Onboard FDC Controller [Enabled]		**Item Help**
Onboard Serial Port 1 [3F8/IRQ4]		
Onboard Serial Port 2 [2F8/IRQ3]		**Menu Level** ►►
UART Mode Select [Normal]		
UR2 Duplex Mode [Half]		
Onboard Parallel Port [378/IRQ7]		
Parallel Port Mode [ECP]		
ECP Mode Use DMA [3]		
Game Port Address [201]		
Midi Port Address [330]		
Midi Port IRQ [10]		

↑↓→← **: Move**   **Enter: Select**   **+/-/PU/PD: Value:**   **F10: Save**   **ESC: Exit**   **F1:General Help**
F5:Previous Values   **F6:Fail-Safe Defaults**   **F7:Optimized Defaults**

Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1 (3F8/IRQ4)

This option is used to assign the I/O address and interrupt request (IRQ) for onboard serial port 1 (COM1).

Onboard Serial Port 2 (2F8/IRQ3)

This option is used to assign the I/O address and interrupt request (IRQ) for onboard serial port 2 (COM2).

UART Mode Select (Normal)

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.

UR2 Duplex Mode (Half)

This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine 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.

Onboard Parallel Port (378/IRQ7)

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

Parallel Port Mode (ECP)

Enables you to set the data transfer protocol for your parallel port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

SPP allows data output only. Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) are bi-directional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

ECP Mode Use DMA (3)

When the onboard parallel port is set to ECP mode, the parallel port can use DMA 3 or DMA 1.

Game Port Address (201)

This item sets the I/O address for the game port.

Midi Port Address (330)

This item sets the I/O address for the Midi function.

Midi Port IRQ (10)

This item sets the interrupt request for the Midi function.

Press <Esc> to return to the Integrated Peripherals screen.

Serial ATA Mode Select (RAID Mode)

Use this item to select the mode of the Serial ATA.

IDE HDD Block Mode (Enabled)

Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support. It also improves the speed of access to IDE devices.

Init Display First (PCI Slot)

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the mainboard.

IDECH0/IDECH1 Access Interface (EDB BUS)

This item determines whether the IDE access interface is the PCI bus or the embedded bus.

USB0/USB1/USB2/USB2.0 Access Interface (EDB BUS)

This option determines whether the USB0/USB1/USB2/USB2.0 access interface is the embedded bus or the PCI bus.

MAC Access Interface (EDB BUS)

This option determines whether the MAC access interface is the embedded bus or a PCI bus.

Audio Access Interface (EDB BUS)

This option determines whether the audio access interface is the embedded bus or a PCI bus.

Power Management Setup Option

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.

Power Management Timeouts

The power-saving modes can be controlled by timeouts. If the system is inactive for a time, the timeouts begin counting. If the inactivity continues so that the timeout period elapses, the system enters a power-saving mode. If any item in the list of Reload Global Timer Events is Enabled, then any activity on that item will reset the timeout counters to zero.

Wake Up Calls

If the system is suspended, or has been powered down by software, it can be resumed by a wake up call that is generated by incoming traffic to a modem, a LAN card, a PCI card, or a fixed alarm on the system realtime clock.

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI function	[Enabled]	**Item Help**
ACPI Suspend Type	[S1(POS)]	
Power Management	[User Define]	**Menu Level ▶**
Suspend Mode	[Disabled]	
Video Off Option	[Susp, Stby --> Off]	
Video Off Method	[DPMS Supported]	
Switch Function	[Break/Wake]	
MODEM Use IRQ	[Auto]	
Hot Key Function as	[Power Off]	
HDD Off After	[Disabled]	
Power Button Override	[Instant-Off]	
Power State Resume Control	[Always Off]	
▶ PM Wake Up Events	[Press Enter]	
Delay Prior to Thermal	[None]	

↑↓→← : Move   Enter: Select   +/-/PU/PD: Value: F10: Save   ESC: Exit   F1:General Help
        F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

ACPI Function (Enabled)

This mainboard supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.

Note: ACPI is a power management specification that makes hardware status information available to the operating system. ACPI enables a PC to turn its peripherals on and off for improved power management. It also allows the

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PC to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.

ACPI Suspend Type (S1(POS))

Use this item to define how your system suspends. In the default, S1(POS), the suspend mode is equivalent to a software power down. If you select S3 (STR), the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

Power Management (User Define)

This item acts like a master switch for the powersaving modes and hard disk timeouts. If this item is set to Max Saving, power-saving modes occur after a short timeout. If this item is set to Min Saving, power-saving modes occur after a longer time-out. If the item is set to User Define, you can insert your own timeouts for the power-saving modes. There are four options:

- User Define: allows you to customize all power saving timer features
- Max Saving: recommended setting for general use
- Min Saving: sets power saving at minimum values

Suspend Mode (Disabled)

After the selected period of system inactivity, all devices except the CPU shut off.

Video Off Option (Susp, Stby --> Off)

This option defines if the video is powered down when the system is put into suspend mode.

Video Off Method (DPMS Supported)

This item defines how the video is powered down to save power. This item is set to DPMS (Display Power Management Software) by default.

Switch Function (Break/Wake)

You can choose whether or not to permit your system or enter complete sus-pend mode. Suspend mode offers greater power savings, with a correspondingly longer with a correspondingly longer awakening period.

MODEM Use IRQ (Auto)

If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the mainboard Wake On Modem connector for this feature to work.

Hot Key Function As (Power Off)

This option allows you to set the Hot Key functionality to one of the following states: Disable (turn off Hot Key functionality), Power Off, Suspend.

HDD Off After (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

Power Button Override (Instant Off)

Under ACPI (Advanced Configuration and Power management Interface) 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 Delay 4 Sec. then you have to hold the power button down for four seconds to cause a software power down.

Power State Resume Control (Always Off)

This sets the power state after a shutdown due to an unexpected interrupt of AC power.

► **PM Wake Up Events**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
PM Wake Up Events

IRQ [3-7, 9-15], NMI	**[Enabled]**	**Item Help**
IRQ 8 Break Suspend	**[Disabled]**	
Ring/WOL/WOM PowerUp Control	**[Disabled]**	**Menu Level** ►
MACPME Power Up Control	**[Enabled]**	
PCIPME Power Up Control	**[Enabled]**	
USB S3 WakeUp Function	**[Disabled]**	
PS2KB Wakeup from S3	**[Hot Key]**	
PS2MS Wakeup from S3	**[Disabled]**	
Power Up by Alarm	**[Disabled]**	
x Month Alarm	NA	
x Date (of Month)	0	
x Time (hh:mm:ss)	0 0 0	
** Reload Global Timer Events **		
Primary IDE	**[Disabled]**	
Secondary IDE	**[Disabled]**	
FDD, COM, LPT Port	**[Disabled]**	
PCI PIRQ[A-D]#	**[Disabled]**	

↑↓→← **: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help**
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

This item opens a submenu that enables you to set events that will resume the system from a power saving mode.

IRQ [3-7, 9-15], NMI (Enabled)

This option determines whether any activity for IRQ 3-7/9-15 will cause the system to wake from a power saving mode.

IRQ 8 Break Suspend (Disabled)

Determines whether the system will monitor IRQ 8 activity and wake the system from a power saving mode when IRQ 8 is activated.

Ring/WOL/WOM PowerUp Contl (Disabled)

Use this item to enable LAN or modem activity to wakeup the system from a power saving mode.

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MACPME Power Up Control (Enabled)

Use this item to enable MAC activity to wakeup the system from a power saving mode.

PCIPME Power Up Control (Enabled)

Use this item to enable PCI activity to wakeup the system from a power saving mode.

USB S3 WakeUp Function (Disabled)

This option allows you to specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

PS2KB Wakeup from S3 (Hot Key)

This option allows you to set hot key combination to turn on the system by keyboard.

PS2MS Wakeup from S3 (Disabled)

This option allows you to set the mouse action to turn on the system.

Power Up by Alarm (Disabled)

When set to Enabled, the following three fields become available: Month Alarm, Day of Month Alarm, and Time Alarm Upon arrival of the alarm time, it will instruct the system to wake up.

When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

** Reload Global Timer Events **

These fields determine which events waken the system from power saving mode.

Primary/Secondary IDE (Disabled)

When this item is enabled, the system power will resume the system from a power saving mode if there is any activity on primary or secondary IDE channels 0 or 1.

FDD, COM, LPT Port (Disabled)

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.

PCI PIRQ[A-D]# (Disabled)

When this item is enabled, any activity from one of the listed devices wakes up the system.

Press <Esc> to return to the Power Management Setup screen.

Delay Prior to Thermal (None)

Enables you to set the delay time before the CPU enters auto thermal mode.

PNP/PCI Configurations

These options configure how PnP (Plug and Play) and PCI expansion cards oper-
ate in your system. Both the ISA and PCI buses on the Mainboard use system
IRQs (Interrupt ReQuests) and DMAs (Direct Memory Access). You must set up
the IRQ and DMA assignments correctly through the PnP/PCI Configurations
Setup utility for the mainboard to work properly. Selecting PnP/PCI Configurations
on the main program screen displays this menu:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	**[Disabled]**	**Item Help**
Resources Controlled by	**[Auto(ESCD)]**	**Menu Level ►**
x IRQ Resources	Press Enter	
		Default is Disabled.
PCI/VGA Palette Snoop	**[Disabled]**	**Select Enabled to reset**
INT Pin 1 Assignment	**[Auto]**	**Extended System Con-**
INT Pin 2 Assignment	**[Auto]**	**figuration Data (ESCD)**
INT Pin 3 Assignment	**[Auto]**	**when you exit Setup if you**
INT Pin 4 Assignment	**[Auto]**	**have installed a new add-**
INT Pin 5 Assignment	**[Auto]**	**on and the system recon-**
INT Pin 6 Assignment	**[Auto]**	**figuration has caused**
INT Pin 7 Assignment	**[Auto]**	**such a serious conflict**
INT Pin 8 Assignment	**[Auto]**	**that the OS cannot boot**

↑↓→←: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Reset Configuration Data (Disabled)

If you enable this item and restart the system, any Plug and Play configuration
data stored in the BIOS Setup is cleared from memory.

Resources Controlled By (Auto(ESCD))

You should leave this item at the default Auto(ESCD). Under this setting, the
system dynamically allocates resources to Plug and Play devices as they are
required.

If you cannot get a legacy ISA (Industry Standard Architecture) expansion card
to work properly, you might be able to solve the problem by changing this item
to Manual, and then opening up the IRQ Resources submenu.

In the IRQ Resources submenu, if you assign an IRQ to Legacy ISA, then that
Interrupt Request Line is reserved for a legacy ISA expansion card. Press
<Esc> to close the IRQ Resources submenu.

PCI/VGA Palette Snoop (Disabled)

This item is designed to overcome problems that can be caused by some non-
standard VGA cards. This board includes a built-in VGA system that does not
require palette snooping so you must leave this item disabled.

INT Pin 1-8 Assignment (Auto)

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

PC Health Status Option

On mainboards that support hardware monitoring, this item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds.

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

		Item Help
Shutdown Temperature	**[Disabled]**	
CPU Core Voltage		Menu Level ►
Vcc 1.8V		
Vcc 3.3V		
Vcc 5.0V		
+12V		
StandBy 3.3V		
StandBy 5.0V		
Voltage Battery		
CPU Temperature		
System Temperature		
CPU Fan Speed		

↑↓→← : Move   Enter: Select   +/-/PU/PD: Value: F10: Save   ESC: Exit   F1:General Help
　　　　F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Shutdown Temperature

Enables you to set the maximum temperature the system can reach before powering down.

System Component Characteristics

These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

Frequency/Voltage Control

This item enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software
Frequency/Voltage Control

CPU Clock Ratio	[10 X]	Item Help
Auto Detect DIMM/PCI Clk	[Enabled]	
Spread Spectrum	[Enabled]	Menu Level ►
► Over Clock Function	[Press Enter]	

↑↓→←: Move   Enter: Select   +/-/PU/PD: Value: F10: Save   ESC: Exit   F1:General Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

CPU Clock Ratio (10 X)

Use the CPU Host/SDRAM/PCI Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz). Then use *CPU Clock Ratio Jumpless* to set a multiple. The multiple times the frontside bus must equal the core speed of the installed processor e.g., *3.5 (multiple) x 100 MHz (frontside bus) = 350 MHz (installed processor clock speed).*

Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM and PCI slots.

Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

► **Over Clock Function**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
Over Clock Function

CPU Frequency	[100]	Item Help
Over CPU Vcore Function	[Normal]	
Over DDR Vcc Function	[Normal]	Menu Level ►►
CPU: DRAM Frequency Ratio	[SPD]	
DRAM Frequency		

↑↓→←: Move   Enter : Select   +/-/PU/PD:Value: F10: Save   ESC: Exit   F1:General Help
     F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults
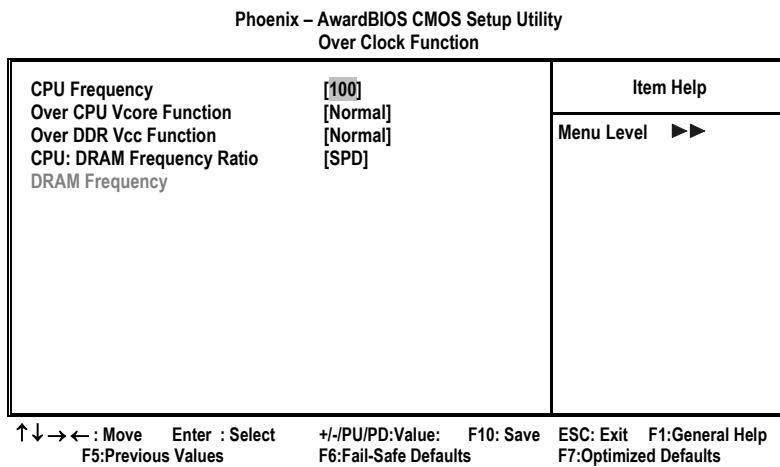
CPU Frequency (Default)

Use the CPU Host Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz).

CPU: DRAM Frequency Ratio (SPD)

This item controls the ratio of the CPU FSB clock and DRAM Frequency to enable the CPU and DRAM to run at different frequency combination.

Load Fail-Safe Defaults Option

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility:

Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The fail-safe defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F6>.

Load Optimized Defaults Option

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

Set Supervisor/User Password

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter BIOS Setup freely.

PASSWORD DISABLED

If you have selected "**System**" in "Security Option" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or any time you try to enter BIOS Setup.

If you have selected "**Setup**" at "Security Option" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter BIOS Setup.

Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering BIOS Setup to modify all settings. Also you can use User Password when booting the system or entering BIOS Setup but can not modify any setting if Supervisor Password is enabled.

Save & Exit Setup Option

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu:

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <Y> to discard changes and exit, or press <N> to return to the main menu.

Note:	If you have made settings that you do not want to save, use the "Exit Without Saving" item and press <Y> to discard any changes you have made.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the mainboard.

Using the Mainboard Software

About the Software CD-ROM

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your mainboard version. More information on some programs is available in a README file, located in the same directory as the software.

> **Note:** Never try to install software from a folder that is not specified for use with your mainboard.

Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.

Auto-installing under Windows 98/ME/2000/XP

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your mainboard.

> **Note:** If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to Utility Folder Installation Notes later in this chapter.

The support software CD-ROM disc loads automatically under Windows 98/ME/2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.
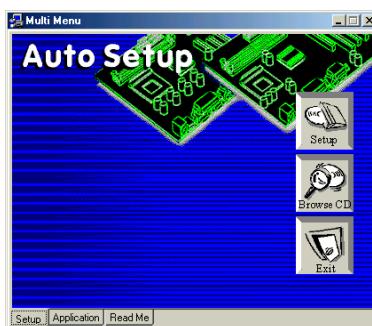
> **Note:** If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

Setup Tab

Setup	Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD. Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly. Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using. To install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The **Exit** button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

Read Me Tab

Displays the path for all software and drivers available on the CD.

Running Setup

Follow these instructions to install device drivers and software for the mainboard:

1. Click **Setup**. The installation program begins:

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Note:	The following screens are examples only. The screens and driver lists will be different according to the mainboard you are installing.

The mainboard identification is located in the upper left-hand corner.

2. Click **Next**. The following screen appears:
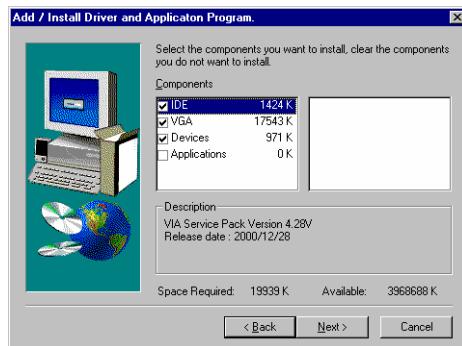
3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** run the Installation Wizard. An item installation screen appears:
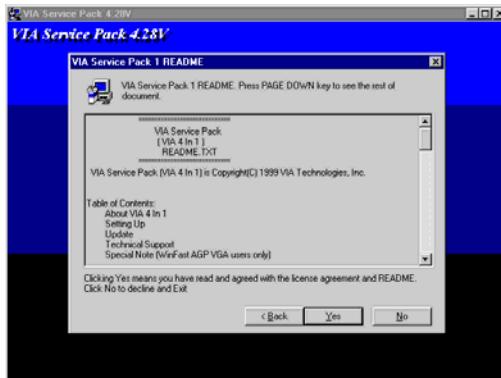
5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the on-screen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your mainboard.

Look for the chipset and mainboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

Note: These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.

AWARD Flash Memory Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the mainboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, *Using BIOS* for more information.

WinFlash Utility

The Award WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the mainboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, run WINFLASH.EXE from the following directory:

\UTILITY\WINFLASH 1.51

PC-CILLIN 2002

The PC-CILLIN 2002 software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE/XP and Windows NT. Be sure to check the readme.txt and install the appropriate anti-virus software for your operating system.

We strongly recommend users to install this free anti-virus software to help protect your system against viruses.

MediaRing Talk – Telephony Software

To install the MediaRing Talk voice modem software for the built-in modem, go to the directory \UTILITY\MEDIARING TALK, then run MRTALK-SETUP72.EXE to install the application software.

Super Voice – Fax/Modem Software

To install the Super Voice voice, fax, data communication application for use with the built-in fax/modem, go the directory \UTILITY\SUPER_VOICE, then run PICSHELL.EXE to install the application software.

CD Ghost

The CD Ghost software enables you to create a virtual cabinet of CD-ROM drives on your system to help you categorize and organize your CD collection. A user-friendly interface assists you in quickly creating images of both CDs and DVDs onto your system. To install the software, run SETUP.EXE from the following directory:

\UTILITY\CDGHOST\ENG\CDGHOST

Recovery Genius

The Recovery Genius software program is an innovative windows application system that protects your Hard Disk Drive from virus intrusion, accidental de-letions and from system corruption. To install the Recovery Genius software program run SETUP.EXE from the following directory:

\UTILITY\RECOVERY GENIUS\ENG\RECOVERYGENIUS

Language Genius

The Language Genius is a software –based product that helps you to learn new languages.   To install the Language Genius software program run SETUP.EXE from the following directory:

\UTILITY\LANGUAGE GENIUS\ENG\LANGUAGEGENIUS

PageABC

The PageABC application software enables you to create your very own home page. To install the PageABC, go to the directory \UTILITYPageABC, and then run SETUP.EXE to install the application software.

This concludes Chapter 4.