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:

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 8
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility. Go to ⇒ page 28
Chapter 4 **Using the Mainboard Software**	Describes the mainboard software. Go to ⇒ page 43

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
- Un câble plat pour lecteur IDE
- Un CD d'installation automatique pour le logiciel
- Un écran pour panneau arrière d'entrées/sorties
- Un module de rétention
- Ce manuel utilisateur

Caractéristiques

Processeur	La carte mère utilise un Socket A AMD 462 broches supportant un bus frontal (FSB) de 133/166 MHz
Chipset	Les chipsets SiS746 et SiS963/963L sont basés sur une architecture novatrice et dimensionnable avec une fiabilité et des performances prouvées. Quelques-unes des caractéristiques avancées des chipsets sont: • Supporte le CPU de Socket A AMD: 133/166 MHz • Supporte la synchronisation Synchrone/Asynchrone Hôte-t-DRAM: 133/200, 133/266, 133/333, 166/266, 166/333 • Supporte les SDRAM DDR 200/266/333 • Support jusqu'à 2 DIMM DDR333 sans tampon ou jusqu'à 3 DIMM DDR266/200 sans tampon double face • Conforme AGP v3.0 • Bus de données 16 bits Bi-directionnel • Performances de 1 Go/s en mode 133MHz x 4 • Conforme aux Spécifications PCI 2.2 • Maîtrise de Liaison d'E/S Multiprocessus Intégrée avec Flux en Pipeline de Lecture • Supporte les schémas de Logiciel Amélioré et Automatique pour accéder aux registres PHY • Supporte Ultra DMA 33/66/100/133 • Compatible USB v2.0 et Interface de Contrôleur d'Hôte Avancé (EHCI) v1.0 Les caractéristiques clé supplémentaires incluent le support pour six ports USB 2.0, contrôleur Fast Ethernet MAC, interface AC97, contrôleur d'hôte IEEE 1394 *(excepté pour le chipset SiS963L Southbridge)*, 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 S746FX inclus un logement AGP 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.
Codec Audio AC'97	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 • Un logement AGP (supporte l'Interface AGP 1.5V seulement) • Un logement Communications Network Riser (CNR) (Interface AC97 seulement) • Deux connecteurs IDE supportant quatre canaux IDE et une interface de lecteur de disquette La S746FX supporte la maîtrise de bus Ultra DMA avec des vitesses de transfert de 33/66/100 Mo/sec.
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
LAN Interne (optionnel)	La puce LAN Realtek RTL8100B est incorporée dans le chipset offrant à la carte mère les capacités de contrôleur fast Ethernet 10/100Mbps et LAN PCI Ethernet intégrées.
	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, et Commutateur Ethernet.
Interface de Contrôleur IEEE 1394A (optionnel)	• Support entièrement les provisions de IEEE1394-1995 pour Bus Série à Hautes Performances et le standard P1394a draft 2.0 • Offre un port de câble conforme à 100Mbits/s, 200Mbits/s, et 400Mbits/s • Supporte la réinitialisation de bus court arbitré pour améliorer l'utilisation du bus • Interface de données pour contrôleur de liaison-couche fourni à travers les lignes parallèles 2/4/8 à 50Mbits/s • Support la fonction de coupure de courant pour économiser l'énergie dans les applications alimentées par batteries

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 AMI BIOS qui permet aux utilisateurs de configurer de nombreuses fonctionnalités du système y compris 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 für Diskettenlaufwerke
- Ein Bandkabel für IDE-Laufwerke
- Eine Auto-Installations-Support-CD
- I/O-Anschlussabdeckung für die Rückwand
- Ein Kühlkörperhalter
- Dieses Benutzerhandbuch

Features

Prozessor	Das Mainboard verwendet einen AMD 462-Pin Sockel A, der einen 133/166 MHz Frontsidebus (FSB) unterstützt.
Chipsatz	Die Chipsätze SiS746 und SiS963/963L basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung. Einige der modernen Eigenschaften des Chipsatzes: • Unterstützt AMD Sockel A CPU: 133/166 MHz • Synchrones/Asynchrones Host-t-DRAM-Timing: 133/200, 133/266, 133/333, 166/266, 166/333 • Unterstützt 200/266/333 DDR SDRAM • Unterstützt bis zu 2 ungepufferte DIMM DDR333 oder bis zu 3 ungepufferte doppelseitige DIMM DDR266/200 • Entspricht AGP v3.0 • Bi-direktionaler 16 Bit Datenbus • Leistung von 1 GB/s im 133MHz x 4 Modus • Entspricht PCI 2.2 Spezifikation • Eingebautes Multithreaded I/O-Link-Mastering mit Read-Pipelined-Streaming • Unterstützt Enhanced Software- und Automatic-Schemen, um auf PHY-Verzeichnisse zuzugreifen • Unterstützt Ultra DMA 33/66/100/133 • Kompatibel mit USB v2.0 und Enhanced Host Controller Interface (EHCI) v1.0 Zusätzliche Schlüsseleigenschaften umfassen die Unterstützung für sechs USB-Anschlüsse, Fast Ethernet MAC Controller, AC 97-Interface, IEEE 1394 Host Controller *(ausgenommen Chipsatz SiS963L Southbridge)*, 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 S746FX enthält einen AGP-Steckplatz mit der achtfachen Bandbreite der ursprünglichen AGP-Spezifikation. AGP 3.0 (8xAGP) bietet gegenüber AGP2.0 eine erhebliche Leistungssteigerung und verbesserte Features. Dieses Interface stellt die natürliche Weiterentwicklung des bestehenden AGP dar, um den stetig anwachsenden Anforderungen an die Grafikschnittstellen innerhalb der Workstations und Desktop-Umgebungen gerecht zu werden.
AC' 97 Audio Codec	Der AC' 97 Audio-Codec entspricht 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 die Unterstützung für vier analoge Line-Level-Stereoeingänge.
Erweiterungs-optionen	Das Mainboard bietet die folgenden Erweiterungsoptionen: • Fünf 32-bit PCI-Steckplätze • Einen AGP-Steckplatz (unterstützt nur 1.5V AGP Interface) • 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 S746FX unterstützt Ultra DMA Bus-Mastering mit Übertragungsraten von 33/66/100 MB/s.
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 Transferrate von 1.5Gb/s • Unterstützt Spread Spectrum im Empfänger • Single-PLL-Architektur, 1 PLL für beide Schnittstellen
Onboard LAN (optional)	Der Realtek RTL8100B LAN-Chip ist im Chipsatz eingebaut und bietet dem Mainboard damit einen 10/100Mbps Fast Ethernet Controller und integrierte Ethernet PCI LAN Fähigkeit. 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 und Ethernet Switch verwendet werden.
IEEE 1394A Controller Interface (optional)	• Vollständige Unterstützung der Bereitstellung von IEEE 1394-1995 für Hochleistungs-Serial Bus und P1394a Entwurf 2.0 Standard • Bietet einen kompatiblen Kabelanschluss bei 100Mbits/s, 200Mbits/s und 400Mbits/s • Unterstützt Arbitrated-Short-Bus-Reset, um die Bus-Nutzung zu verbessern • Datenschnittstelle zum Link-Layer Controller durch 2/4/8 parallele Leitungen bei 50Mbits/s • Unterstützt Abschaltfunktion, um in den batteriebetriebenen Anwendungen Energie zu sparen

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 • Audiobuchsen für Mikrofon, Line-in und Line-out
BIOS-Firmware	Dieses Mainboard setzt das AMI 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
- Un cavo a nastro IDE
- Un CD di supporto software auto-installante
- Una protezione per il pannello posteriore di I/O
- Un modulo di ritenzione
- Il manuale dell'utente

Caratteristiche

Processore	La scheda madre utilizza una piattaforma socket A a 462 pin AMD che supporta un front side bus (FSB) a 133/166 Mhz.
Chipset	I chipset SiS746 e SiS963/963L sono basati su un'architettura innovativa e scalabile di provata affidabilità e di eccellenti prestazioni. Di seguito vengono illustrate alcune delle avanzate caratteristiche del chipset: • Supporta una CPU AMD con socket A da 133/166 Mhz • Host-t-DRAM timing sincrono/asincrono: 133/200, 133/266, 133/333, 166/266, 166/333 • Supporta una DDR SDRAM da 200/266/333 Mhz • Supporta fino a 2 DIMM DDR 333 unbuffered o fino a 3 DIMM DDR 266/200 unbuffered a doppia faccia • Compatibile con AGP v3.0 • Bus di dati a 16 bit bidirezionale • Velocità di 1 GB/s in modalità 133MHz x 4 • Conforme allo standard PCI 2.2 • Bus di interconnessione Integrated Multi-threaded I/O Link (MuTIOL) con Read Pipelined Streaming • Supporta software avanzati e schemi di polling automatico per l'accesso a registri PHY • Supporta Ultra DMA 33/66/100/133 • Compatibile con gli standard USB v2.0 e EHCI (Enhanced Host Controller Interface) v1.0 Altre caratteristiche fondamentali sono: supporto per sei porte USB, controller Fast Ethernet MAC, interfaccia AC97, IEEE 1394 host controller *(tranne che per il chipset SiS963L Southbridge)*, gestione avanzata del risparmio energetico, controller DMA controller integrato e controller tastiera.
Memoria	• Supporta un modulo di memoria SDRAM con DDR fino a 200/266/333 Mhz • Presenta tre slot a 184 pin 2,5 V unbuffered • Ciascun slot supporta fino a 1 GB per una capacità totale massima di 3 GB

AGP	La scheda S746FX include uno slot AGP che garantisce una larghezza di banda otto volte superiore rispetto allo standard AGP originale. Lo standard AGP 3.0 (8xAGP) garantisce prestazioni significativamente superiori oltre ad altri miglioramenti rispetto allo standard AGP2.0. Questa interfaccia rappresenta la naturale evoluzione dell'AGP esistente ed è in grado di soddisfare le sempre maggiori aspettative del mercato nel campo delle interfacce grafiche, sia in ambiente workstation che in ambiente desktop.
Audio Codec AC' 97	L'Audio Codec 97 (AC' 97) è compatibile con lo standard AC' 97 2.2 e supporta una risoluzione ADC (Analog Digital Converter) e DAC (Digital Analog Converter) a 18 bit, nonché il codec "full-duplex" a 18 bit stereo con frequenze di campionamento independenti e variabili. Tra le altre caratteristiche si segnalano quattro ingressi stereo analogici line-level.
Opzioni di espansione	La scheda madre è dotata delle seguenti opzioni di espansione: • Cinque slot PCI a 32 bit • Uno slot AGP (supporta solo l'interfaccia 1.5V AGP) • Uno slot Communications Network Riser (CNR) (solo interfaccia AC97) • Due connettori IDE che supportano quattro canali IDE e un'interfaccia unità floppy disk La scheda S746FX supporta il bus mastering Ultra DMA con velocità di trasferimento di 33/66/100 MB/sec.
ATA Serial Sil3112A (opzionale)	• Connessione Serial ATA e logica PHY integrate • Compatibile con standard Serial ATA 1.0 • Supporta due canali Serial ATA indipendenti • Supporta la velocità di trasferimento di 1.5Gb/s Serial ATA Generation 1 • Supporto Spread Spectrum su ricevitore • Architettura Single PLL, 1 PLL per entrambe le porte
LAN Onboard (opzionale)	Il chip Realtek RTL8100B LAN è incorporato nel chipset integrando nella scheda madre il Fast Ethernet Controller 10/100Mbpse e le funzioni di una scheda Fast Ethernet PCI LAN.
	RTL8201BL è un Fast Ethernet Phyceiver dotato di MII (Media Independent Interface)/SNI (Serial Network Interface). Può essere usato come Network Interface Adapter, MAU, CNR, ACR, hub Ethernet e switch Ethernet.
Interfaccia Controller IEEE 1394A (opzionale)	• Conforme allo standard IEEE1394-1995 per bus seriali ad alte prestazioni e P1394a vers. 2.0 • Una cable port compatibile a 100Mbits/s, 200Mbits/s e 400Mbits/s • Supporta l'arbitrated short bus reset per migliorare l'utilizzazione del bus • Controller Data interface to link-layer tramite linee parallele 2/4/8 a 50Mbits/s • Supporta la funzione di spegnimento intelligente per conservare l'energia nei dispositivi alimentati a batteria

I/O integrato	La scheda madre è dotata di un set completo di connettori e porte I/O: • Due porte PS/2 per mouse e tastiera • Due porta seriale • Una porta VGA • Una porta parallela • Due porte USB • Una porta LAN (opzionale) • Jack audio per microfono, linea d'ingresso e linea d'uscita
Firmware BIOS	Questa scheda madre utilizza AMI BIOS che permette all'utente di configurare numerose caratteristiche di sistema tra cui le seguenti: • Gestione energetica • Segnali di riattivazione • Parametri CPU e sincronizzazione memoria • Temporizzazione memoria e CPU È possibile inoltre impostare i parametri di velocità della clock del processore su diversi valori.

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 protector del panel I/O trasero
- Un módulo de retención
- Este manual del usuario

Características

Procesador	La placa principal usa un AMD 462-pin Ranura A que soporta bus de lado frontal 133/166 MHz (FSB).
Chipset	Los chipsets SiS746 y SiS963/963L se basan de una arquitectura innovadora y escalable con la fiabilidad y rendimiento comprobados. Unas de las características avanzadas del chipset son: • Soporta AMD Ranura A CPU: 133/166 MHz • Cronometraje Host-t-DRAM Sincrónico/Asincrónico: 133/200, 133/266, 133/333, 166/266, 166/333 • Soporta 200/266/333 DDR SDRAM • Soporta hasta 2 DIMM DDR333 sin buffuer o hasta 3 DIMM DDR266/200 doble lado sin buffer. • Conforme con AGP v3.0 • Bus de datos 16 bit bi-direccional • Rendimiento 1 GB/s en modo 133MHz x 4 • Conformidad de Especificación PCI 2.2 • Mastering de Vínculo I/O Mutilhilado Integrado con Read Pipelined Streaming • Soporta Software Reforzado y esquemas Automáticas para acceder a los registros PHY • Soporta Ultra DMA 33/66/100/133 • USB v2.0 compatible com Interfaz de Controlador de Anfitrión Reforzado (EHCI) v1.0 Características claves adicionales incluyen soporte para seis puertos USB, controlador Fast Ethernet MAC, Interfaz AC97, controlador anfitrión IEEE 1394 *(excepto para el chipset SiS963L Southbridge)*, administración de energía avanzada, controlador DMA integrado y controlador de teclado.
Memoria	• Soporta DDR hasta módulo de memoria 200/266/333 MHz SDRAM • Acomoda tres ranuras 2.5V 184-pin sin buffer • Cada ranura soporta hasta 1 GB con una capacidad máxima total de 3 GB

AGP	El S746FX incluye una ranura AGP que provee ocho veces la ancha de banda de la especificación de AGP original. El AGP 3.0 (8xAGP) ofrece un aumento significativo en rendimiento junto con mejoramientos de característica para AGP2.0. Esta interfaz representa la evolución natural del AGP existente para satisfacer las crecientes demandas enfocadas en las interfaces de gráficas dentro de los ambientes de estación de trabajo y sobremesas.
Codec de Sonido AC' 97	El codec de sonido AC' 97 es conforme con la especificación AC' 97 2.2, y soporta 18-bit ADC (Conversor Digital Analógico) y la resolución DAC (Conversor Analógico Digital) como también el codec full duplex de estéreo 18-bit con índices de muestreo independiente y variable. Más características incluyen soporte para cuatro entradas a nivel de línea analógico.
Opciones de Expansión	La placa principla viene con las sigtes. opciones de expansión: • Cinco ranuras 32-bit PCI • Una ranura AGP (soporta interfaz 1.5V AGP solamente) • Una ranura de Communications Network Riser (CNR) (Intrefaz AC97 solamente) • Dos conectores IDE que soportan cuatro canales IDE y una interfaz de unidad de disco floppy El S746FX soporta mastering de bus Ultra DMA con índices de transferencia de 33/66/100 MB/seg.
Sil3112A Serial ATA (optativo)	• Vínculo ATA Serial Integrado y Lógica PHY • Conforme con las especificaciones de Serial ATA 1.0 • Soporta dos canales Serial ATA independientes • Soporta índice de transferencia Serial ATA Generación 1 de 1.5Gb/s • Soporta Spread Spectrum en receptor • Arquitectura PLL singular, 1 PLL para ambos puertos
LAN abordo (optativo)	El chip Realtek RTL8100B LAN está incorporado en el chipset que provee la placa principal con controlador de 10/100Mbps fast Ethernet y capacidades de Ethernet PCI LAN integradas.
	RTL8201BL es un Fast Ethernet Phyceiver con una MII (Interfaz Independiente de Medios)/SNI (Interfaz de Redes Serial). Se lo puede usar como un Adaptador de Interfaz de Redes, MAU, CNR, ACR, Ethernet Hub, e Interruptor de Ethernet.
Interfaz de Controlador IEEE 1394A (optativo)	• Soporte completo para las provisiones de IEEE1394-1995 para Bus Serial de Alto Rendimiento y la norma P1394a borrador 2.0 • Provee un puerto de cable conforme con 100Mbits/s, 200Mbits/s, y 400Mbits/s • Soporta bus corto arbitrario para reconfigurar para mejorar la utilización del bus • Interfaz de datos al controlador de capa de vínculo provista a través de 2/4/8 líneas paralelas en 50Mbits/s • Soporta la característica de apagado para conservar energía en las aplicaciones suministradas a pila

I/O Integrado	La placa principal tiene un juego completo de puertos y conectores I/O: • Dos puertos PS/2 para ratón y teclado • Dos puertos seriales • Un puerto paralelo • Un puerto MIDI/juego • Dos puertos USB • Un puerto LAN • Clavijas de sonido para micrófono, entrada y salida de línea
Firmware de BIOS	Esta placa principal usa AMI BIOS que habilita los usuarios a configurar muchas características de sistema que incluyen las sigtes.: • Administración de energía • Alarmas despertadoras • Parámetros de CPU • CPU y cronometraje de memoria El firmware también se puede usar para configurar parámetros para diferentes velocidades de reloj.

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
- ディスクドライブ用リボンケーブル　1個
- IDEドライブ用リボンケーブル　1個
- 自動インストール機能対応ソフトウェアCD　1枚
- リアパネルI/Oシールド　1個
- 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	このメインボードは133/166 MHzシステムバス（FSB）に対応したAMD 462ピンソケットを搭載しています。
チップセット	SiS746及びSiS936/936Lチップセットには、最新且つ拡張性の高い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が保証されています。チップセットには次のような特徴があります: • AMD ソケットA CPUをサポート: 133/166 MHz • 同時期/非同時期ホスト-t-DRAMタイミング: 133/200、133/266、133/333、166/266、166/333 • 200/266/333 DDR SDRAMをサポート • 最大2つの非バッファDIMM DDR333、または最大3つの非バッファ両面DIMM DDR266/200に対応 • AGP v3.0準拠 • 両方向16ビットレートバス • 133MHz x 4モードで1 GB/秒のパフォーマンス • PCI 2.2仕様準拠 • 読み取りパイプラインストリーミングとの統合マルチスレッドI/Oリンクマスタリング • エンハンスソフトウェアや自動スキームに対応し、PHYレジスタにアクセス可能 • Ultra DMA 33/66/100/133をサポート • USB v2.0及びEHCI（Enhanced Host Controller Interface）v1.0準拠 この他に、6つのUSBポート、高速イーサネットMACコントローラ、AC97インターフェース、IEEE 1394ホストコントローラ*(SiS963L Southbridgeチップセットを除く)*、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などの機能を搭載しています。
メモリ	• 200/266/333 MHz DDR SDRAMまでのDDRメモリモジュールに対応

	• 3つの非バッファ2.5V184ピン仕様のスロットを収納 • 各スロットが1 GBまで対応し、合計で3 GBまでのメモリをサポートします
AGP	The S746FXは、本来のAGP仕様の8倍の帯域幅を提供することができるAGPスロットが含まれます。AGP 3.0 (8xAGP) はAGP2.0をより向上させた極めて高い性能を提供しています。このインターフェースは、既存のAGPから無理なく自然な革新をはかり、ワークステーションやデスクトップ環境におけるグラフィックインターフェースに対するニーズを強化しています。
AC' 97 オーディオコーデック	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しています。このほかに、アナログラインレベルのステレオ入力にも対応しています。
拡張オプション	このメインボードには次の拡張オプションがあります: • 5つの32ビットPCIスロット • 1つのAGPスロット (1.5V AGPインターフェースのみ対応) • 通信ネットワークライザ (CNR) スロット (AC97インターフェースのみ) • 4つのIDEチャンネルとフロッピーディスクドライブインターフェースに対応した2つのIDEコネクタ S746FXは33/66/100 MB/秒の転送レートでUltra DMAバスマスタリングに対応しています。
Sil3112Aシリアル ATA (オプション)	• 統合シリアルATAリンクとPHYロジック • シリアルATA 1.0仕様準拠 • 2つの独立したATAチャンネルに対応 • 1.5Gb/秒のシリアルATAジェネレーション1転送速度に対応 • レシーバーがスプレッドスペクトラムに対応 • シングルPLL構造、両方のポートに1 PLL搭載
オンボードLAN (オプション)	Realtek RTL8100B LANチップは10/100Mbps高速イーサネットコントローラ及び統合イーサネットPCI LAN機能を持つメインボードを提供するチップセットを搭載しています。
	RTL8201BLはMII (Media Independent Interface)/SNI (Serial Network Interface) を持つ高速イーサネットPhyceiverです。ネットワークインターフェースアダプタ、MAU、CNR、ACR、イーサネットハブ、イーサネットスイッチとして使用することができます。
IEEE 1394A コントローラインターフェース (オプション)	• IEEE 1394-1995高性能シリアルバスとP1394a draft 2.0標準に完全対応 • 100Mbits/秒、200Mbits/秒、400Mbits/秒で1つの対応ケーブルポートを提供 • バスの利用率を高めるための調整ショートバスリセットに対応 • データインターフェースからリンクレイヤーコントローラへの2/4/8パラレルライン (50Mbits/秒) • バッテリ給電アプリケーション用の省電力シャットダウ

	ン機能

統合の入出力ポート	このメインボードはフルセットのI/Oポートおよびコネクタを搭載しています。 • マウスとキーボード用の2つのPS/2ポート • 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 • 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	この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AMI BIOSを採用しています： • 電源管理 • Wake-up警告 • CPUパラメータ • CPUおよびメモリのタイミング この他に、各種プロセッサクロック速度のパラメータを設定することができます。

품목 목록

다음 품목들이 메인보드 패키지에 모두 포함되어 있는지 확인해 보십시오:

표준 품목

- 메인 보드 1개
- 디스켓 드라이브 리본 케이블 1개
- IDE 드라이브 리본 케이블 1개
- 자동 설치 소프트웨어 지원 CD 1개
- 뒷패널 I/O 실드 1개
- 리텐션 모듈 1개
- 본 사용자 설명서

기능

프로세서	이 메인보드는 133/166 MHz frontside bus (FSB) 를 지원하는 AMD 462 핀 소켓 A를 사용한다.
칩셋	SiS746 및 SiS963/963L 칩셋은 혁신적이고 범위성을 지닌 아키텍처를 바탕으로 하여 인정된 신뢰성과 성능을 지닌다. 이 칩셋의 주요 특징은 다음과 같다: • AMD 소켓 A CPU 지원: 133/166 MHz • 동기/비동기 Host-t-DRAM 타이밍: 133/200, 133/266, 133/333, 166/266, 166/333 • 200/266/333 DDR SDRAM 지원 • 최대 2 개의 unbuffered DIMM DDR333 또는 3 개의 unbuffered 양면 DIMM DDR266/200 지원 • AGP v3.0 호환 • Bi-directional 16 비트 데이터 버스 • 133MHz x 4 모드에서 1 GB/s 성능 • PCI 2.2 사양 호환 • Read Pipelined Streaming 의 통합 멀티 트래드 I/O 링크 마스터링 • PHY registers 액세스를 위한 Enhanced Software 및 Automatic schemes 지원 • Ultra DMA 33/66/100/133 지원 • USB v2.0 및 Enhanced Host Controller Interface (EHCI) v1.0 호환 그 밖의 주요 특징으로 6 개의 USB 포트, 패스트 이더넷 MAC 컨트롤러, AC97 인터페이스, IEEE 1394 호스트 컨트롤러 *(SiS963L Southbridge 칩셋 에외)*, 고급 전원 관리, 통합 DMA 컨트롤러 및 키보드 컨트롤러를 지원한다.
메모리	• DDR을 최대 200/266/333 MHz SDRAM 메모리 모듈 지원 • 3 개의 unbuffered 2.5V 184 핀 슬롯 사용 • 각 슬롯은 최대 1 GB 지원. 총 최대 용량은 3 GB

AGP	S746FX는 기존AGP 사양보다 8배의 대역폭을 제공하는 AGP 슬롯이 포함되어 있다. AGP 3.0 (8xAGP) 은 AGP2.0의 기능을 보강한 월등한 성능을 제공한다. 이 인터페이스는 기존 AGP의 자연적 진화로 워크스테이션과 데스크 탑 환경에서 대폭 증가된 그래픽 인터페이스의 요구 조건을 만족시킨다.
AC' 97 오디오 코덱	AC' 97 오디오 코덱은 AC' 97 2.2 사양과 호환하며, 18 비트 ADC (아날로그 디지털 전환기) 와 DAC (디지털 아날로그 전환기) 해결 및 독립적이고 다양한 샘플링 속도를 지닌 18 비트 스테레오 full-duplex 코덱을 지원한다. 그 외에도 4 개의 아날로그 라인 레벨 스테레오 입력을 지원한다.
확장 옵션	이 메인보드는 다음과 같은 확장 옵션이 있다: • 32 비트 PCI 슬롯 5 개 • AGP 슬롯 1 개 (1.5V AGP 인터페이스만 지원) • Communications Network Riser (CNR) 슬롯 1 개 (AC97 인터페이스에만 해당) • 4 개의IDE 채널 및 1 개의 플로피 디스크 드라이브 인터페이스를 지원하는2 개의 IDE 커넥터 S746FX 는 전송 속도 33/66/100 MB/sec 의 Ultra DMA bus mastering 을 지원한다.
Sil3112A Serial ATA (선택 사항)	• 통합 시리얼 ATA 링크 및 PHY 로직 • 시리얼 ATA 1.0 사양과 호환 • 2 개의 독립 시리얼 ATA 채널 지원 • 전송 속도 1.5Gb/s의 시리얼 ATA Generation 1 지원 • 리시버의 Spread Spectrum 지원 • 싱글 PLL 아키텍쳐, 두 포트에 1 PLL
Onboard LAN (선택 사항)	Realtek RTL8100B LAN칩은 메인보드에 10/100Mbps 패스트 이더넷 컨트롤러 및 통합 이더넷 PCI LAN 성능을 제공하는 칩셋을 사용한다.
	RTL8201BL은 MII (Media Independent Interface)/SNI (Serial Network Interface) 를 지닌 패스트 이더넷 Phyceiver이다. 이것은 네트워크 인터페이스 어댑터, MAU, CNR, ACR, 이더넷 허브 및 이더넷 스위치로 사용될 수 있다.
IEEE 1394A 컨트롤러 인터페이스 (선택 사항)	• 고성능의 시리얼 버스를 위한 IEEE1394-1995 규정 및 P1394a draft 2.0 표준 지원 • 1개의 100Mbits/s, 200Mbits/s, 및 400Mbits/s의 호환 케이블 포트 제공 • 버스 기능 개선을 위한 arbitrated short bus reset 지원 • 50Mbits/s로 2/4/8 패러럴 라인을 통해 제공되는 link-layer 컨트롤러의 데이터 인터페이스 • 배터리 사용 어플리케이션에서 에너지 보존을 위한 절전 기능 지원
통합 I/O	이 메인보드에는 풀 세트의 I/O 포트와 커넥터가 있다: • 마우스와 키보드용 PS/2 포트 2 개 • 시리얼 포트 2 개 • VGA 포트 1 개

	• 패러럴 포트 1 개 • USB 포트 2개 • LAN 포트 1 개 (선택 사항) • 마이크용 오디 오 잭, line-in 과 line-out
BIOS 펌웨어	이 메인 보드는 AMI BIOS 를 사용하여 사용자는 다음과 같은 시스템 기능을 구성할 수 있다: • 전원 관리 • 기상 알람 • CPU 파라미터 및 메모리 타이밍 • CPU 및 메모리 타이밍 펌웨어는 다른 프로세서의 클럭 속도 설정에도 사용할 수 있다.

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
- 磁碟機排線一條
- IDE磁碟機排線一條
- 自動安裝CD一片
- 後控制面板輸出入(I/O)擋板一片
- 固定模組一個
- 本使用手冊

性能

處理器	本主機板採用AMD 462針Socket A，可支援133/166 MHz 前端匯流排。
晶片組	SiS746以及SiS963/963L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。本晶片組的特點包含如下： • 支援Socket A AMD處理器: 133/166 MHz • 支援同步/非同步主DRAM 時序方式: 133/200, 133/266, 133/333, 166/266, 166/333 • 支援200/266/333 DDR SDRAM • 支援高達2個無緩衝DIMM DDR333或高達3個無緩衝雙面DIMM DDR266/200 • 相容於AGP v 3.0 • 支援16位元雙向資料匯流排 • 133MHz x4模式下具有每秒1GB之效能 • 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 • 支援加強型軟體以及自動機制連結實體層之暫存器 • 支援Ultra DMA 33/66/100/133 • 相容於USB v2.0 及加強型主控控制器介面 (EHCI) v1.0 另外主要功能包括支援6個USB埠,高速乙太媒體存取控制層, AC97介面,IEEE 1394主控制器 (除了SiS963L南橋晶片組), 加強型電源管理,內建DMA控制器和鍵盤控制器。
記憶體	• 支援DDR高達200/266/333 MHz 之SDRAM記憶體模組 • 搭配有3個無緩衝2.5v 184針之插槽 • 各插槽可支援1GB，即本主機共可支援高達3GB的記憶體容量
AGP	本主機板S746FX配備有一個AGP插槽，能夠支援爲舊型AGP規格

	8倍之頻寬。此AGP 3.0 (8xAGP) 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。

AC’ 97 音效解碼/編碼器	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，也支援類比式立體4聲道之輸入。
擴充選項	主機板機載有下列擴充選項: • 5個32位元PCI插槽 • 1個AGP插槽 (僅支援1.5伏特電壓規格之AGP介面) • 1個通訊網路附加卡(Communications Network Riser, CNR)插槽 (僅支援AC97介面) • 2個IDE連接器，可支援4個IDE通道及1個軟碟機介面 S746FX也支援Ultra DMA 匯流排主控功能，可提供33/66/100 MB/sec之傳輸速率。
Sil3112A Serial ATA (選購)	• 結合Serial ATA Link以及實體層邏輯 • 相容於Serial ATA 1.0之規格 • 支援2個獨立型Serial ATA管道 • 支援傳輸速率每秒1.5Gb之Serial ATA Generation 1 • 支援具偵測能力之展頻接收器 • 單一鎖向迴路(Phase-Locked Loop, PLL)架構，所有埠於一個PLL
機載LAN (選購)	Realtek RTL8100B LAN 晶片已整合在晶片組內，提供本主機板10/100 Mbps 傳輸速率高速乙太網路控制器以及內建之乙太PCI區域網路功能。
	RTL8201BL係一具有媒體無關介面/串列網路介面 (MII/SNI)之高速乙太網路收發器。可作爲網路介面配接器、MAU、CNR、ACR、乙太集線器、和乙太交換器。
IEEE 1394A 控制卡介面 (選購)	• 能夠提供IEEE 1394-1995更高效率的序列匯流排功能，並亦能完全支援1394 a draft 2.0 標準 • 提供1個支援高達100/200和400 Mbits傳輸速度之纜線埠 • 支援仲裁型短匯流排之重設操作，能夠提升匯流排之功效 • 資料介面至連結層控制器間，提供有傳輸速度高達每秒50 M位元之2/4/8平行線路 • 支援斷電功能，以便在系統以電池做爲電源時，節省電力
整合的輸入出功能	本主機板完整地支援各種 I輸出入及連接器： • 2個 PS/2 埠，分供滑鼠及鍵盤連接 • 2個串列埠 • 1個平行埠 • 1個MIDI/遊戲埠 • 2個USB埠 • 1個LAN埠 • 麥克風、line-in及line-out音效端

BIOS 韌體	本主機板使用了AMI 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 • 喚醒警示 • CPU參數及記憶體定時 • CPU及記憶體的定時 本BIOS也可用以設定各種有關處理器頻率的參數。

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
- 一条磁盘驱动器带状电缆
- 一条 IDE 驱动器带状电缆
- 一张自动安装软件支持光盘
- 一个后面板 I/O 防护罩
- 一个保持模块
- 本用户手册

特性

处理器	主板使用 AMD 462-pin 插槽，支持 133/166 MHz 前端总线 (FSB)。
芯片组	SiS746 和 SiS963/963L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。此芯片具有以下一些高级功能： • 支持 AMD Socket A CPU： 133/166 MHz • 同步/异步 Host-t-DRAM 定时： 133/200, 133/266, 133/333, 166/266, 166/333 • 支持 200/266/333 DDR SDRAM • 支持 2 个非缓冲 DIMM DDR333 内存或 3 个非缓冲双面 DIMM DDR266/200 内存 • 兼容 AGP v3.0 • 双向 16 位数据总线 • 133MHz x 4 模式下1 GB/s 性能 • 符合 PCI 2.2 规格 • 集成了具有 Read Pipelined Streaming 的多线程 I/O 链路主控 • 支持增强软件和自动方案以访问 PHY 寄存器 • 支持 Ultra DMA 33/66/100/133 • 兼容 USB v2.0 和增强主控制器接口 (EHCI) v1.0 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 1394 主控制器（*SiS963L 南桥芯片组除外*）、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 的 SDRAM 内存模块 • 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	S746FX 包括一个 AGP 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。

AC’ 97 Audio Codec	AC’ 97 Audio codec 兼容 AC’ 97 2.2 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 • 1 个 AGP 插槽（只支持 1.5V AGP 接口） • 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 S746FX 支持 Ultra DMA 总线控制，传输速率可达 33/66/100 MB/sec。
Sil3112A 串行 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
Onboard LAN（可选）	Realtek RTL8100B LAN 芯片包含在芯片组中，能够为主板提供 10/100Mbps 高速以太网控制器和集成的以太网 PCI LAN 功能。
	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、以太网集线器和以太网交换机来使用。
IEEE 1394 控制器接口（可选）	• 完全支持 IEEE1394-1995 关于高性能串行总线的规定和 P1394a draft 2.0 标准 • 提供一条兼容电缆端口，传输速率达 100/200/400 Mbit/秒 • 支持判定的短总线重置以提高总线的利用率 • 通过速度为 50Mbits/s 的 2/4/8 并行线提供到链路层控制器的数据接口 • 支持省电功能，以保存电池驱动应用的能量。
集成 I/O	此主板具有完整的 I/O 端口和插孔： • 2 个用于鼠标和键盘的 PS/2 端口 • 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 AMI 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。

TABLE OF CONTENTS

Chapter 1

Introducing the Mainboard

Introduction

Thank you for choosing the S746FX mainboard. The S746FX is designed to fit the advanced AMD processors in the 462-pin package. Based on the ATX form factor featuring the SiS746 Northbridge and SiS963/963L Southbridge chipsets. This mainboard provides the standard 133/166MHz front side bus with for high-end business or personal desktop markets.

The mainboard incorporates the SiS746 Northbridge and SiS963 Southbridge chipsets. The SiS746 Northbridge features the S2K complaint bus driver technology to support AMD 133/166 MHz FSB processor. It also supports the AMD PowerNow!™ dynamic power management technique. The Memory Controller can support DDR and offer bandwidth up to 2.7GB/s under DDR333 in order to sustain the bandwidth demand from host processor, as well as the multi I/O masters and AGP masters. While the SiS963/963L Southbridge integrates the Universal Serial Bus 2.0 Host Controllers, 1394a *(except for SiS963L)* and Audio Controller with AC 97 interface.

The S746FX is designed to give customers an advanced, multimedia solution at a very low cost. It provides advanced full set of I/O ports, such as dual channel IDE interfaces, a floppy controller, two high-speed serial port, an EPP/ECP capable bi-directional parallel port connector, four USB (Universal Serial Bus) connector, a PS/2 keyboard, mouse and 1394a connectors. One AGP slot, five PCI local bus slots and one communication and networking riser (CNR) slot provide expandability for add-on peripheral cards.

Note: SDRAM provides 800 MBps or 1 GBps data transfer depending on whether the bus is 100 MHz or 133 MHz. Double Data Rate SDRAM (DDR SDRAM) doubles the rate to 1.6 GBps or 2.7 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 DIMM modules rather than the 168-pin DIMMs used by SDRAM.

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
- This user's manual

Features

Processor	The mainboard uses an AMD 462-pin Socket A that supports 133/166 MHz frontside bus (FSB).
Chipset	The SiS746 and SiS963/963L chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are: • Supports AMD Socket A CPU: 133/166 MHz • Synchronous/Asynchronous Host-t-DRAM timing: 133/200, 133/266, 133/333, 166/266, 166/333 • Supports 200/266/333 DDR SDRAM • Supports up to 2 unbuffered DIMM DDR333 or up to 3 unbuffered double-sided DIMM DDR266/200 • AGP v3.0 Compliant • Bi-directional 16 bit data bus • 1 GB/s performance in 133MHz x 4 mode • PCI 2.2 Specification Compliance • Integrated Multithreaded I/O Link Mastering with Read Pipelined Streaming • Supports Enhanced Software and Automatic schemes to access PHY registers • Supports Ultra DMA 33/66/100/133 • USB v2.0 and Enhanced Host Controller Interface (EHCI) v1.0 compatible Additional key features include support for six USB ports, Fast Ethernet MAC controller, AC97 interface, IEEE 1394 host controller *(except for SiS963L Southbridge chipset)*, 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 S746FX includes an AGP 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.
AC' 97 Audio Codec	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 • One 4x/8x AGP slot (supports 1.5V AGP Interface only) • A Communications Network Riser (CNR) slot (AC97 interface only)

	• Two IDE connectors which support four IDE channels and a floppy disk drive interface The S746FX supports Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec.
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
Onboard LAN (optional)	The Realtek RTL8100B LAN chip is incorporated in the chipset providing the mainboard with 10/100Mbps fast Ethernet controller and integrated Ethernet PCI LAN capabilities.
	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, and Ethernet Switch.
IEEE 1394A Controller Interface (optional)	• Fully support provisions of IEEE1394-1995 for High-Performance Serial Bus and the P1394a draft 2.0 standard • Provides one compliant cable port at 100Mbits/s, 200Mbits/s, and 400Mbits/s • Supports arbitrated short bus reset to improve utilization of the bus • Data interface to link-layer controller provided through 2/4/8 parallel lines at 50Mbits/s • Support power-down feature to conserve energy in battery powered applications
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 port • 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 AMI 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

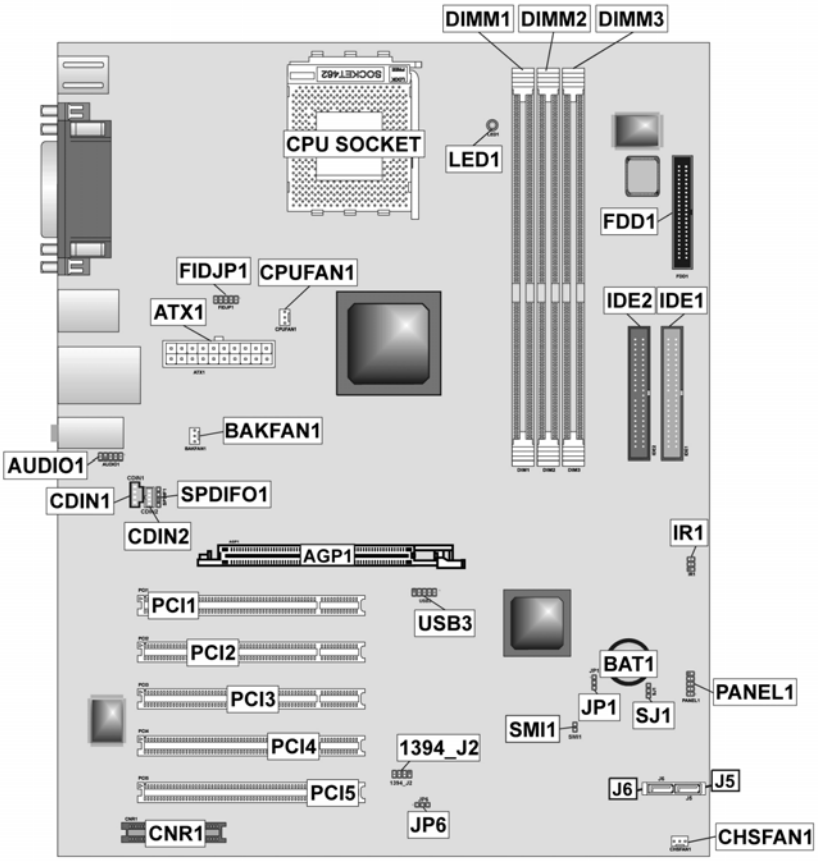


Table of Mainboard Components

Label	Component
1394A-J2	IEEE 1394A header
AGP1	Accelerated Graphics Port
ATX1	Standard 20-pin ATX power connector
AUDIO1	Front audio connector
BAT1	Three volt realtime clock battery
BAKFAN1	Case fan connector 2
CHSFAN1	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
CHSFAN1	Chassis Fan connector
CPUFAN1	Cooling fan for CPU
DIMM1, DIMM2, DIMM3	Three 184-pin DDR SDRAM
FDD1	Floppy disk drive connector
FIDJP1	CPU ratio selector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
IR1	Infrared port
SMI1	System Management Interrupt
J5/J6	Serial ATA header
JP1	Clear CMOS jumper
JP6	Serial ATA 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
SJ1	Single color LED header
SPEAKER1	Speaker connector
SPDIFO1	SPDIF out header
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.

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:

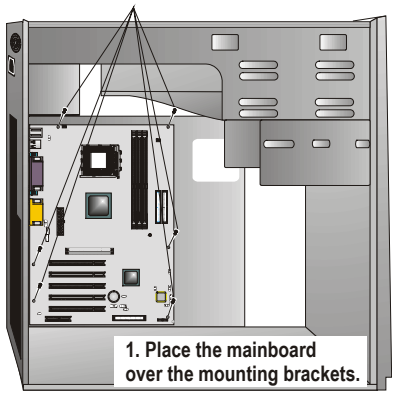
Installing the Mainboard in a Case

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.

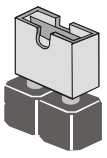
Checking Jumper Settings

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

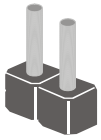
Setting Jumpers

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.

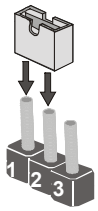


Short



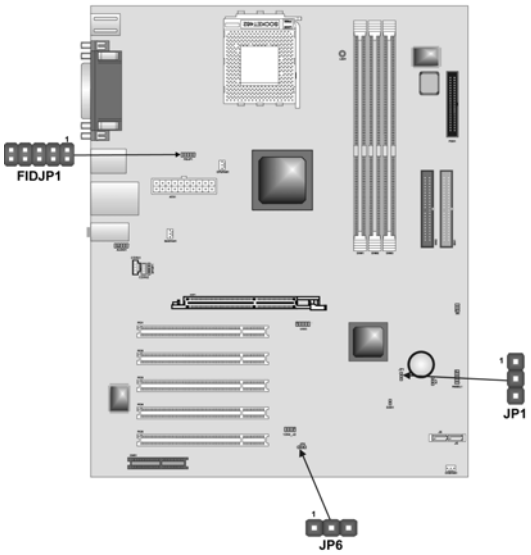
Open

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



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* 
JP6	3-pin	SATA HDD	1-2: Enable *2-3: Disable* 
FID JP1	10-pin	CPU ratio selector	Refer to the table on the next page.

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.

Jumper 6 – Use this jumper to disabled or enabled the Serial ATA

function.

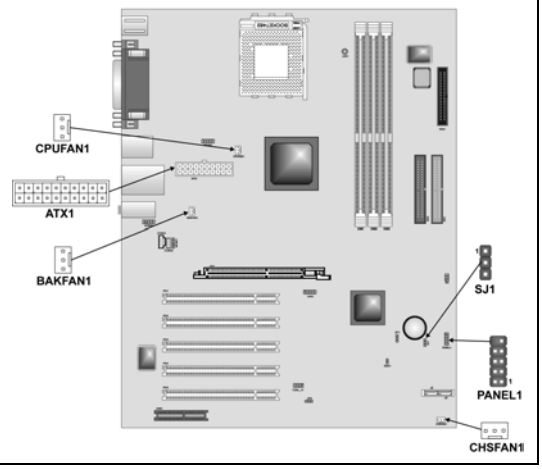
FIDJP1 – Sets the CPU ratio. Refer to the following table.

1-2	3-4	5-6	7-8	9-10	Ratio
Short	—	—	—	—	By CPU
Open	Open	Open	Open	Open	10.5
Open	Open	Open	Open	Short	6.5
Open	Open	Open	Short	Open	8.5
Open	Open	Open	Short	Short	12.5
Open	Open	Short	Open	Open	9.5
Open	Open	Short	Open	Short	5.5
Open	Open	Short	Short	Open	7.5
Open	Open	Short	Short	Short	11.5
Open	Short	Open	Open	Open	10.0
Open	Short	Open	Open	Short	6.0
Open	Short	Open	Short	Open	8.0
Open	Short	Open	Short	Short	12.0
Open	Short	Short	Open	Open	9.0
Open	Short	Short	Open	Short	5.0
Open	Short	Short	Short	Open	7.0
Open	Short	Short	Short	Short	11.0

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 standard power supply connector to **ATX1**.
2. Connect the CPU cooling fan cable to **CPUFAN1**.
3. Connect the power cooling fan connector to **BAKFAN1**.
4. Connect the chassis cooling fan connector to **CHSFAN1**.
5. Connect the case LED cable to **SJ1**.
6. Connect the case switches and indicator to **PANEL1**.



CPUFAN1/BAKFAN1/CHSFAN1: FAN Power Connectors

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

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

SJ1: Single color LED header

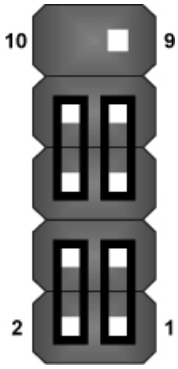
Pin	Signal Name	Function
1	ACPI LED	MSG LED (-) green
2	ACPI LED	MSG LED (-) green
3	SB5V	Power LED (+)

ACPI LED function:

SJ1  1	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:



PANEL1

Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED (positive)
2	FP PWR/SLP	MSG LED [dual color or single color (+)]
3	HD_LED_N	Hard disk active LED (negative)
4	FP PWR/SLP	MSG LED [dual color or single color (-)]
5	RST_SW_N	Reset Switch
6	PWR_SW_P	Power Switch
7	RST_SW_P	Reset Switch
8	PWR_SW_N	Power Switch
9	RSVD	Reserved
10	NC	No pin

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

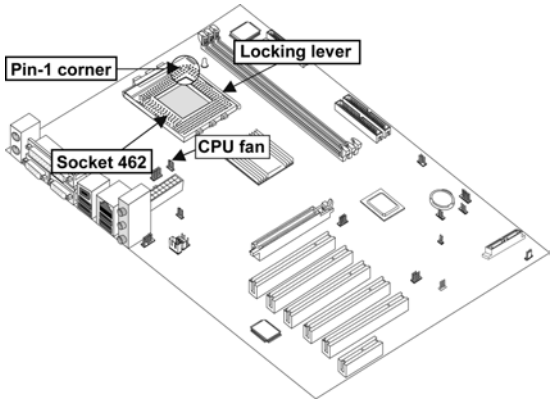
This mainboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the mainboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not overclock processors 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 462 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.

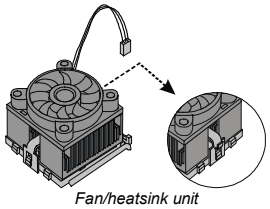
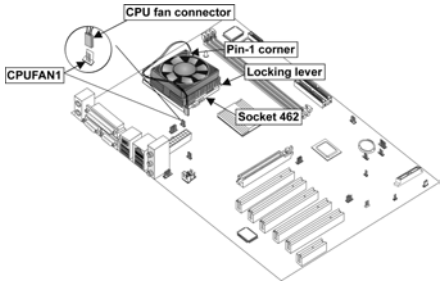
CPU Installation Procedure

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.	Pull the CPU socket locking lever away from the socket to unhook it and raise the locking lever to the upright position.	
2.	Match the corner on the CPU marked with an arrow with pin A-1 on the CPU socket (the corner with the pinhole noticeably missing). Insert the processor into the socket. Do not use force.	
3.	Swing the locking lever down and hook it under the latch on the edge of the socket.	
4.	Apply thermal grease to the top of the CPU.	
5.	Lower the CPU cooling fan/heatsink assembly onto the CPU	
6.	Secure the two retention clips on either side of the fan/heatsink unit onto the Socket 462 base.	 *Fan/heatsink unit secured to socket*
7.	Connect the CPU Cooling Fan power cable connector to the CPUFAN connector.	

Notes:

- To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least.
- 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.

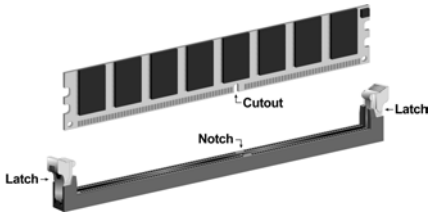
Installation Procedure

Refer to the following to install the memory modules.

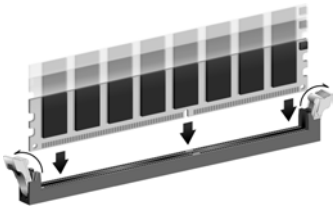
1. This mainboard supports unbuffered DDR SDRAM only. Do not attempt to insert any other type of DDR SDRAM into the slots.

2. Push the latches on each side of the DIMM slot down.

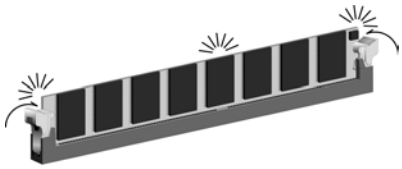
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.



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.

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.

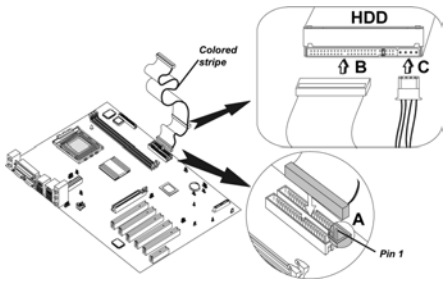
If you want to install more than two IDE devices, get a second IDE cable and you can add two more devices to the secondary IDE channel.

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

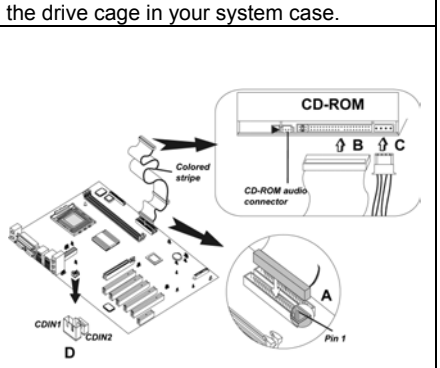
This mainboard supports UltraDMA 66/100/133. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100/133.

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.

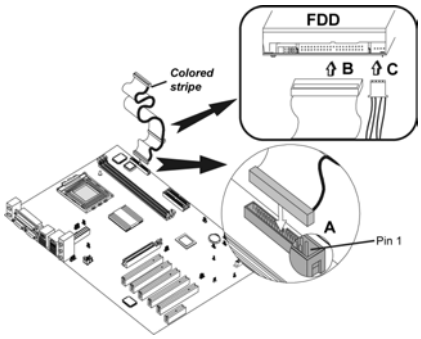
Installing a CD-ROM/DVD Drive

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

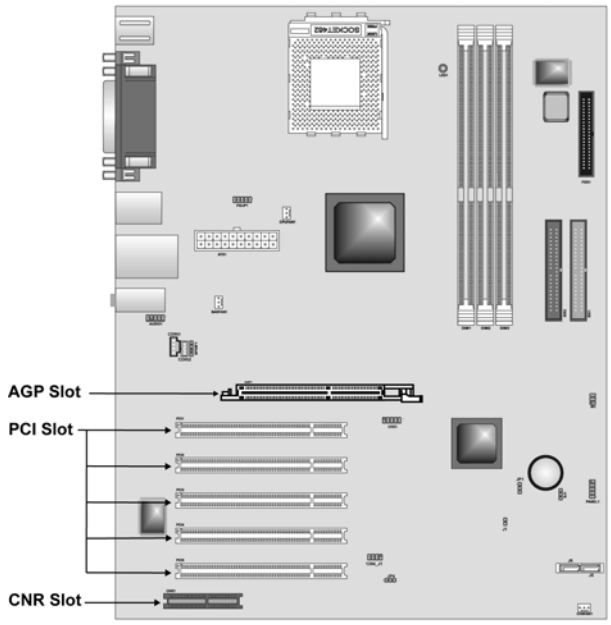
The mainboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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

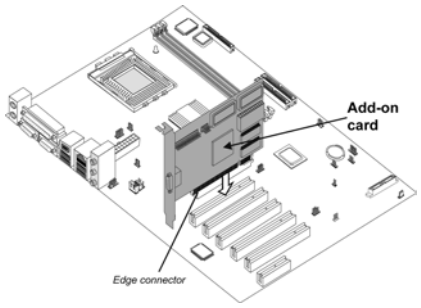
AGP Slot The AGP slot is used to install graphics adapter that supports the 1.5V 8x AGP card which is also backward compatible with 4x AGP card.

> **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.

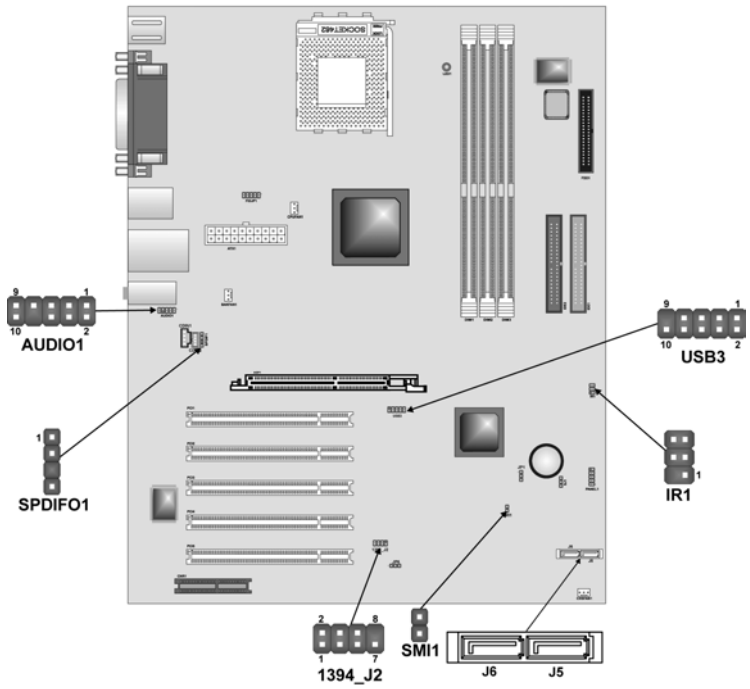
Follow these instructions to install an add-on card:

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 header

This header 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 Headphone 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

USB3: Front panel USB connectors

The mainboard has four 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 connector 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	Not assigned	Not assigned

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

SPDIFO1: 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_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

J6/J5: Serial ATA header

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.

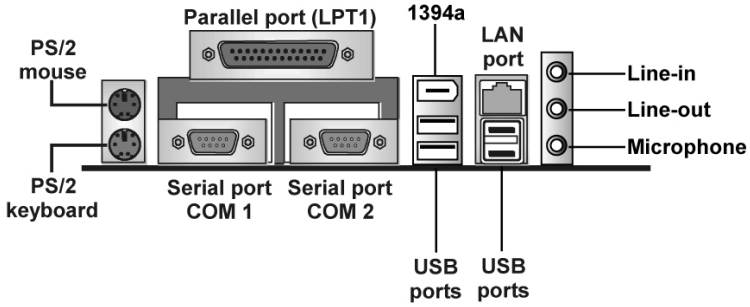
SMI1: System Management Interrupt

This connector is for use with SMI hardware interrupt power management.

Pin	Signal Name	Function
1	-EXTSMI	Sleep button
2	GND	Ground

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.
1394a Port (optional)	Use the 1394a port to connect any Firewire device.
Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.
LAN Port (optional)	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
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 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.

BIOS Navigation Keys

You can use the cursor arrow keys to highlight any of the options on the main menu page. Press **Enter** to select the highlighted option. To exit the setup utility, press the **Escape** key. To cycle through the Setup Utility's optional color schemes press down the **F2/F3**.

Some of the options on the main menu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each item. Other options on the main menu page lead to dialog boxes that require you to answer Yes or No by hitting the Y or N keys.

If you have already made changes to the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility with a set of high-performance values.

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>.

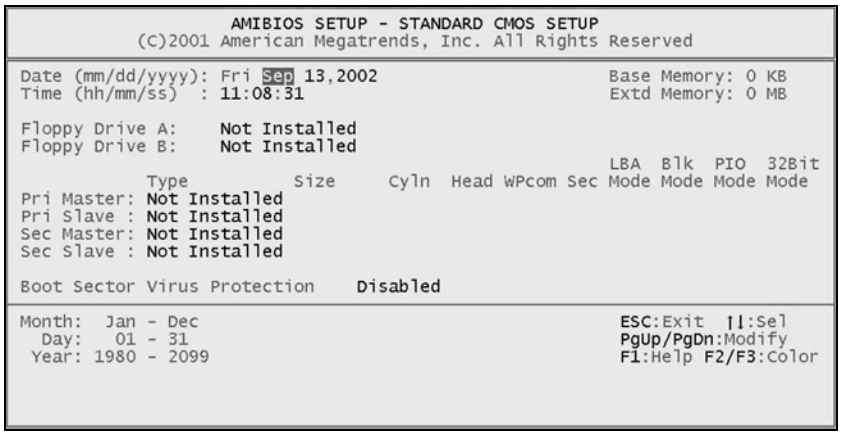
Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

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 Setup

The Standard CMOS setup is used to modify basic system configuration data, such as date, time floppy and hard disk drive types, video type and keyboard.



Date & Time

Use these items to set the system date and time.

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.

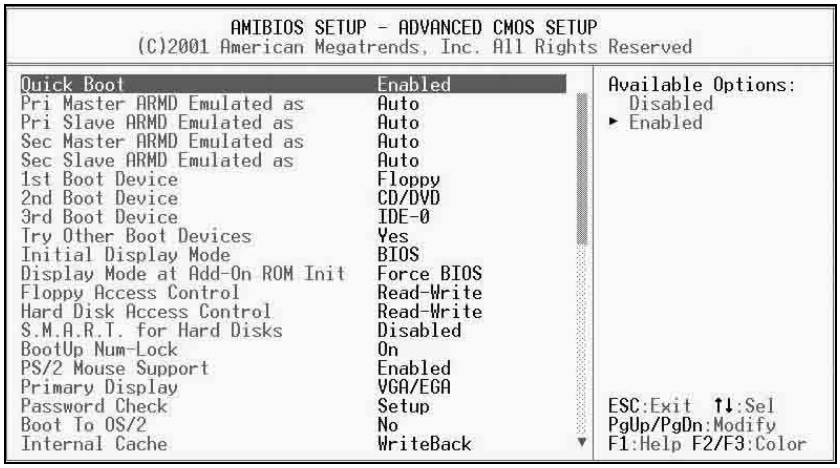
Pri Master/Pri Slave/Sec Master/Sec Slave

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*.

Advanced CMOS Setup

The Advanced CMOS setup is used to control advanced system information such as hardware access and boot settings.



Quick Boot (Enabled)

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

Pri/Sec Master ARMD Emulated as (Auto)

Pri/Sec Slave ARMD Emulated as (Auto)

These four options ensure that, if you have an ARMD attached as a master or slave device, it can properly detected by the system.

1st Boot Device/2nd Boot Device/3rd Boot Device (Disabled)

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 Devices (Yes)

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.

Initial Display Mode (BIOS)

This option specifies the initial display mode when the system boots.

Display Mode at Add-On ROM Init (Force BIOS)

This option allows OEM logo to show during boot-up.

Floppy Access Control (Read-Write)

This option specifies the read/write access that is set when booting from a floppy drive.

Hard Disk Access Control (Read-Write)

This option specifies the read/write access that is set when booting from a hard disk drive.

S.M.A.R.T for Hard Disks (Disabled)

Set this option to Enabled to permit the BIOS to use the SMART (System Management and Reporting Technologies) protocol for reporting server system information over a network. Enabling this feature allows you to back up your data when your hard disk is about to fail. If a password has been set for the supervisor, this item will not be visible for the user.

BootUp Num-Lock (On)

Set this option to Off to turn the Num Lock key off when the computer is booted you can use the arrow keys in both the numeric keypad and the keyboard.

PS/2 Mouse Support (Enabled)

Set this option to Enabled to enable the BIOS support for a PS/2-type mouse. The BIOS will allocate IRQ12 for the PS/2 mouse.

Primary Display (VGA/EGA)

This option configures the type of monitor attached to the computer.

Password Check (Setup)

This option enables password checking every time the system boots or when you run the BIOS Setup. If you choose Always, a user password prompt appears every time the computer is turned on. If you choose Setup, the password prompt appears if the BIOS is executed.

Boot To OS/2 (No)

Set this option to Enabled if running an OS/2 operating system and using more than 64 MB of system memory on the mainboard.

Internal Cache (Write Back)

This option sets the type of caching algorithm used by the L1 internal cache memory on the CPU.

External Cache (Write Back)

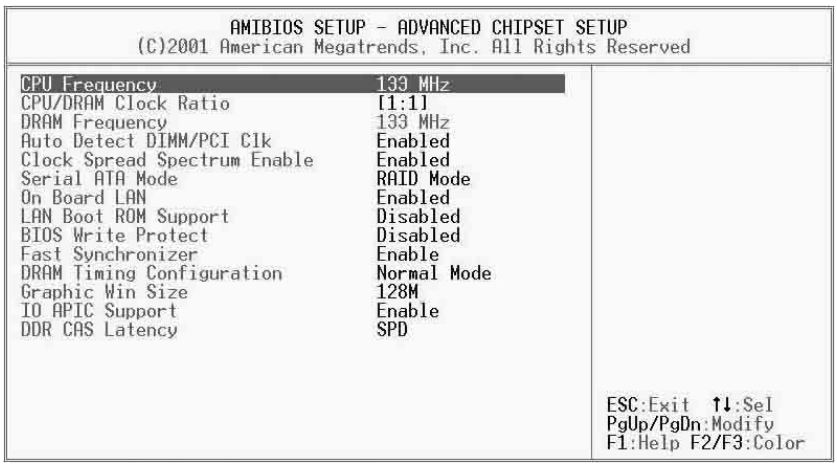
This option sets the type of caching algorithm used by the L1 external cache memory on the CPU.

System BIOS Cacheable (Disabled)

When set to Enabled, the contents of the F0000h system memory segment can be read from or written to cache memory. If parts of the BIOS ROM are frequently used, these parts are copied to cache memory for faster execution.

Advanced Chipset Setup

The Advanced Chipset Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer. You should leave the items on this page at their default values, if you change the values incorrectly, you may introduce fatal errors or recurring instability into your system.



Current Frequency (133 MHz)

This item displays the current frequency. This is a display-only item. You cannot make changes to this field.

CPU/DRAM Clock Ratio ([1:1])

Enables you to set the CPU and DRAM clock.

DRAM Frequency (133 MHz)

This item displays the memory (DRAM) frequency. This is a display-only item. You cannot make changes to this field.

Auto Detect DIMM/PCI Clk (Enabled)

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

Clock Spread Spectrum Enable (Enabled)

The Clock Spread Spectrum significantly reduces the EMI (Electro Magnetic Interference) generated by the system.

Serial ATA Mode Select (RAID Mode)

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

On Board LAN (Enabled)

Enables and disables the onboard LAN.

LAN Boot ROM Support (Disabled)

Use this item to enable and disable the booting from the onboard LAN with a remote boot ROM installed.

BIOS Write Protect (Disabled)

This option protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you'll need to disable this BIOS Write Protect function.

Fast Synchronizer (Enable)

This option enables you to adjust the timing between CPU and DRAM to enhance performance.

DRAM Timing Configuration (Normal Mode)

The DRAM timing is controlled by the DRAM Timing Registers. The Timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

Graphic Win Size (128M)

This setting controls just how much system RAM can be allocated to AGP for video purposes.

IO APIC Support (Enable)

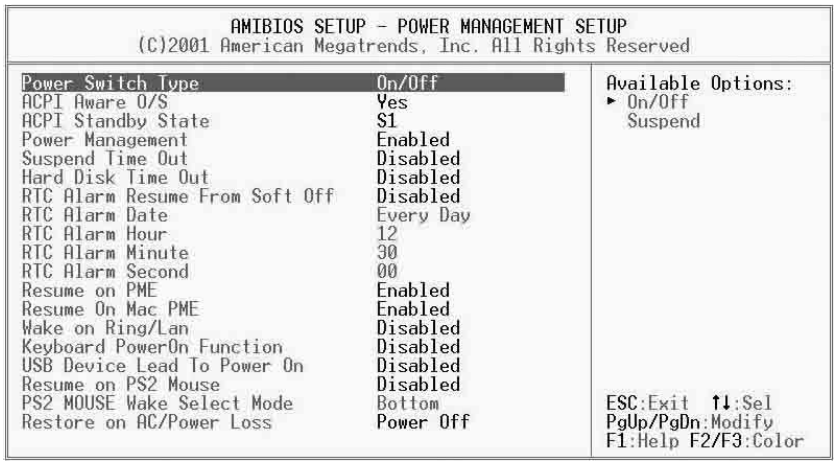
This item allows you to enable or disable the APIC (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

DDR CAS to Latency (SPD)

This item determines the operation of the DDR memory CAS (column address strobe). We recommend that you leave this item at the default value.

Power Management Setup

The Power Management Setup Menu option is used to change the values of the chipset registers for system power management.



Power Switch Type (On/Off)

This option specifies how the power button is used. In the Suspend mode, the hard disk motor is spindled down, the monitor is shut down, and the processor clock is stopped.

ACPI Aware O/S (Yes)

Set this option to Yes to enable Advanced Configuration and Power Interface (ACPI) BIOS for an ACPI-aware operating system.

ACPI Standby State (S1)

This item allows you to select the standby type under ACPI operating system.

Power Management (Enabled)

Set this option to Enabled to enable the chipset power management and APM (Advanced Power Management) features.

Suspend Time Out (Disabled)

This option defines the length of time that the system while in Standby mode, it must be inactive before it enters Suspend mode.

Hard Disk Time Out (Disabled)

This option specifies the length of period of hard disk drive inactivity. When this time period expires, the computer enters the power-conserving state specified in the Hard Disk Power Down Mode option.

RTC Alarm Resume From Soft Off (Disabled)

This option enable or disable the RTC alarm to wake up the system from Soft Off.

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.

Resume on PME (Disabled)

This option allows you to enable or disable the Resume on PME function.

Wake on Ring/LAN (Disabled)

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 PowerOn Function (Disabled)

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.

USB Device Lead To Power On (Disabled)

If you enable this item, the system can automatically resume if there is traffic on the USB device.

Resume on PS2 Mouse (Disabled)

This option allows you to enable or disable the Resume on PS2 mouse function.

PS2 MOUSE Wake Select Mode (Bottom)

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

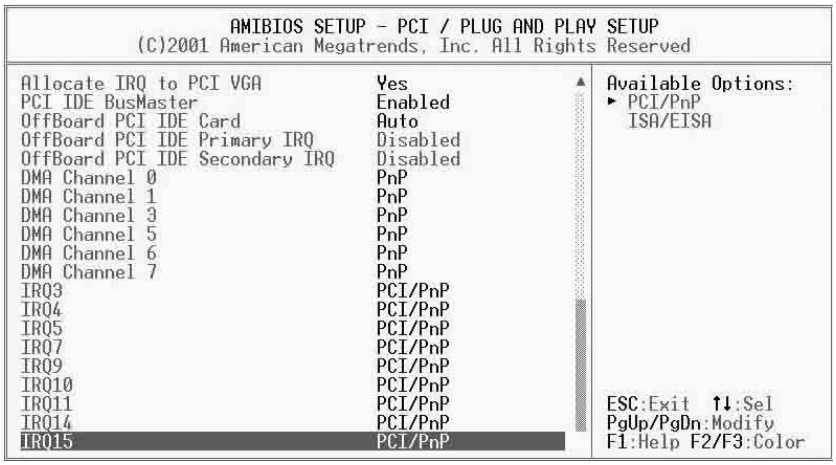
Restore on AC/Power Loss (Power Off)

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

PCI / Plug and Play Setup

This section describes configuring the PCI bus system. PCI (Peripheral Component Interconnect) is a system, which allows I/O devices to operate at speeds nearing CPU's when they communicate with own special components.

All the options describes in this section are important and technical and it is strongly recommended that only experienced users should make any changes to the default settings.



Plug and Play Aware O/S (Yes)

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

PCI IDE BusMaster (Enabled)

Set this option to Enabled to specify that the IDE controller on the PCI bus has bus mastering capability.

OffBoard PCI IDE Card (Auto)

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the mainboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled.

OffBoard PCI IDE Primary IRQ (Disabled)

This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller.

OffBoard PCI IDE Secondary IRQ (Disabled)

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller.

DMA Channel 0/1/3/5/6/7 (PnP)

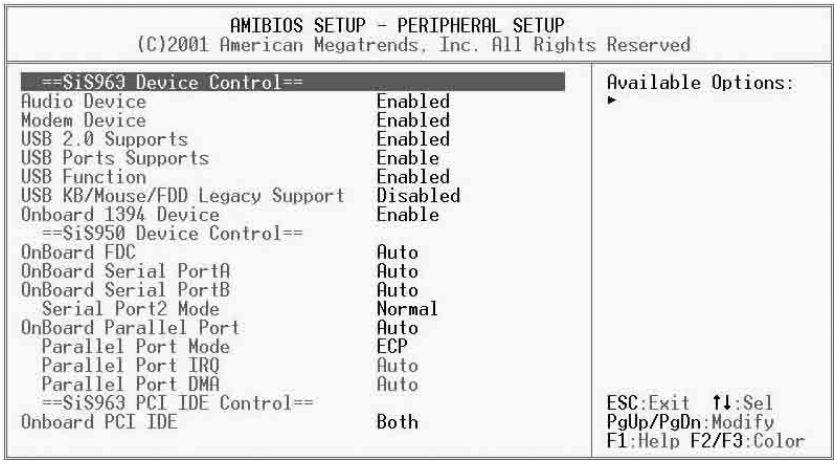
This option allows you to specify the bus type used by each DMA channel.

IRQ (PCI/ PnP)

This option specifies the bus that the specified IRQ line is used on. They allow you to reserve IRQs for legacy ISA adapter cards and determine if the BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by the BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. IRQ12 only appears if the PS/2 Mouse Support option in Advanced Setup is set to Disabled. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled.

Peripheral Setup

The Peripheral Setup menu describes I/O resources assignment for all of the on-board peripheral devices.



Audio Device (Enabled)

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

Modem Device (Enabled)

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

USB 2.0 Supports (Enabled)

This item enables or disables the onboard USB 2.0.

USB Ports Supports (Enable)

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

USB Function (Enabled)

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

USB KB/Mouse/FDD Legacy Support (Disabled)

Set this item to enable to support for older keyboard and mouse devices if the

USB option is set to enable.

Onboard 1394 Device (Enable)

Enable this item if you plan to use the onboard 1394 device.

OnBoard FDC (Auto)

Set this option to Enabled to enable the floppy drive controller on the mainboard.

OnBoard Serial PortA (Auto)

This option specifies the base I/O port address of serial port A.

OnBoard Serial PortB (Auto)

This option specifies the base I/O port address of serial port B.

Serial Port2 Mode (Normal)

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 (Auto)

This option specifies the base I/O port address for the parallel port on the mainboard.

Parallel Port Mode (ECP)

This option specifies the parallel port mode.

Parallel Port IRQ (Auto)

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

Parallel Port DMA (Auto)

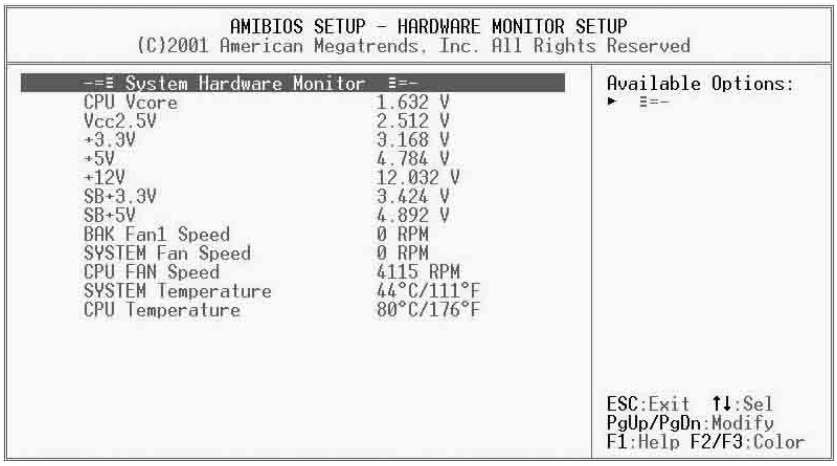
Use this item to assign a DMA channel to the parallel port. The options are 0, 1 and 3.

Onboard PCI IDE (Both)

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

Hardware Monitor Page

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



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 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.

Auto Configuration with 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.

Auto Configuration with Fail Safe Settings

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>.

Save Settings and Exit

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.

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/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.

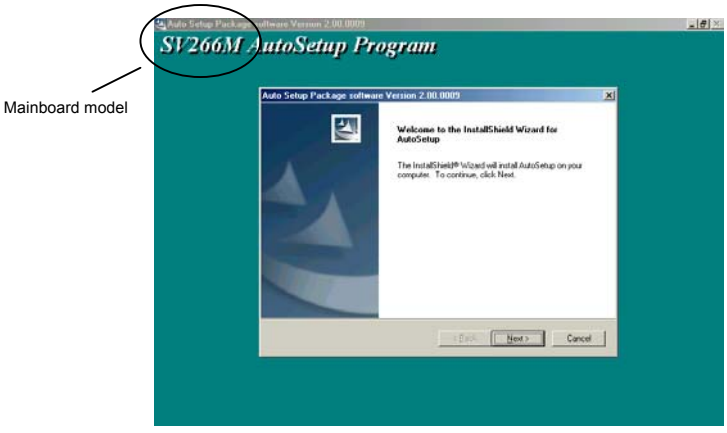
Read Me Tab

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:

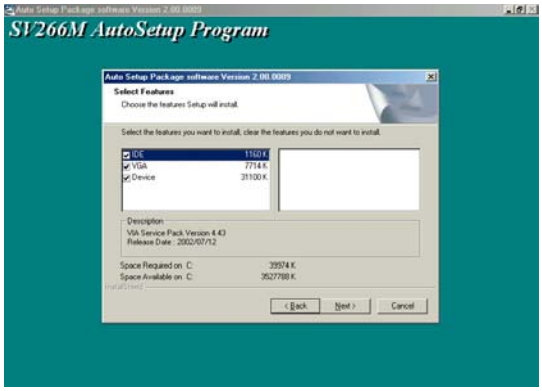
1. Click **Setup**. The installation program begins:



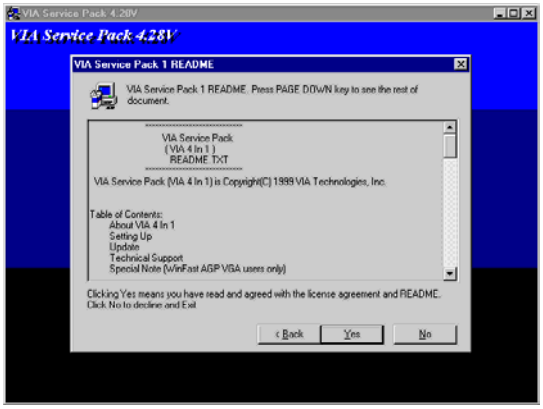
Note: The following screens are examples only. The screens and driver lists will be different according to the mainboard you are installing.

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 onscreen 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.

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.