Preface

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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:

Chapter 1 **Introducing the Mainboard**	Describes features of the mainboard, and provides a shipping checklist. Go to ⇒ page 1
Chapter 2 **Installing the Mainboard**	Describes installation of mainboard components. Go to ⇒ page 6
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility. Go to ⇒ page 24
Chapter 4 **Using the Mainboard Software**	Describes the mainboard software. Go to ⇒ page 36

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 module de rétention
- Ce manuel utilisateur

Caractéristiques

Processeur	• Le Socket PGA 478 • Supporte la série de **CPU Intel Pentium 4** • Supporte un Bus Frontal allant jusqu'à 400/**533** MHz **Remarque:** SiS 645DX Northbridge supporte un bus Frontal allant jusqu'à 533MHz.
Chipset	Les chipsets SiS 645/SiS 645DX et SiS961A sont basés sur une architecture novatrice et dimensionnable avec une fiabilité et des performances prouvées. Quelques-unes des caractéristiques avancées des chipsets sont: • Une SDRAM DDR en 2.5 volts de faible consommation qui en fait une excellente solution pour les notebooks et les ordinateurs de bureau avec un faible encombrement • Support d'une interface 4xAGP offrant des graphiques 3D éclatants, ainsi que d'excellentes performances vidéo • Une interface ATA 100 sur le chipset, aidant à revitaliser les performances du système en offrant une connexion à haute vitesse aux Disques Durs ATA 100, délivrant des vitesses soutenues de transfert de données maximum de 100 Mo/sec • Liaison E/S en multiprocessus intégrée utilisée pour améliorer les performances, offrant assez de bande passante d'E/S pour une capacité de traitement de 1.2 Go/s Les caractéristiques clé supplémentaires comprennent le support de six ports USB, une liaison AC 97 pour audio et modem, surveillance matérielle, et gestion d'alimentation ACPI/OnNow.

	Cette carte mère peut supporter l'un des trois chipset Southbridge. Reportez-vous à ce qui suit pour plus de détails : • **SiS961A Southbridge** – supporte l'interface ATA100 allant jusqu'à 400/533MHz et Ultra DMA. • **SiS961B Southbridge** – supporte l'interface ATA133 allant jusqu'à 400/533MHz et Ultra DMA. • **SiS962 Southbridge** – supporte l'interface ATA133 Ultra DMA allant jusqu'à 533MHz et le contrôleur IEEE 1394.
Mémoire	• Deux logements DIMM à 168 broches pour modules mémoire SDRAM • Deux logements DIMM 184 broches pour modules mémoire DDR • Support de bus mémoire SDRAM jusqu'à 133 MHz/DDR jusqu'à 333 MHz • La mémoire maximum installée est 2Go **Remarque:** Vous ne pouvez pas utiliser une SDRAM et une DDR simultanément.
Logements d'Extension	• Un logement AMR pour carte riser audio/modem spéciale. • Un logement 4xAGP pour interface conforme AGP 2.0 • Cinq logements PCI 32 bits pour interface de bus conforme PCI 2.2
Canaux IDE internes	• Canaux IDE PCI Primaires et Secondaires • Support pour modes PIO (programmable input/output) • Support pour modes Multiword DMA • Support pour Maîtrise de Bus et modes Ultra DMA **ATA** 100/**133**
Alimentation et Gestion d'Alimentation	• Connecteur d'alimentation ATX • Conforme aux exigences ACPI 1.0b et APM 1.2, alimentation clavier activée/désactivée • Supporte l'Alarme RTC, Réveil Sur Modem, Réveil AC97 et Réveil USB
VGA	Cette carte mère comprend un logement 4xAGP qui offre quatre fois la bande passante des spécifications AGP d'origine. La technologie AGP offre une connexion directe entre le sous-système graphique et la mémoire de sorte que les graphiques n'ont pas à entrer en concurrence avec d'autres périphériques pour le temps d'utilisation du processeur sur le bus PCI.
USB (optionnel)	Le Contrôleur USB 2.0 est conforme aux Spécifications de Bus Série Universel Révision 2.0. Le USB 2.0 supporte les vitesses de transfert allant jusqu'à 480Mo/sec pour les périphériques à grande vitesse et spécifie une microtrame qui sera de 1/8ème de trame de 1msec. Ceci permet aux périphériques USB 2.0 d'avoir des mémoires tampons plus petites, même à des vitesses de transfert plus importantes. Les connecteurs USB 1.1 et autres câbles pleine vitesse peuvent supporter la vitesse plus élevée de USB 2.0 sans modification. Le chipset a les caractéristiques USB avancées suivantes : • Conforme aux Spécifications d'Interface de Contrôleur d'Hôte Améliorée (EHCI) Révision 0.95 et aux

	Spécifications d'Interface de Contrôleur d'Hôte Universel (UHCI) Révision 1.1 • Le périphérique multifonction PCI consiste en deux Contrôleurs d'Hôtes UHCI pour signalisation pleine/faible vitesse et un noyau de Contrôleur d'Hôtes EHCI pour signalisation haute vitesse • Support des Spécifications d'Interface de Gestion d'Alimentation de Bus PCI version 1.1 • Support hérité pour tous les ports face à l'aval.
Interface de Contrôleur IEEE 1394 (optionnel)	• Supporte entièrement les provisions de IEEE 1394-1995 et P1394A pour bus série de haute performance • Offre deux ports câbles entièrement conformes à 100/200/400 Mbits et fonctionne en un, deux ou trois modes de port • Crystal 24.576 MHZ unique offre une transmission/réception de données à 100/200/400 Mbits/s et horloge LLC à 49.152 M • Biais de câble séparé (TPBIAS) et alimentation de voltage de terminaison de lecteur pour chaque port • Support la fonction de coupure de courant pour économiser l'énergie dans les applications alimentées par batteries
Codec Audio AC'97	• Conforme aux spécifications AC'97 2.2 • Codec Full-duplex avec vitesse d'échantillonnage indépendante et variable • Mémoire tampon d'Ecouteurs Intégrée, SNR jusqu'à 90db • 4Ch DAC, supporte 4 canaux de sorties haut-parleurs • Support de gestion d'alimentation avancée
LAN Ethernet intégré (optionnel)	• **LAN Ethernet 10BaseT/100BaseTX** intégré • Fast Ethernet MAC SiS961 incorporé et LAN PHY Realtek RTL8201 interne conforme aux standards IEEE802.3u 100BASE-TX, 10BASE-T et ANSI X3.263 TP-PMD • Conforme à ACPI 1.0 et le Network Device Class Power Management 1.0 • Hautes Performances fournies par le générateur d'horloge de 100Mbps et le circuit de récupération de données pour récepteur 100Mbps
Ports E/S Internes	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 • Quatre ports USB (deux ports fond de panier, embases USB internes offrant deux ports supplémentaires) • Prises audio pour microphone, ligne d'entrée et ligne de sortie
Surveillance Matérielle	Surveillance matérielle intégrée pour températures CPU & Système, vitesses de ventilateur et voltages de carte mère.
ROM Flash Interne	Supporte la configuration Plug & Play de périphériques et de cartes d'extension
Dimensions	Facteur de forme ATX de 305 x 244 mm

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 Kühlkörperhalter
- Dieses Benutzerhandbuch

Features

Prozessor	• PGA Socket 478 • Unterstützt **Intel Pentium 4 Serie** CPUs • Unterstützt bis zu 400/**533** MHz Frontsidebus **Anmerkung**: SiS 645DX Northbridge unterstützt bis zu 533MHz Frontsidebus.
Chipsatz	Die Chipsätze SiS 645/SiS 645DX und SiS961A basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung. Einige der modernen Eigenschaften des Chipsatzes: • Niedriger 2.5 Volt DDR SDRAM-Stromverbrauch macht es zu einer exzellenten Lösung für Notebooks und Desktops mit kleiner Standfläche • Unterstützung für ein 4xAGP-Interface bietet lebendige 3D-Grafiken und Videoperformance • Ein ATA 100-Interface auf dem Chipsatz verbessert die Systemleistung mit Hilfe eines Hochgeschwindigkeitsanschlusses für ATA 100-Festplatten mit einer maximalen Sustained Data Transferrate von 100 MB/sec • Eingebautes Multithreaded I/O-Link zur Leistungssteigerung bietet genug I/O-Bandbreite für Durchsatz bis zu 1.2 GB/Sek. Zusätzliche Schlüsseleigenschaften umfassen Unterstützung für sechs USB-Ports, ein AC 97-Link für Audio und Modem, Hardwareüberwachung und ACPI/OnNow-Energieverwaltung.

	Dieses Mainboard kann jeden der drei Southbridge Chipsätze unterstützen. Siehe unten für nähere Informationen: • **SiS961 Southbridge** – Unterstützt bis zu 400/533 MHz und Ultra DMA ATA100 Interface. • **SiS961B Southbridge** - Unterstützt bis zu 400/533 MHz und Ultra DMA ATA133 Interface. • **SiS962 Southbridge** – Unterstützt bis zu 533 MHz, Ultra DMA ATA133 Interface und IEEE 1394 Controller.
Speicher	• Zwei 168-polige DIMM-Steckplätze für SDRAM Speichermodule • Zwei 184-polige DIMM-Steckplätze für DDR Speichermodule • Unterstützung für SDRAM bis zu 133 MHz/ DDR bis zu 333 MHz Speicherbus • Maximal installierbarer Speicher 2GB **Anmerkung**: Sie können SDRAM und DDR nicht gleichzeitig verwenden
Erweiterungs-Steckplätze	• Ein AMR Steckplatz für eine spezielle Audio/ Modem Riser Card • Einen 4xAGP Steckplatz für AGP 2.0-kompatibles Interface • Fünf 32-Bit PCI-Steckplätze für PCI 2.2-kompatibles Businterface
Onboard IDE Kanäle	• Primäre und sekundäre PCI IDE-Kanäle • Unterstützung für PIO (Programmable Input/Output) Modi • Unterstützung für Multiword DMA-Modi • Unterstützung für Bus Mastering und Ultra DMA ATA 100/**133**-Modi
Strom-versorgung und Energie-verwaltung	• ATX-Netzteilanschluss • Entspricht ACPI 1.0b und APM 1.2 Anforderungen, ein-/ausschaltbar durch Tastatur • Unterstützt RTC Alarm, Wake On Modem, AC97 Wake-Up und USB Wake-Up
VGA	Dieses Mainboard umfasst einen 4xAGP-Steckplatz mit der vierfachen Bandbreite der ursprünglichen AGP-Spezifikation. AGP-Technologie bietet eine direkte Verbindung zwischen dem Grafiksubsystem und dem Speicher, so dass die Grafik nicht mit anderen Geräten auf dem PCI-Bus um Prozessorzeit wetteifern muss.
USB (optional)	Der USB 2.0 Controller ist mit der Universal Serial Bus Spezifikation, Revision 2.0 kompatibel. USB 2.0 unterstützt Datentransferraten von bis zu 480MB/Sek für Hochgeschwindigkeitsgeräte und spezifiziert einen Mikrorahmen von 1/8 eines 1msek Rahmens. Dies ermöglicht USB 2.0 Geräten auch bei hohen Datenraten einen kleinen Puffer zu haben. Die USB 1.1 Verbinder und andere Vollgeschwindigkeitskabel können die höhere Geschwindigkeit des USB 2.0 ohne jegliche Änderungen unterstützen. Der Chipsatz verfügt über die folgenden erweiterten USB-Merkmale: • Kompatibel mit Enhanced Host Controller Interface

	(EHCI) Spezifikation Revision 0.95 und Universal Host Controller Interface (UHCI) Spezifikation Revision 1.1 • PCI-Multifunktionsgerät besteht aus zwei UHCI Host-Controllern für Signalübertragung bei voller und niedriger Geschwindigkeit und einem EHCI Host Controllerkern für Hochgeschwindigkeits- Signalübertragung • Unterstützt PCI-Bus Power Management Interface Spezifikation, Ausgabe 1.1 • Legacy Unterstützung für Downstream-Ports
IEEE 1394 Controller-Schnittstelle (optional)	• Vollständige Unterstützung der Bereitstellung von IEEE 1394-1995 und P1394A für Hochleistungs-Serial Bus • Bietet zwei vollständig kompatible Kabelanschlüsse zu 100/200/400 Mbits arbeitet in Ein-, Zwei- oder Drei-Anschluss Modus • 24.576 MHZ Monokristall bietet Datenübertragung/-empfang mit 100/200/400 Mbits/s und LLC Takt mit 49.152 M • Separate Kabelvorspannung (TPBIAS) und Treiberabschluss-Spannungsversorgung für jeden Anschluss • Unterstützt Abschaltfunktion, um in den batteriebetriebenen Anwendungen Energie zu sparen
AC'97 Audio Codec	• Entspricht der AC'97 2.2-Spezification • Vollduplex-Codec mit unabhängigen und variablen Samplingraten • Eingebauter Kopfhörer-Puffer, SNR bis zu 90db • 4-Kanal DAC, unterstützt 4-Kanal Speak-out • Unterstützt Advanced Power Management
Integriertes Ethernet LAN (optional)	• Integriertes **10BaseT/100BaseTX Ethernet LAN** • SiS961eingebettetes Fast Ethernet MAC und integriertes Realtek RTL8201 LAN PHY entspricht IEEE802.3u 100BASE-TX, 10BASE-T und ANSI X3.263 TP-PMD Standards • Entspricht ACPI 1.0 und Network Device Class Power Management 1.1 • Hohe Leistung durch 100 Mbps Taktgenerator und Datenwiederherstellungs-Schaltkreis für 100Mbps-Empfänger
Integrierte I/O Anschlüsse	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 • Vier USB-Schnittstellen (zwei Eingänge auf der Rückseite des Systems, integrierte USB-Header für zwei zusätzliche Schnittstellen) • Audiobuchsen für Mikrofon, Line-in und Line-out
Hardware Überwachung	Integrierte Hardwareüberwachung für CPU & Systemtemperaturen, Lüftergeschwindigkeiten und Mainboard-Spannungen.
Onboard Flash ROM	Unterstützt Plug & Play-Konfiguration von Peripheriegeräten und Erweiterungskarten
Abmessungen	ATX-Formfaktor 305 x 244 mm

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
- Un cavo a nastro IDE
- Un CD di supporto software auto-installante
- Il manuale dell'utente
- Un modulo di ritenzione

Caratteristiche

Processore	• PGA Socket 478 • Supporta CPU **Intel Pentium 4** • Supporta fino a 400/**533** MHz Frontside Bus **Note:** SiS 645DX Northbridge supporta fino a 533MHz Frontside bus.
Chipset	I chipset SiS 645/SiS 645DX e SiS961 Southbridge sono basati su un'architettura del tutto nuova avendo migliorato affidabilità e prestazioni. Alcune caratteristiche migliorate dei chipset sono: • Un consumo ridotto di energia a 2.5 volt della SDRAM DDR che rappresenta la soluzione ottimale per notebook e computer da tavolo di dimensioni ridotte • Supporto per interfaccia AGP 4X che fornisce ottime prestazioni grafiche 3D e video • Un'interfaccia ATA 100 integrata al chipset, che facilita l'avvio del sistema fornendo un collegamento ad alta velocità ai dischi rigidi ATA 100, con velocità massima di trasferimento dati pari a 100 MB/sec • Collegamento I/O integrato per migliroare le prestazioni, in grado di fornire un'ampiezza di banda sufficiente per trasmissione di dati fino a 1.2 GB/s Caratteristiche chiave addizionali includono supporto per sei porte USB, supporto per collegamento AC 97 per audio e modem, controllo hardware, e gestore d'energia ACPI/OnNow.
	This mainboard may support either one of the three Southbridge chipset. Refer below for details: • **SiS961A Southbridge** – supports up to 400/533MHz and Ultra DMA ATA 100 interface. • **SiS961B Southbridge** – supporta l'interfaccia Ultra DMA ATA133 e 400/533MHz. • **SiS962 Southbridge** – supports up to 533MHz, Ultra DMA ATA133 interface and IEEE 1394 controller.

Memoria	• Due slot DIMM a 168 pin per moduli di memoria SDRAM • Due slot DIMM a 184 pin per moduli di memoria DDR • Supporta SDRAM fino a 133 MHz /DDR fino a 333 MHz di memoria di sistema • Limite massimo di memoria installabile pari a 2 GB **Nota:** Non è possibile utilizzare contemporaneamente SDRAM e DDR.
Slot di Espansione	• Una slot AMR per scheda riser audio/modem • Una slot AGP 4x per interfaccia AGP 2.0 compatibile • Cinque slot PCI a 32 bit per interfaccia bus PCI 2.2 compatibile
Canali IDE Integrati	• Canali IDE PCI Primario e Secondario • Supporto per modalità PIO (input/output programmabile) • Supporto per modalità Multiword DMA • Supporto per Gestione dei Canali e modalità Ultra DMA ATA 100/**133**
Sistema di Alimentazione e Gestione Energetica	• Connettore alimentatore ATX • Soddisfa i requisiti ACPI 1.0b e APM 1.2, tastiera per accendere e spegnere • Supporta RTC Alarm, Wake On Modem, AC97 Wake-Up e USB Wake-Up
VGA	La scheda madre include una slot AGP 4x che fornisce fino a a quattro volte l'ampiezza di banda delle caratteristiche tecniche dell'AGP originale. La tecnologia AGP fornisce una connessione diretta tra il sottosistema grafico e la memoria in modo tale che non vi sia competizione tra i bus PCI e quelli grafici per l'utilizzo del processore.
USB (opzionale)	Il controller USB 2.0 è compatibile con Universal Serial Bus Specification Revision 2.0. USB 2.0 supporta trasferimento dati fino a 480MB/sec per dispositivi ad alta velocità disponendo di un microframe pari a 1/8 di 1msec frame. Ciò permette ai dispositivi USB 2.0 di disporre di piccole memorie di tampone anche ad alte velocità di trasferimento dei dati. I connettori e i cavi USB 1.1 sono in grado di supportare la maggiore velocità di USB 2.0. Il chipset è fornito delle seguenti caratteristiche tecniche avanzate USB: • Compatibile con Enhanced Host Controller Interface (E-HCI) Specification Revision 0.95 e Universal Host Controller Interface (UHCI) Specification Revision 1.1 • Il dispositivo multifunzione PCI è formato da due Host Controller UHCI per trasmissione a velocità massima/ridotta ed un controller EHCI Host per trasmissione ad alta velocità Controller Core per trasmissione ad alta velocità • Supporta PCI-Bus Power Management Interface Specification release 1.1 • Supporta i precedenti formati di porte

Interfaccia controller IEEE 1394 (opzionale)	• Supporto completo per IEEE 1394-1995 e P1394A per bus seriale ad alte prestazioni • Fornisce due porte per cavi compatibili a 100/200/400 Mbits funzionando in modalità a una, due o tre porte • Un singolo cristallo a 24.576 MHZ fornisce trasmissione e ricezione dati a 100/200/400 Mbits/s e clock LLC a 49.152 M • Cavo separato bias (TPBIAS) e alimentazione di voltaggio per ogni porta • Supporta la caratteristica di basso regime per conservare energia durante applicazioni alimentate da batteria
AC'97 Audio Codec	• Compatibile con le caratteristiche tecniche di AC'97 2.2 • Canale bidirezionale a doppia trasmissione con percentuali di campionamento indipendenti o variabili • Entrata auricolare integrata, SNR fino a 90db • 4Ch DAC, supporta uscita altoparlanti a 4 canali • Supporto di gestione energetica avanzato
Ethernet LAN Integrato (opzionale)	• **10BaseT/100BaseTX Ethernet LAN** integrato • SiS961 Embedded Fast Ethernet MAC e Realtek RTL8201 LAN PHY integrato compatibile con gli standard IEEE802.3u 100BASE-TX, 10BASE-T e ANSI X3.263 TP-PMD • Compatibile con ACPI 1.0 e Network Device Class Power Management 1.0 • Alte prestazioni fornite da un generatore di clock a 100Mbps e un circuito di recupero dati per ricevitore a 100Mbps
Porte I/O Integrate	La scheda madre è dotata di un set completo di connettori e porte I/O: • Due porte PS/2 per mouse e tastiera • Due porte seriali • Una porta parallela • Una porta MIDI/gioco • Quattro porte USB)due porte sul retro, capi USB integrati per altre due porte addizionali) • Jack audio per microfono, linea d'ingresso e linea d'uscita
Monitoraggio Hardware	Monitoraggio hardware per la temperatura della CPU, del sistema, velocità ventola e voltaggio della scheda madre.
Flash ROM Integrato	Supporta configurazione Plug and Play di configurazione di dispositivi periferici e schede di espansione.
Dimensioni	ATX 305 x 244 mm

Lista de Verificación

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

Ítems Estándares

- Una placa principal
- Un cable cinta del lector de diskette
- Un cable cinta de la unidad IDE
- Un CD de soporte en software de autoinstalación
- Un módulo de retención
- Este manual del usuario

Características

Procesor	• El PGA Socket 478 • Soporta 4 series CPUs **Intel Pentium** • Soporta más de 400/**533** MHz de Bus Frontal **Nota:** SiS 645DX Northbridge soporta más de 533MHz de bus Frontal.
Chipset	El SiS 645/SiS 645DX y SiS961 chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are: • Un bajo consumo de potencia DDR SDRAM de voltaje 2.5 which makes it an excellent solution for notebooks and desktops with a small footprint • Soporta un interface de 4xAGP que provee vivos gráficos en 3D y realización de video • An ATA 100 interface on the chipset, which helps boost system performance by providing a high-speed connection to ATA 100 Hard Disk Drives, delivering maximum sustained data transfer rates of 100 MB/sec • Enlace I/O multitratado incroporado utilizado para realzar la realización, proveyendo suficiente anchura de banda I/O para un rendimiento superior a 1.2 GB/s Additional key features include support for six USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.
	This mainboard may support either one of the three Southbridge chipset. Refer below for details: • **SiS961A Southbridge** – soporta más de 400/533MHz y un interface Ultra DMA ATA 100. • **SiS961B Southbridge** – soporta más de 400/533MHz y un interface Ultra Ultra DMA ATA 133. • **SiS962 Southbridge** – soporta más de 533MHz, un interface Ultra DMA ATA133 y un controlador IEEE 1394.

Memoria	• Dos espacios 168-pin DIMM para los módulos de memoria SDRAM • Dos espacios 184-pin DIMM para los módulos de memoria DDR • Soprte del SDRAM superior a 133 MHz /DDR superior a 333 MHz memory bus • La memoria máxima instalada es de 2GB **Nota:** No puede utilizar el SDRAM y DDR simultaneamente.
Espacios de expansión	• Un espacio AMR para una trageta elevadora especial del audio/modem • Un espacio 4xAGP para el interface respectivo AGP 2.0 • Cinco espacios 32-bit PCI para el bus interface respectivo PCI 2.2
Canales IDE del panel	• Canales PCI IDE primarios y secundarios • Soporte para el modo PIO Programable entrante y saliente) • Soporte para el modo Multiword DMA • Soporte para el Bus Mastering y el modo Ultra DMA ATA 100/**133**
Suministro y administración de potencia	• Conector ATX de suministro de potencia • Requisitos ACPI 1.0b y APM 1.2 aptos, potencia on/off de teclado • Soporta Alarma RTC, Modem conectador, despertador AC97 and despertador USB
VGA	Este panel incluye un espacio 4xAGP que proporciona cuatro veces la anchura de la especificación original del AGP. La tecnología AGP proporciona una conexión directa entreel subsistema gráfico y la memoria Así el gráfico no tiene que competir por el procesor al mismo tiempo que los otror apararatos del PCI bus.
USB (optional)	The USB 2.0 Controller is compliant with Universal Serial Bus Specification Revision 2.0. The USB 2.0 supports data transfer rates up to 480MB/sec for high-speed devices and specifies a microframe that will be 1/8th of a 1msec frame. This allows the USB 2.0 devices to have small buffers even at high data rates. The USB 1.1 connectors and other full speed cables can support the higher speed of USB 2.0 without any changes. The chipset has the following advanced USB features: • Compliant with Enhanced Host Controller Interface (EHCI) Specification Revision 0.95 and Universal Host Controller Interface (UHCI) Specification Revision 1.1 • PCI multi-function device consists of two UHCI Host Controllers for full/low-speed signaling and one EHCI Host Controller core for high-speed signaling • Supports PCI-Bus Power Management Interface Specification release 1.1 • Legacy support for all downstream facing ports

IEEE 1394 Controller Interface (optional)	• Fully supports provisions of IEEE 1394-1995 and P1394A for high performance serial bus • Provides two fully compliant cable ports at 100/200/400 Mbits and operates in one, two or three port mode • Single 24.576 MHZ crystal provide transmit/receive data at 100/200/400 Mbits/s and LLC clock at 49.152 M • Separate cable bias (TPBIAS) and driver termination voltage supply for each port • Support power-down feature to conserve energy in battery powered applications
AC'97 Audio Codec	• Concuerda con la especificación AC'97 2.2 • Codec completo doble con velocidad de muestra independiente y variable • Buffer auricular incorporado, SNR superior a 90db • 4Ch DAC, soporta cuatro canales de sonido claro • Soporte de administración de potencia avanzado
Ethernet LAN incorporado (optional)	• **10BaseT/100BaseTX Ethernet LAN incorporado** • SiS961 Ethernet MAC rápido incorparado y Realtek RTL8201 LAN PHY de panel conforme a los estándars IEEE802.3u 100BASE-TX, 10BASE-T y ANSI X3.263 TP-PMD • Concuerda con el ACPI 1.0 y el administrador de potencia Network Device Class 1.0 • Alta realización proporcionada por el genrador de reloj 100Mbps y circuitos de recuperación de fecha para eñ receptor 100Mbps
Puertos I/O de panel	The mainboard has a full set of I/O ports and connectors: • Two PS/2 ports for mouse and keyboard • Dos puertos de serie • One parallel port • One MIDI/game port • Cuatro puertos USB (dos traseros, cabezales USBde panel que proporcionan dos puertos extras) • Audio jacks for microphone, line-in and line-out
Monitorización Hardware	Monitorización hardware incorporada para el CPU & sistemas de temperartura, altas velocidades y voltajes de panel.
Flash ROM de panel	Soporta una configuración de conexión y funcionamiento de los aparatos periféricos y targetas de expansión
Dimensiones	Forma ATX factor 305 x 244 mm

TABLE OF CONTENTS

Chapter 1

Introducing the Mainboard

Introduction

Congratulations on purchasing the P4S5A mainboard. This mainboard has a **Socket-478** processor socket for **Intel Pentium 4** type of processors supporting front side bus (FSB) speeds up to **400/533 MHz**.

This mainboard integrates the **SiS 645/SiS 645DX** Northbridge along with **961A/961B/962** Southbridge chipsets that supports built-in **AC97 Codec** support 4-channel speak-out, **2 DDR + 2 SDR** modules up to 2GB system memory. These chipsets' function is detailed as the Chipset description in next section. This mainboard has one **4X AGP** slot for highly graphics display, one **AMR** (Audio Modem Riser) slot to support Audio and Modem application, and built-in **10BaseT/100BaseTX Network Interface**. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, two serial ports, one parallel port, one MIDI/game port and four USB ports -- two backpanel ports and onboard USB header USB1 providing two extra ports (they will support USB 2.0 if SiS 962 SB installed on the mainboard). By means of the Extended USB Module connected to the mainboard, you can make two extra USB ports.

This mainboard is an ATX mainboard that uses a 4-layer printed circuit board and measures 305 x 244mm.

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
- Software support CD
- One Retention Module
- The User's Manual

Features

Processor	• The PGA Socket 478 • Supports **Intel Pentium 4 series** CPUs • Supports up to 400/**533** MHz Frontside Bus **Note:** SiS 645DX Northbridge supports up to 533MHz Frontside bus.
Chipset	The SiS 645/SiS 645DX and SiS961 chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are: • A low 2.5-volt DDR SDRAM power consumption which makes it an excellent solution for notebooks and desktops with a small footprint • Support for a 4xAGP interface providing vivid 3D graphics and video performance • An ATA 100 interface on the chipset, which helps boost system performance by providing a high-speed connection to ATA 100 Hard Disk Drives, delivering maximum sustained data transfer rates of 100 MB/sec • Built-in multithreaded I/O link used to enhance performance, providing enough I/O bandwidth for throughput up to 1.2 GB/s Additional key features include support for six USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.
	This mainboard may support either one of the three Southbridge chipset. Refer below for details: • **SiS961A Southbridge** – supports up to 400/533MHz and Ultra DMA ATA 100 interface. • **SiS961B Southbridge** – supports up to 400/533MHz and Ultra DMA ATA 133 interface. • **SiS962 Southbridge** – supports up to 533MHz, Ultra DMA ATA133 interface and IEEE 1394 controller.
Memory	• Two 168-pin DIMM slots for SDRAM memory modules • Two 184-pin DIMM slots for DDR memory modules • Support SDRAM up to 133 MHz /DDR up to 333 MHz memory bus • Maximum installed memory is 2GB **Note:** You cannot use SDRAM and DDR simultaneously.
Expansion Slots	• One AMR slot for a special audio/modem riser card • One 4xAGP slot for AGP 2.0-compliant interface • Five 32-bit PCI slots for PCI 2.2-compliant bus interface
Onboard IDE channels	• Primary and Secondary PCI IDE channels • Support for PIO (programmable input/output) modes • Support for Multiword DMA modes • Support for Bus Mastering and Ultra DMA ATA 100/**133** modes
Power Supply and	• ATX power supply connector • Meets ACPI 1.0b and APM 1.2 requirements, keyboard power on/off

Power Management	• Supports RTC Alarm, Wake On Modem, AC97 Wake-Up and USB Wake-Up
VGA	This mainboard includes a 4xAGP slot that provides four times the bandwidth of the original AGP specification. AGP technology provides a direct connection between the graphics sub-system and memory so that the graphics do not have to compete for processor time with other devices on the PCI bus.
USB (optional)	The USB 2.0 Controller is compliant with Universal Serial Bus Specification Revision 2.0. The USB 2.0 supports data transfer rates up to 480MB/sec for high-speed devices and specifies a microframe that will be 1/8th of a 1msec frame. This allows the USB 2.0 devices to have small buffers even at high data rates. The USB 1.1 connectors and other full speed cables can support the higher speed of USB 2.0 without any changes. The chipset has the following advanced USB features: • Compliant with Enhanced Host Controller Interface (EHCI) Specification Revision 0.95 and Universal Host Controller Interface (UHCI) Specification Revision 1.1 • PCI multi-function device consists of two UHCI Host Controllers for full/low-speed signaling and one EHCI Host Controller core for high-speed signaling • Supports PCI-Bus Power Management Interface Specification release 1.1 • Legacy support for all downstream facing ports
IEEE 1394 Controller Interface (optional)	• Fully supports provisions of IEEE 1394-1995 and P1394A for high performance serial bus • Provides two fully compliant cable ports at 100/200/400 Mbits and operates in one, two or three port mode • Single 24.576 MHZ crystal provide transmit/receive data at 100/200/400 Mbits/s and LLC clock at 49.152 M • Separate cable bias (TPBIAS) and driver termination voltage supply for each port • Support power-down feature to conserve energy in battery powered applications
AC'97 Audio Codec	• Compliant with AC'97 2.2 specification • Full-duplex Codec with independent and variable sampling rate • Earphone Buffer Built-In, SNR up to 90db • 4Ch DAC, support 4-channel speak-out • Advanced power management support
Built-in Ethernet LAN (optional)	• Built-in **10BaseT/100BaseTX Ethernet LAN** • SiS961 Embedded Fast Ethernet MAC and onboard Realtek RTL8201 LAN PHY compliant with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3.263 TP-PMD standards • Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0 • High Performance provided by 100Mbps clock generator and data recovery circuit for 100Mbps receiver

Onboard I/O Ports	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 • Four USB ports (two backpanel ports, onboard USB headers providing two extra ports) • Audio jacks for microphone, line-in and line-out
Hardware Monitoring	Built-in hardware monitoring for CPU & System temperatures, fan speeds and mainboard voltages.
Onboard Flash ROM	Supports Plug and Play configuration of peripheral devices and expansion cards
Dimensions	ATX form factor 305 x 244 mm

Choosing a Computer Case

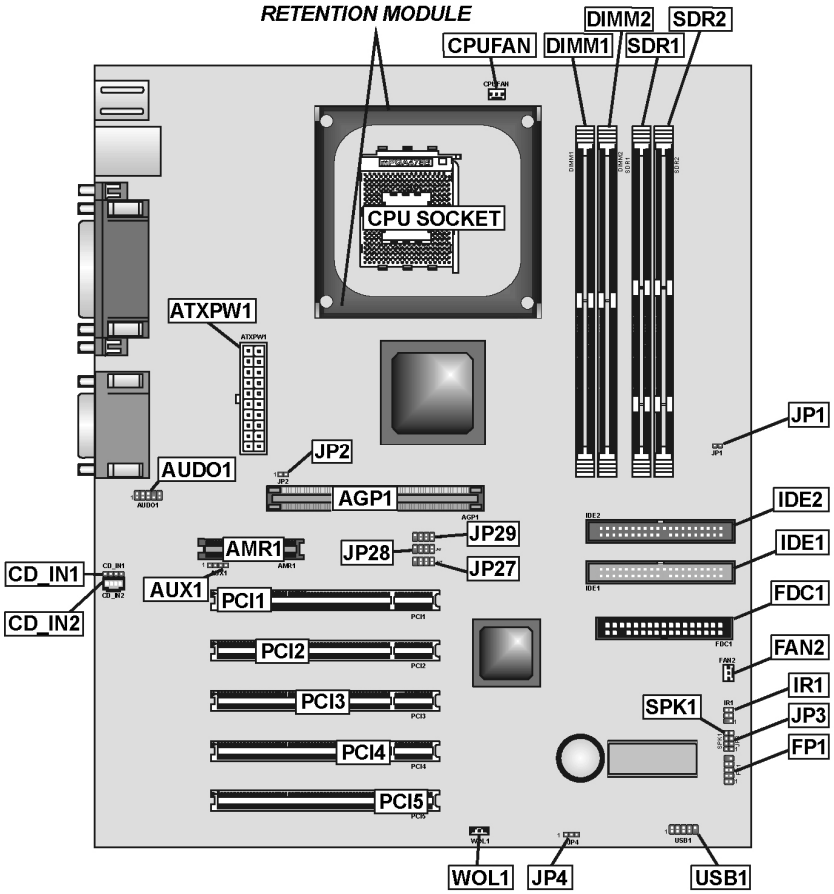
There are many types of computer cases on the market. The mainboard complies with the specifications for the ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The mainboard can support one floppy diskette drive 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.

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

Mainboard Components



Chapter 2

Installing the Mainboard

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:

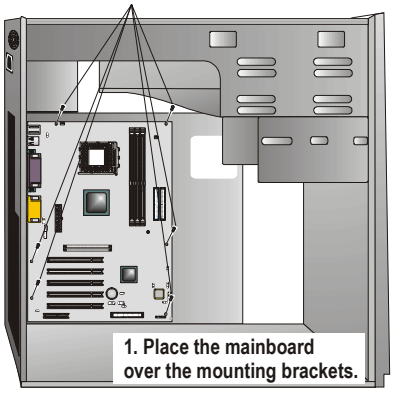
Installing the Mainboard in a Case

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.



Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your mainboard.

Checking Jumper Settings

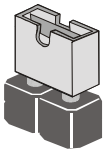
This section explains how to set jumpers for correct configuration of the mainboard.

Setting Jumpers

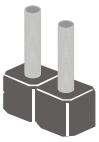
Use the mainboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

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.

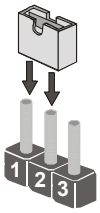
This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



Short

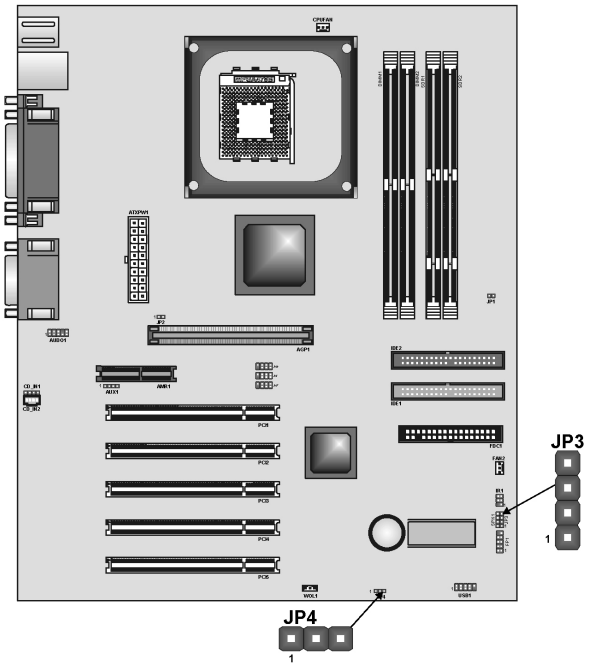


Open



Checking Jumper Settings

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



Jumper Settings

Jumper	Type	Description	Setting (*default*)
JP4	3-pin	Clear CMOS jumper	*1-2: Clear CMOS* 2-3: Normal 
JP3	4-pin	Onboard LAN LED Jumper	*1-2: Link LED* *3-4: LED Active* 

JP4: Clear CMOS Jumper

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the CLEAR setting for a few seconds.

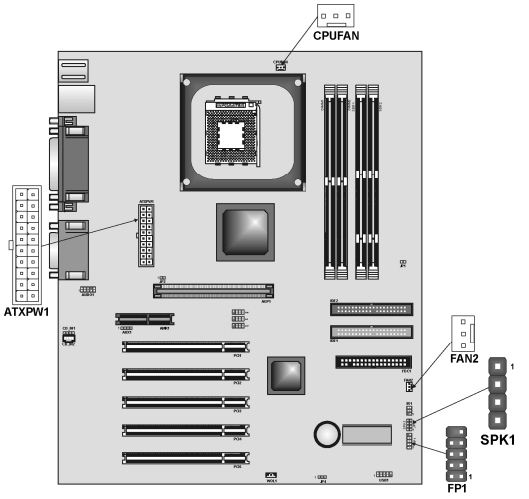
JP3: Onboard LAN LED Jumper

If you have a set indicator LEDs for the onboard LAN communication, you can connect the LED cable to the jumper JP3. Pins 1-2 are for LINK LED. Pins 3-4 are for 10/100 Mbps mode LED, the onboard LAN run in 100 Mbps mode when the LED lit.

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 power connector from the power supply to the **ATX_PW1** connector on the mainboard.
2. If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **FAN2** fan power connector on the mainboard.
3. Connect the case switches and indicator LEDs to the **FP1** header.
4. Connect the case speaker cable to **SPK1**.



SPK1: Speaker Connector

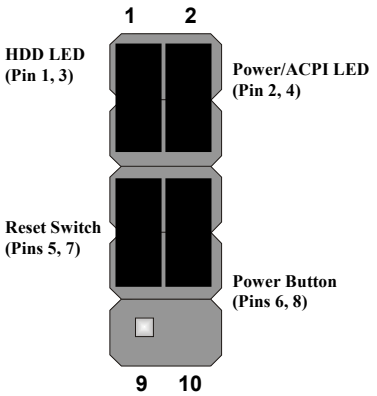
Connect the cable from the PC speaker to the SPK1 header on the mainboard.

Pin	Signal Name
1	SIGNAL
2	NC
3	Ground
4	+5V

The FPI Connector

This panel connector provides a set of switch and LED connectors found on ATX case. Refer to the table below for information.

Device	Pins
Empty	10
N/C	9
Power ON/OFF	6, 8
Reset Switch	5, 7
Power ACPI LED	2, 4
HDD LED	1, 3



Note: The plus sign (+) indicates a pin which must be connected to a positive voltage.

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

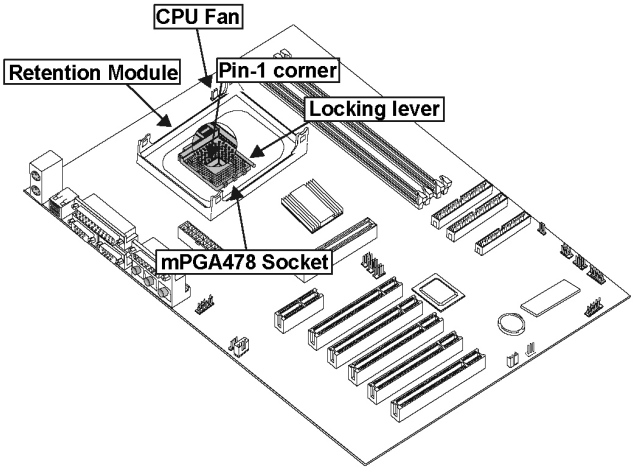
This mainboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the mainboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not overclock processors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

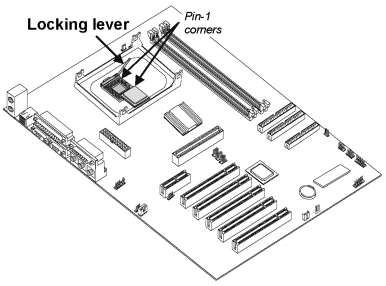
CPU Installation Procedure

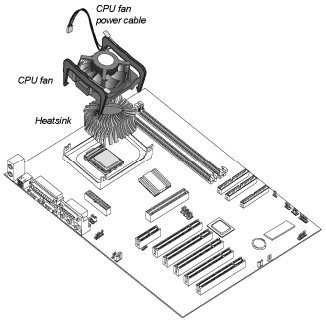
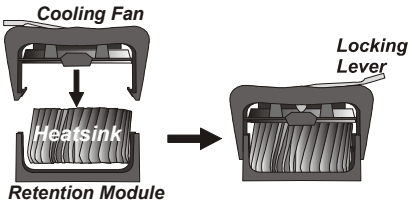
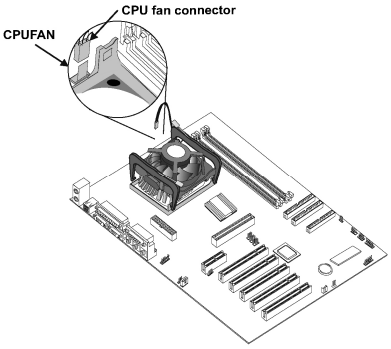
The following illustration shows CPU installation components:



Note: The pin-1 corner is marked with an arrow ◤

Follow these instructions to install the CPU:

1.	Install and secure the Retention Module on the mainboard.	
2.	Pull the CPU socket locking lever away from the socket to unhook it and raise the locking lever to the upright position.	
3.	Match the corner on the CPU marked with an arrow with pin-1 on the CPU socket (the corner with the pinhole noticeably missing). Insert the processor into the socket. Do not use force.	

4. Lower the heatsink over the CPU.	
5. Lower the CPU cooling fan onto the heatsink.	
6. Apply thermal grease to the top of the CPU.	
7. Swing the locking lever down and hook it under the latch on the edge of the socket.	
8. Snap the four retention legs of the cooling fan into place.	
9. Swing both lock levers on top of the cooling fan to their opposite sides to secure the cooling fan on top of the heatsink.	
10. Connect the CPU Cooling Fan power cable to the CPUFAN connector.	

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.

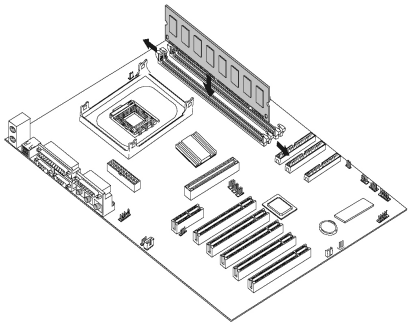
Installing Memory Modules

This mainboard accommodates 168-pin 3.3V/184-pin 2.5V unbuffered SDRAM memory modules. The memory chips must be standard or registered SDRAM (Synchronous Dynamic Random Access Memory).

The CPU supports 100MHz system bus. The SDRAM DIMMs and DDRs can synchronously work with 100 MHz or operates over a 333 MHz system bus.

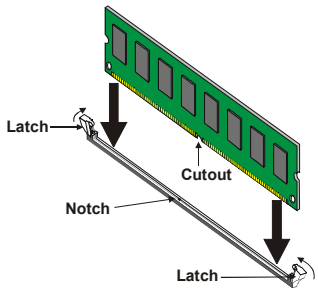
DDR SDRAM provides 800 MBps or 1 GBps data transfer depending on whether the bus is 100 MHz or 333 MHz. It doubles the rate to 1.0 GBps and 2.1 GBps by transferring data on both the rising and falling edges of the clock. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module rather than the 168-pin 3.3V unbuffered DIMMs used by SDRAM.

Installation Procedure

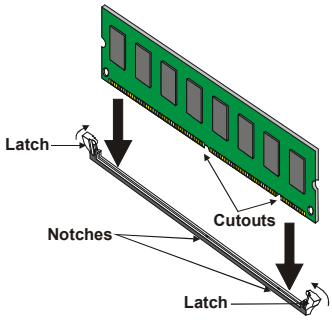
You must install at least one memory module in order to use the mainboard, and **you can only use one of the both SDRAM and DDR SDRAM at the same time**.	

Refer to the following to install the memory modules.

1. Push the latches on each side of the DIMM slot down.
2. 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.
3. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot:



DDR SDRAM Module



SDRAM Module

4. 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.
5. Install any remaining DIMM modules.

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 IDE 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.

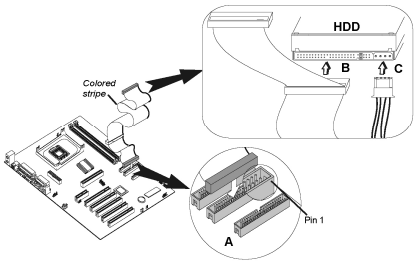
IDE devices have jumpers or switches that are used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. When installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains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

About UltraDMA

This mainboard supports UltraDMA 66/100. 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.

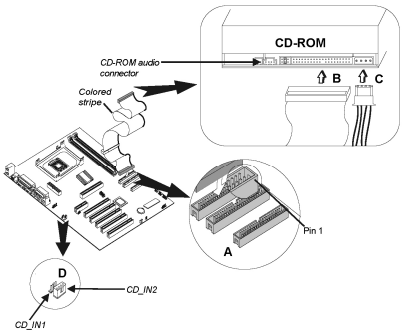
Note: If the mainboard incorporates the SiS961B or SiS962 Southbridge chipset, the Ultra DMA bus mastering can support up to 133 MB/sec transfer rate. For SiS961 Southbridge chipset, the transfer rate can support up to 100MB/sec only.

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.

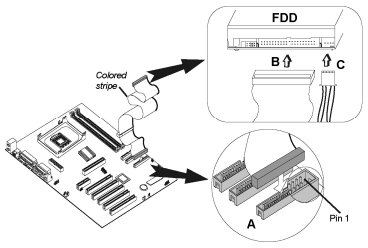
Installing a CD-ROM/DVD Drive

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.

Installing a Floppy Diskette Drive

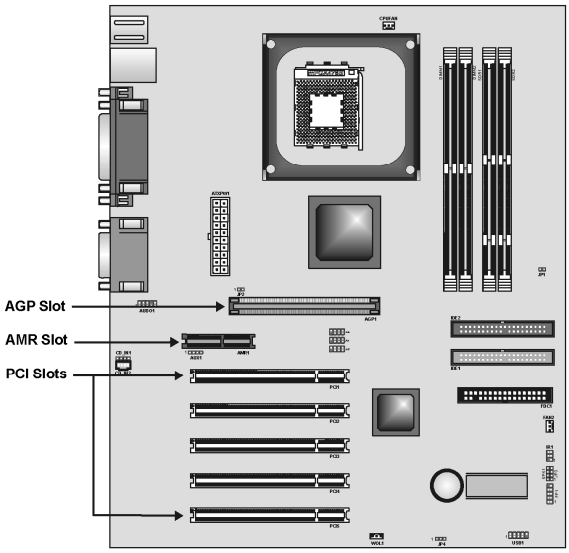
The mainboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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

Installing Add-on Cards

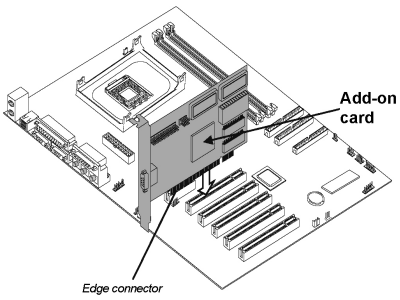
This mainboard has five 32-bit PCI (Peripheral Components Interconnect) expansion slots, one 4xAGP slot, and one AMR slot.



4xAGP Slot	The 4xAGP slot is used to install a graphics adapter that supports the 4xAGP specifications and has a 4xAGP edge connector.
PCI Slots	PCI slots are used to install expansion cards that have the 32-bit PCI interface.
AMR Slot	The AMR (Audio Modem Riser) slot is an industry standard slot that allows for the installation of a special audio/modem riser card. Different territories have different regulations regarding the specifications of a modem card. You can purchase an AMR card that is approved in your area and install it directly into the AMR slot.

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.

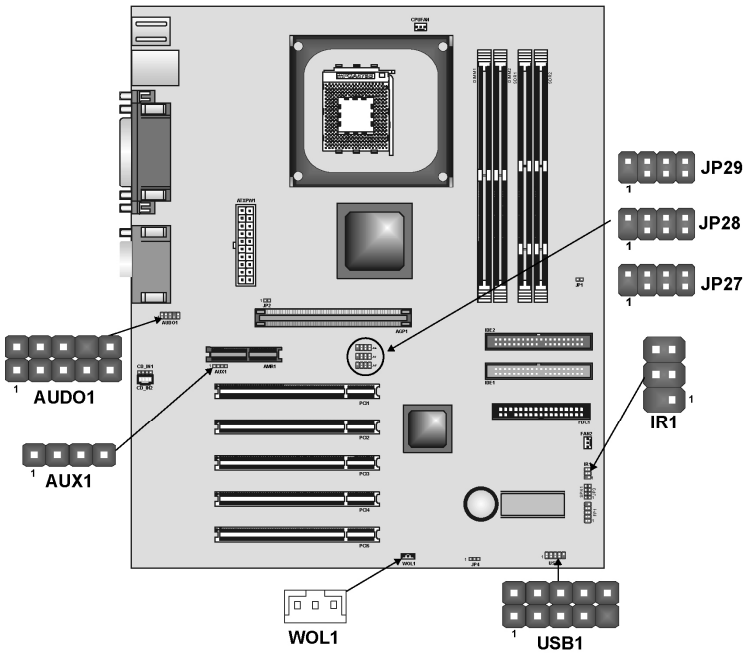
Follow these instructions to install an add-on card:

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:



AUDO1: Front panel MIC/Speaker Out header

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

Pin	Signal Name	Pin	Signal Name
1	MICIN	2	GND
3	MIC-P 3	4	VCC
5	FPOUT-R 5	6	RET-R
7	NC	8	KEY
9	FPOUT-L	10	RET-L

AUX1: Auxilliary header

On the mainboard, locate the 4-pin Aux-In header AUX1and connect the cable to the connector.

USB1: Front panel USB headers

The mainboard has USB ports installed on the rear edge I/O port array. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB1 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Pin	Signal Name
1	VCC (+5V)	2	VCC (+5V)
3	Data1-	4	Data2-
5	Data1+	6	Data2+
7	GND	8	GND
9	Key pin	10	OC# (over current detect)

WOL1: Wake On LAN

If you have installed a LAN card, use the cable provided with the card to plug into the mainboard WOL1 connector. This enables the Wake On LAN (WOL1) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility.

Pin	Signal Name
1	5VSB
2	Ground
3	SENSE

If you have installed a modem, use the cable provided with the modem to plug into the mainboard WOM1 connector. This enables the Wake On Modem (WOM1) feature. When your system is in a power-saving mode, any modem signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility. See Chapter 3 for more information.

IR1: Infrared port

The mainboard supports a Infrared (IR1) data 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	Pin	Signal Name
1	FIR	4	Ground
2	Key	5	IRTX
3	+5V	6	IRRX

JP27/JP28/JP29: IEEE 1394 header

This header will only exist when the mainboard incorporates the SiS962 Southbridge chipset. Use this header to connect to any IEEE 1394 interface.

JP27

Pin	Signal Name	Pin	Signal Name
1	VCC_BUS	2	GND
3	TPB-0	4	TPB+0
5	TPA-0	6	TPA+0
7	Shield	8	NC

JP28

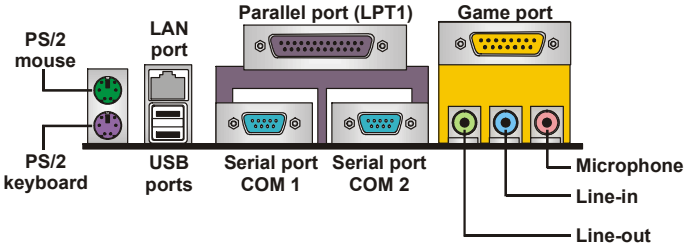
Pin	Signal Name	Pin	Signal Name
1	VCC_BUS	2	GND
3	TPB-1	4	TPB+1
5	TPA-1	6	TPA+1
7	Shield	8	NC

JP29

Pin	Signal Name	Pin	Signal Name
1	VCC_BUS	2	GND
3	TPB-2	4	TPB+2
5	TPA-2	6	TPA+2
7	Shield	8	NC

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.
LAN Port (optional)	Use the LAN port to connect to the network.
USB Ports	Use the USB ports to connect USB devices.
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.

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 AMI 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

Running the Setup Utility

Each time your computer starts, before the operating system loads, a message appears on the screen that prompts you to "*Hit <DEL> if you want to run SETUP*". When you see this message, press the **Delete** key and the Main menu page of the Setup Utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY – VERSION 1.21.06
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Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	

Esc : Quit ↑ ↓ ←→: Select Item (Shift)F2 : Change Color F5 : Old Values
F6 : Optimal values F7 : Best performance values F10 : Save&Exit

Standard CMOS setup for changing time, date, hard disk type, etc.

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

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

Use this page to set basic information such as the date, the time, the IDE devices, and the diskette drives. If you press the F3 key, the system will automatically detect and configure the hard disks on the IDE channels.

```
                AMIBIOS SETUP – STANDARD CMOS SETUP
          (C) 2000  American Megatrends, Inc. All Rights Reserved

Date  (mm/dd/yy) : Wed Sep.19, 2001
Time  (hh/mm/ss) :  17:01:35
                                                   LBA   Blk   PIO   32Bit
            Type        Size  Cyln  Head  WPcom  Sec  Mode  Mode  Mode  Mode
Pri Master  :  Auto                                                      On
Pri Slave   :  Auto                                                      On
Sec Master  :  Auto                                                      On
Sec Slave   :  Auto                                                      On

Floppy Drive A :  1.44 MB 3 1/2
Floppy Drive B :  Not Installed

Month :  Jan – Dec                                  ESC  :  Exit
  Day :  01 – 31                                    ↑↓   :  Select Item
 Year :  1901 – 2099                                PU/PD/+/-  :  Modify
                                                    (Shift)F2  :  Color
                                                    F3  :  Detect All HDD
```

Date & Time

Use these items to set the system date and time

Pri Master/Pri Slave/Sec Master/Sec Slave

Use these items to configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120) select *Floptical*.

Floppy Drive A/Floppy Drive B

Use these items to set the size and capacity of the floppy diskette drive(s) installed in the system.

Advanced BIOS Setup Option

Use this page to set more advanced information about your system. Take some care with this page. Making changes can affect the operation of your computer.

AMIBIOS SETUP – ADVANCED SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	
1st Boot Device	IDE-0	
2nd Boot Device	Floppy	
3rd Boot Device	CDROM	
Try Other Boot Devices	Yes	
S.M.A.R.T. for Hard Disks	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
Password Check	Setup	
Boot To OS/2 > 64MB	No	ESC : Quit ↑↓←→ : Select Item
L2 Cache	Enabled	F1 : Help PU/PD/+/- : Modify
System BIOS Cacheable	Disabled	F5 : Old Values (Shift)F2 : Color
Graphic Win Size	4M	F6 : Load BIOS Defaults
DRAM CAS# Latency	3T	F7 : Load Setup Defaults
Timing Setting Mode	Normal	
MA 1T/2T Select	Auto	
Advanced Read Prefetch	Enabled	
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	

Quick Boot

If you enable this item, the system starts up more quickly be elimination some of the power on test routines.

1st Boot Device/2nd Boot Device/3rd Boot Device

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.

Try Other Boot Device

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

S.M.A.R.T. for Hard Disks

Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.

BootUp Num-Lock

This item determines if the Num Lock key is active or inactive at system start-up time.

Floppy Drive Swap

If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.

Floppy Drive Seek

If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.

Password Check

If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).

Boot to OS/2 > 64MB

Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.

L2 Cache

Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.

System BIOS Cacheable

If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.

Graphic Win Size

This item defines the size of aperture if you use a graphic adapter.

DRAM CAS# Latency

This item determines the operation of DRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 3T setting requires faster memory that specifically supports this mode.

Timing Setting Mode

This item determines the timing setting mode of the memory. We recommend you leave this item at the default value.

MA 1T/2T Select

This item adjusts timing 1T/2T latency. We recommend you to leave this item at the default value.

Advanced Read Prefetch

This item enables prefetching for reading data. We recommend you to leave this item at the default value.

Auto detect DIMM/PCI Clk

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

Spread Spectrum

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

Power Management Setup Page

This page sets some of the parameters for system power management operation.

AMIBIOS SETUP – POWER MANAGEMENT SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
ACPI Aware O/S	Yes	
Power Management	Enabled	
Suspend Time out	Disabled	
Hard Disk Time out	Disabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	ESC : Quit ↑↓←→ : Select Item
RTC Alarm Hour	12	F1 : Help PU/PD/+/- : Modify
RTC Alarm Minute	30	F5 : Old Values (Shift)F2 : Color
RTC Alarm Second	30	
LAN/Ring Power On	Disabled	F6 : Load BIOS Defaults
Keyboard Power On	Disabled	F7 : Load Setup Defaults

ACPI Aware O/S

Enable this item if you are using an O/S that supports ACPI function such as Windows 98/ME /2000.

Power Management

Use this item to select a power management scheme. Both APM and ACPI are supported.

Suspend Time Out

This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

Hard Disk Time Out

This sets the timeout to power down the hard disk drive, if the time selected passes without any hard disk activity.

Resume On RTC Alarm Date / Hour / Minute / Second

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

LAN/Ring Power On

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

KeyBoard Power On

If you enable this item, you can turn the system on and off by pressing hot keys on the keyboard. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

PCI / Plug and Play Setup

This page sets some of the parameters for devices installed on the PCI bus and devices that use the system plug and play capability.

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	Yes	
Primary Graphics Adapter	PCI	
Allocate IRQ for PCI VGA	Yes	
		ESC : Quit ↑↓←→ : Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Plug and Play Aware O/S

Enable this item if you are using an O/S that supports Plug and Play such as Windows 95/98/ME.

Primary Graphics Adapter

This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default PCI setting still lets the onboard display work and allows the use of a second display card installed in a PCI slot.

Allocate IRQ to PCI VGA

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Note: It is highly recommended that users enter this option to load optimal values for accessing the best performance.

Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

Features Setup Page

This page sets some of the parameters for peripheral devices connected to the system.

AMIBIOS SETUP – FEATURES SETUP
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OnBoard FDC	Enabled
OnBoard Serial PortA	3F8h/COM1
OnBoard Serial PortB	2F8h/COM2
Serial Port2 Mode	Normal
OnBoard Parallel Port	378h
Parallel Port Mode	ECP
Parallel Port IRQ	7
Parallel Port DMA	3
OnBoard Game Port	201h
OnBoard MIDI Port	300h
MIDI Port IRQ	10
OnBoard PCI IDE	Both
Audio Device	Enabled
Modem Device	Enabled
Ethernet Device	Enabled
Onboard USB Function	Enabled
USB Function for DOS	Disabled

ESC	: Quit	↑↓←→	: Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift)F2	: Color
F6	: Load BIOS Defaults		
F7	: Load Setup Defaults		

OnBoard FDC

Use this item to enable or disable the onboard floppy disk drive interface.

OnBoard Serial PortA/B

Use these items to enable or disable the onboard COM1/2 serial port, and to assign a port address.

Serial Port2 Mode

Use this item to allocate the resources of the second serial port. Under Normal, the resources are allocated to the onboard serial port. Under ASKIR or IrDA, the resources are allocated to the onboard IR port.

Onboard Parallel Port

Use this item to enable or disable the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available address.

Parallel Port Mode

Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.

Parallel Port IRQ

Use this item to assign either IRQ 5 or 7 to the parallel port.

Parallel Port DMA

Use this item to assign a DMA channel to the parallel port. The options are 0, 1 and 3.

OnBoard Game Port

Use this item to enable or disable the onboard Game port.

OnBoard MIDI Port

Use this item to enable or disable the onboard MIDI port, and to assign a port address.

MIDI Port IRQ

Use this item to assign an IRQ to the MIDI port.

Onboard PCI IDE

Use this item to enable or disable either or both of the onboard Primary and Secondary IDE channels.

Audio Device

This item enables or disables the onboard AC'97 audio chip.

Modem Device

This item enables or disables the onboard AC'97 modem chip.

Ethernet Device

This item enables or disables the onboard Ethernet LAN.

Onboard USB Function

Enable this item if you plan to use the USB ports on this mainboard.

USB Function for DOS

Enable this item if you plan to use the USB ports on this mainboard in a DOS environment.

CPU PnP Setup Page

This page lets you manually configure the mainboard for the CPU. The system will automatically detect the kind of CPU that you have installed and make the appropriate adjustments to the items on this page.

AMIBIOS SETUP – CPU PnP SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
CPU Type	Intel P4	
CPU/DRAM Speed	100/100 MHz	
CPU Core Voltage	1.616V	
CPU Ratio	H/W Trap	
CPU Frequency	100 MHz	
DRAM Frequency	100 MHz	
		ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values

CPU Type/Core Voltage/Ratio/ Frequency

These items show the type, core voltage, ratio and frequency of CPU installed in your system.

CPU/DRAM Speed/Frequency

These items decide CPU/DRAM speed/frequency installed in your system.

Hardware Monitor Page

This page sets some of the parameters for the hardware monitoring function of this mainboard.

AMIBIOS SETUP – HARDWARE MONITOR (C) 2000 American Megatrends, Inc. All Rights Reserved		
*** System Hardware ***		
Vcore	1.632V	
Vcc 2.5V/Vcc3.3V	2.496V	
Vcc 3.3V	3.392V	
Vcc	4.972V	
+12V	11.968V	
SB3V	3.264V	
-12V	-0.907V	
SB5V	5.053V	
VBAT	3.488V	ESC : Quit ↑↓←→ : Select Item
SYSTEM Fan Speed	0 RPM	F1 : Help PU/PD/+/- : Modify
CPU Fan Speed	5400 RPM	F5 : Old Values (Shift)F2 : Color
Power Temperature	33°C/91°F	F6 : Load BIOS Defaults
SYSTEM Temperature	40°C/104°F	F7 : Load Setup Defaults
CPU Temperature	35°C/95°F	

CPU / System Temperature

These items display CPU and system temperature measurement.

FANs & Voltage Measurements

These items indicate cooling fan speeds in RPM and the various system voltage measurements.

Change Password

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a Supervisor password. You can enter no more than six letters or numbers. Press **Enter** after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press **Enter** after you have retyped it correctly. The password is then required to access the Setup Utility or for that and at start-up, depending on the setting of the Password Check item in Advanced Setup.

Change or Remove the Password

Highlight this item, press Enter and type in the current password. At the next dialog box, type in the new password, or just press Enter to disable password protection.

Exit

Highlight this item and press **Enter** to save the changes that you have made in the Setup Utility configuration and exit the program. When the Save and Exit dialog box appears, press **Y** to save and exit, or press **N** to exit without

Chapter 4

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.

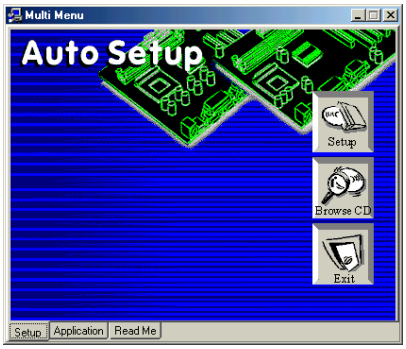
Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual

Auto-installing under Windows 98

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. 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

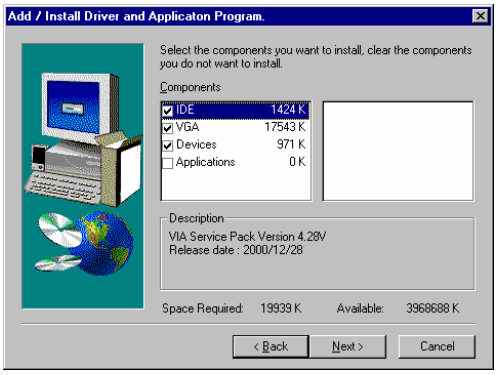
Follow these instructions to install device drivers and software for the mainboard:

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

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

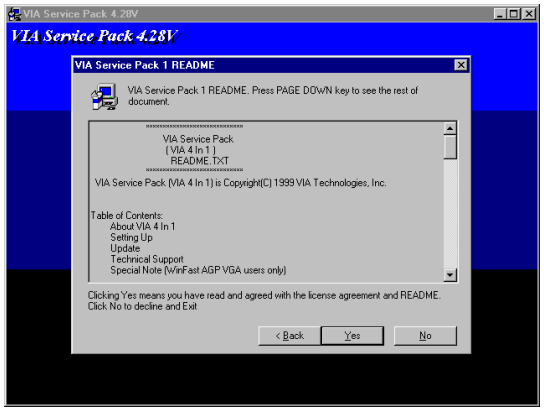
The mainboard identification is located in the upper left-hand corner.

Click **Next**. The following screen appears:



Check the items you want to install. The default options are recommended.

Click **Next** to run the Installation Wizard. An item installation screen appears:



Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart after each 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 on the CD-ROM is Windows compliant. It is provided only for the convenience of customers. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

Note: The software in these folders is subject to change at anytime without prior notice. Please refer to the support CD for available software.

Award Flash Memory Utility

This utility enables you to 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.

PC-CILLIN

The PC-CILLIN software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE 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.

Note: Update your virus software regularly to protect against new viruses.

MediaRing Talk – Telephony Software

To install the MediaRing Talk voice modem software for the built-in modem, run MRTALK-SETUP72.EXE from the following directory:

\UTILITY\MEDIARING TALK

Super Voice – Fax/Modem Software

To install the Super Voice voice, fax, data communication application for use with the built-in fax/modem, run PICSHELL.EXE from the following directory:

\UTILITY\SUPER VOICE

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

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 deletions, and 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 own home page. To install the PageABC, run SETUP.EXE from the following directory:

\UTILITY\PageABC

This concludes Chapter 4.