

# Preface

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Version 1.0d

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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 Règlement sur le matériel brouilleur du Canada.

## About the Manual

The manual consists of the following:

<b>Chapter 1</b> <b>Introducing the Motherboard</b>	Describes features of the motherboard, and provides a shipping checklist.  Go to ⇒ page 1
<b>Chapter 2</b> <b>Installing the Motherboard</b>	Describes installation of motherboard components.  Go to ⇒ page 6
<b>Chapter 3</b> <b>Using BIOS</b>	Provides information on using the BIOS Setup Utility.  Go to ⇒ page 24
<b>Chapter 4</b> <b>Using the Motherboard Software</b>	Describes the motherboard software.  Go to ⇒ page 40

## Features Translations

### Caractéristiques

<b>Processeur</b>	<p>La carte mère utilise un Socket A AMD 462 broches présentant les caractéristiques suivantes:</p> <ul style="list-style-type: none"> <li>• Supporte un bus frontal (FSB) de 400/333/266/200MHz</li> <li>• Peut recevoir les CPU AMD Athlon XP/Sempron/Athlon/Duron</li> <li>• Transfert DDR (Double Data Rate) 200/166/133 MHz sur adresse CPU AMD Athlon XP/Sempron/Athlon/Duron et bus de données</li> </ul>
<b>Chipset</b>	<p>La carte mère intègre les chipsets NVIDIA® nForce™ 2 Ultra-400 Northbridge et NVIDIA® nForce™ MCP Southbridge. Quelques-unes des caractéristiques avancées du chipset sont:</p> <ul style="list-style-type: none"> <li>• Interface 800Mo/sec HyperTransport™ Haute vitesse vers le MCP Southbridge</li> <li>• Transfert DDR (Double Data Rate) 200/166/133 MHz sur adresse CPU AMD Athlon XP/Sempron/Athlon/Duron et bus de données</li> <li>• Interface 8x AGP 3.0 à 533 MHz</li> <li>• Interface compatible PCI 2.2 supportant 5 slots PCI</li> <li>• Contrôleurs fast ATA -133 IDE doubles</li> <li>• 10/100BaseT</li> <li>• Interface de Contrôleur d'Hôte Avancée USB 2.0 (EHCI)/Interface de Contrôleur d'Hôte Ouvert (OHCI)</li> <li>• Contrôleurs de Bus de Gestion Système Double (SMBus)</li> <li>• Interface AC'97 supportant jusqu'à deux codes simultanés</li> </ul>
<b>Mémoire</b>	<p>La carte mère supporte trois slots DIMM SDRAM DDR 184 broches, qui peut recevoir 3Go pour PC1600/2100/2700 (2Go pour PC3200). Elle intègre aussi le mode de canal double de transfert de données de 128 bits.</p>
<b>Graphiques</b>	<p>Cette carte mère comprend 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.</p>
<b>Audio</b>	<p>Le codec Audio AC' 97 est conforme aux spécifications AC' 97 2.2 répondant aux exigences PC2001 et supportant l'Entrée/Sortie S/PDIF. Il possède aussi une mémoire tampon intégrée et PLL interne. Les fonctionnalités comprennent le support du commutateur analogique pour sortie arrière (partagée), la prise de ligne d'entrée (partagée), centre basse (partagée), et prise MIC à la sortie audio 6 canaux.</p>
<b>Options d'Extensions</b>	<p>La carte mère est livrée avec les options d'extensions suivantes:</p> <ul style="list-style-type: none"> <li>• Cinq logements PCI 32 bits</li> <li>• Un logement AGP (supporte la carte 1.5V AGP seule-</li> </ul>

	<p>ment)</p> <ul style="list-style-type: none"> <li>• Deux connecteurs IDE supportant quatre canaux IDE et une interface de lecteur de disquette</li> </ul> <p>La carte mère supporte la maîtrise de bus Ultra DMA avec des vitesses de transfert de 33/66/100/133 Mo/sec.</p>
<b>LAN Interne (optionnel)</b>	<p>Le VT6103 est un périphérique à Couche Physique pour Ethernet 10BASE-T et 100BASE-TX utilisant des câbles Non blindés de catégorie 5, Blindés de Type 1, et à Fibres Optiques.</p> <ul style="list-style-type: none"> <li>• Double Vitesse – 100/10 Mbps</li> <li>• Half et Full Duplex</li> <li>• Conforme à tous les Standards IEEE 802.3, 10Base-T et 100Base-Tx Applicables</li> <li>• Egaliseur Adaptatif</li> </ul>
<b>E/S Intégrées</b>	<p>La carte mère possède un jeu complet de ports d'E/S et de connecteurs:</p> <ul style="list-style-type: none"> <li>• Deux ports PS/2 pour souris et clavier</li> <li>• Un port série</li> <li>• Un port parallèle</li> <li>• Quatre ports USB</li> <li>• Un port LAN</li> <li>• Prises audio pour microphone, ligne d'entrée et ligne de sortie</li> </ul>
<b>Microprogramme BIOS</b>	<p>Cette carte mère utilise Award BIOS qui permet aux utilisateurs de configurer de nombreuses caractéristiques du système comprenant les suivantes:</p> <ul style="list-style-type: none"> <li>• Gestion d'alimentation</li> <li>• Alarmes de réveil</li> <li>• Paramètres de CPU</li> <li>• Synchronisation de CPU et de mémoire</li> </ul> <p>Le microprogramme peut aussi être utilisé pour définir les paramètres pour les vitesses d'horloges de différents processeurs.</p>



Certaines spécifications matérielles et éléments de logiciels peuvent être modifiés sans avertissement.

## Features

<b>Prozessor</b>	<p>Das Motherboard verwendet einen AMD 462-Pin Socket A mit den folgenden Eigenschaften:</p> <ul style="list-style-type: none"> <li>• Unterstützung für 400/333/266/200 MHz FrontSideBus (FSB)</li> <li>• Nimmt AMD Athlon XP/Sempron/Athlon/Duron -CPU auf.</li> <li>• 200/166/133MHz DDR (Double Data Rate) Transfer auf AMD Athlon XP/Sempron/Athlon/Duron CPU-Adressen- und Datenbussen</li> </ul>
<b>Chipsatz</b>	<p>Das Motherboard verfügt über die Chipsätze NVIDIA® nForce™ 2 Ultra-400 Northbridge und NVIDIA® nForce™ MCP Southbridge. Im Folgenden werden einige der fortschrittlichen Funktionen der Chipsätze:</p> <ul style="list-style-type: none"> <li>• Hochgeschwindigkeits-HyperTransport™-Interface mit 800MB/Sek. zur MCP Southbridge</li> <li>• 200/166/133MHz DDR (Double Data Rate) Transfer auf AMD Athlon XP/Sempron/Athlon/Duron CPU-Adressen- und Datenbussen</li> <li>• 8x AGP 3.0 Interface mit 533 MHz</li> <li>• Das PCI 2.2-kompatible Interface unterstützt 5 PCI-Steckplätze</li> <li>• Dualer ATA-133 IDE-Controller</li> <li>• 10/100BaseT</li> <li>• USB 2.0 Enhanced Host Controller Interface (EHCI)/Open Host ControllerInterface (OHCI)-Controller</li> <li>• Dual System Management Bus (SMBus)- Controller</li> <li>• Das AC'97-Interface kann bis zu zwei Codes gleichzeitig unterstützen</li> </ul>
<b>Speicher</b>	<p>Das Motherboard verfügt über drei 184-Pin DDR SDRAM DIMM-Steckplätze, in die Sie bis zu 3GB PC1600/2100/2700-Speicher (2GB für PC3200) installieren können. Für 128-Bit-Datenübertragungen wird der Dualkanalmodus unterstützt.</p>
<b>Grafik</b>	<p>Das Motherboard enthält einen AGP-Steckplatz ausgestattet, der gegenüber der ursprünglichen AGP-Spezifikation über die achtfache Bandbreite verfügt. 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.</p>
<b>Audio</b>	<p>Der AC' 97 Audio-Codec entspricht der AC' 97 2.2-Spezifikation welche die PC2001-Anforderungen erfüllt und S/PDIF Ein-/Ausgang unterstützt. Er verfügt über einen eingebauten Puffer und internes PLL. Weitere Eigenschaften umfassen einen Analog-Schalter für den Hinterausgang (geteilt), Line-In Anschluss (geteilt), Center/Bass (geteilt) und einen Mikrofonstecker für 6 Kanal Audioausgabe.</p>
<b>Erweiterungsoptionen</b>	<p>Das Motherboard bietet die folgenden Erweiterungsoptionen:</p> <ul style="list-style-type: none"> <li>• Fünf 32-bit PCI-Steckplätze</li> <li>• EinenAGP-Steckplatz (unterstützt nur 1.5V AGP Interface)</li> <li>• Zwei IDE-Stecker, die vier IDE-Kanäle und eine</li> </ul>

	<p>Schnittstelle für ein Floppydiskettenlaufwerk unterstützen</p> <p>Das Motherboard unterstützt Ultra DMA Bus-Mastering mit Übertragungsraten von 33/66/100/133 MB/Sek.</p>
<b>Onboard-LAN (optional)</b>	<p>Das VT6103 ist ein Physical-Layer-Gerät für Ethernet 10BASE-T und 100BASE-TX bei Benutzung von nicht abgeschirmten Kategorie 5-Kabeln, abgeschirmten Typ 1-Kabeln und Glasfaserkabeln.</p> <ul style="list-style-type: none"> <li>• Zwei Geschwindigkeiten – 100/10 Mbps/Sek.</li> <li>• Halb- und Vollduplex</li> <li>• Entspricht allen geltenden IEEE 802.3, 10Base-T und 100Base-Tx-Standards</li> <li>• Einstellbarer Equalizer</li> </ul>
<b>Onboard-I/O</b>	<p>Das Motherboard verfügt über einen kompletten Satz von I/O-Schnittstellen und Anschlüssen:</p> <ul style="list-style-type: none"> <li>• Zwei PS/2-Schnittstellen für Maus und Tastatur</li> <li>• Eine serielle Schnittstellen</li> <li>• Eine parallele Schnittstelle</li> <li>• Vier USB - Schnittstelle</li> <li>• Eine LAN-Schnittstelle</li> <li>• Audiobuchsen für Mikrophon, Line-in und Line-out</li> </ul>
<b>BIOS Firmware</b>	<p>Dieses Motherboard verwendet Award BIOS, mit dem Anwender viele Systemeigenschaften selbst konfigurieren können, einschließlich der folgenden:</p> <ul style="list-style-type: none"> <li>• Energieverwaltung</li> <li>• Wake-up Alarm</li> <li>• CPU-Parameter</li> <li>• CPU- und Speichertiming</li> </ul> <p>Mit der Firmware können auch die Parameter für verschiedene Prozessortaktgeschwindigkeiten eingestellt werden.</p>



Bestimmte Hardwarespezifikationen und Teile der Softwareausstattung können ohne weitere Ankündigung abgeändert werden.

## Caratteristiche

<b>Processore</b>	<p>La scheda madre è dotata di un socket A AMD a 462 pin che presenta le seguenti caratteristiche:</p> <ul style="list-style-type: none"> <li>• Supporta il bus di sistema 400/333/266/200 MHz frontside (FSB)</li> <li>• Possibilità di alloggiare le CPU AMD Athlon XP/Sempron/Athlon/Duron</li> <li>• Trasferimento 200/166/133 MHz DDR (Double Data Rate) su i bus dati e indirizzo AMD Athlon XP/Sempron/Athlon/Duron CPU</li> </ul>
<b>Chipset</b>	<p>La scheda madre presenta i chipset Northbridge NVIDIA® nForce™ 2 Ultra-400 e Southbridge NVIDIA® nForce™ MCP. Alcune delle loro caratteristiche avanzate:</p> <ul style="list-style-type: none"> <li>• Interfaccia HyperTransport™ ad alta velocità (800MB/sec) nel Southbridge MCP</li> <li>• Trasferimento 200/166/133 MHz DDR (Double Data Rate) su i bus dati e indirizzo AMD Athlon XP/Sempron/Athlon/Duron CPU</li> <li>• Interfaccia 8x AGP 3.0 a 533 MHz</li> <li>• Interfaccia compatibile con lo standard PCI 2.2 in grado di alloggiare 5 PCI slot</li> <li>• Doppio controller IDE fast ATA-133</li> <li>• 10/100BaseT</li> <li>• Controller Enhanced Host USB 2.0 (EHCI)/Open Host Controller (OHCI)</li> <li>• Doppio controller Dual System Management Bus (SMBus)</li> <li>• Interfaccia AC'97 con il supporto di due codici concorrenti</li> </ul>
<b>Memoria</b>	<p>La scheda madre è dotata di slot per SDRAM DIMM DDR a 184 pin, in grado di supportare sino a 3GB per PC1600/2100/2700 (2GB nel caso di PC3200). È dotata di un doppio canale per il trasferimento dati a 128 bit.</p>
<b>Grafica</b>	<p>La scheda include uno slot AGP che fornisce otto volte la larghezza di banda delle specifiche AGP originarie. La tecnologia AGP 3.0 offre prestazioni e funzioni superiori rispetto alla tecnologia AGP 2.0. Questa interfaccia, che rappresenta una naturale evoluzione di quella esistente, è progettata per assicurare una completa compatibilità dell'interfaccia grafica con le applicazioni correnti e future, sia su workstation che su desktop.</p>
<b>Audio</b>	<p>Il codec Audio AC'97 è conforme alla specifica AC 97 2.2 che soddisfa i requisiti PC2001 e supporta l'Ingresso/Uscita S/PDFI. Inoltre ha una memoria tampone interna e PLL interno. Le caratteristiche includono supporto per interruttore analogico sull'uscita posteriore (condivisa), il jack di ingresso linea (condiviso), centrale/bassi (condivisi), e jack MIC per fornire un'uscita a 6 canali audio.</p>
<b>Opzioni di espansione</b>	<p>La scheda madre presenta le seguenti opzioni di espansione:</p> <ul style="list-style-type: none"> <li>• cinque slot PCI 32 bit</li> <li>• Uno slot AGP (supporta solo l'interfaccia 1.5V AGP)</li> <li>• Due connettori IDE che supportano quattro canali IDE e un floppy disk.</li> </ul> <p>La scheda madre supporta la gestione di canali Ultra DMA con transfert rate pari a 33/66/100/133 MB/sec.</p>

<b>LAN integrata (opzionale)</b>	<p>La scheda VT6103 è un dispositivo Physical Layer per Ethernet 10BASE-T e 100BASE-TX che usa cavi della categoria 5 non schermati, Tipo 1 schermati e ottici.</p> <ul style="list-style-type: none"> <li>• Dual Speed – 100/10 Mbps</li> <li>• Half e Full Duplex</li> <li>• Conforme a tutti gli standard applicabili IEEE 802.3, 10Base-T e 100Base-Tx</li> <li>• Equalizzatore adattivo</li> </ul>
<b>I/O integrati</b>	<p>La scheda madre è dotata di un set completo di connettori e porte I/O:</p> <ul style="list-style-type: none"> <li>• Due porte PS/2 per mouse e tastiera</li> <li>• Una porta seriale</li> <li>• Una porta parallela</li> <li>• Quattro porte USB</li> <li>• Una porta LAN</li> <li>• Jack audio per microfono e connettori ingresso/uscita Line</li> </ul>
<b>BIOS Firmware</b>	<p>Questa scheda madre utilizza il BIOS Award che permette all'utente di configurare numerose caratteristiche del sistema tra cui le seguenti:</p> <ul style="list-style-type: none"> <li>• Risparmio energetico</li> <li>• Segnali Wake Up</li> <li>• Parametri della CPU</li> <li>• Timing della memoria e della CPU</li> </ul> <p>È possibile inoltre impostare i parametri di velocità del clock del processore su diversi valori.</p>



Alcune specifiche hardware ed elementi software sono soggetti a variazioni senza preavviso.



## Características

<b>Procesador</b>	<p>El panel principal usa un AMD 462-pines Enchufe A que tiene las siguientes características:</p> <ul style="list-style-type: none"> <li>• Permite 400/333/266/200 MHz bus de lado frontal (FSB)</li> <li>• Acomoda una CPU AMD Athlon XP/Sempron/Athlon/Duron</li> <li>• Transferencia de 200/166/133 MHz DDR (Double Data Rate/Índice de Datos Doble) en dirección AMD Athlon XP/Sempron/Athlon/Duron CPU y buses de datos</li> </ul>
<b>Chipset</b>	<p>La placa principal integra los chipsets NVIDIA® nForce™ 2 Ultra-400 Northbridge y NVIDIA® nForce™ MCP Southbridge. Unas características avanzadas son:</p> <ul style="list-style-type: none"> <li>• Interfaz 800MB/seg HyperTransport™ de alta velocidad para el MCP Southbridge</li> <li>• Transferencia de 200/166/133 MHz DDR (Double Data Rate/Índice de Datos Doble) en dirección AMD Athlon XP/Sempron/Athlon/Duron CPU y buses de datos</li> <li>• Interfaz 8x AGP 3.0 en 533 MHz</li> <li>• Interfaz PCI 2.2 compatible y soporta 5 ranuras PCI</li> <li>• Controladores Dual rápido ATA-133 IDE</li> <li>• 10/100BaseT</li> <li>• Interfaz de Controladro Anfitrión Reforzado USB 2.0 (EHCI)/Interfaz de Controladro Anfitrión Abierto (OHCI)</li> <li>• Controladores de bus de Administación de Sistema Dual (SMBus)</li> <li>• Interfaz AC'97 que soporta hasta dos códigos actuales</li> </ul>
<b>Memoria</b>	<p>La placa principal soporta tres ranuras 184-pin DDR SDRAM DIMM, que acomoda 3GB para PC1600/2100/2700 (2GB para PC3200). También se caracteriza el modo de canal dual de índice de transferencia de datos de 128-bit.</p>
<b>Gráficas</b>	<p>La placa principal incluye una ranura AGP que provee ocho veces el ancho de banda de la especificación original AGP. La tecnología AGP 3.0 (8xAGP) provee un aumento significativo en realizar junto con los refuerzos de característica para el AGP2.0. Esta interfaz representa la evolución natural del AGP existente para safsifacer las continuas exigencias puestas en las interfaces de gráficas dentro del ordenador y los ambientes de desktop.</p>
<b>Sonido</b>	<p>El codec de sonido AC' 97 es conforme con la especificación AC' 97 2.2, que satisface los requisitos de PC2001 y soporta S/PDIF In/Out. También tiene un buffer incorporado y PLL interno. Las características incluyen soprte para el interruptor analógico para salida trasera (compartir), la clavija de entrada de línea (compartir), centro/bajo (compartir), y clavija MIC para exportar sonido de 6 canales..</p>
<b>Opciones de Expansión</b>	<p>La placa principla viene con las sigtes. opciones de expansión:</p> <ul style="list-style-type: none"> <li>• Cinco ranuras 32-bit PCI</li> <li>• Una ranura AGP (soporta interfaz 1.5V AGP solamente)</li> <li>• Dos conectores IDE que soportan cuatro canales IDE y una interfaz de unidad de disco floppy</li> </ul> <p>El panel principal soporta la dominación de bus Ultra DMA con velocidades de transferencia de 33/66/100/133 MB/seg.</p>

<b>LAN Incorporada (opcional)</b>	<p>La VT6103 es un componente Estrato Físico para Ethernet 10BASE-T y 100BASE-TX usando categoría 5 no blindado, Tipo 1 Blindado, y cables de Fibra óptica.</p> <ul style="list-style-type: none"> <li>• Velocidad Doble – 100/10 Mbps</li> <li>• Bidireccional Total y Medio</li> <li>• Reúne Todo la Apropiado IEEE 802.3, 10Base-T y 100Base-Tx Convencionales</li> <li>• Ecualizador adaptable</li> </ul>
<b>I/O Integrado</b>	<p>El tablero principal tiene un set completo de puertos de Entrada/Salida y conectores:</p> <ul style="list-style-type: none"> <li>• Dos puertos PS/2 para ratón y teclado</li> <li>• Un puerto de serie</li> <li>• Un puerto paralelo</li> <li>• Cuatro puertos USB</li> <li>• Un puerto LAN (opcional)</li> <li>• Enchufes de audio para micrófono, línea de entrada y línea de salida</li> </ul>
<b>BIOS Firmware</b>	<p>Este panel principal usa el Award BIOS que posibilita a los usuarios configurar muchas características de sistema incluidas las siguientes:</p> <ul style="list-style-type: none"> <li>• Administración de potencia</li> <li>• Alarmas despertadoras</li> <li>• Parámetros de CPU</li> <li>• Sincronización de CPU y de Memoria</li> </ul> <p>El firmware puede también ser usado para ajustar parámetros para velocidades diferentes de procesador de reloj.</p>



Algunas especificaciones de hardware e ítems de software son sujetos a cambio sin previo aviso.

## 製品特徴

<p><b>プロセッサ</b></p>	<p>当メインボードはAMD 462ピンソケットを搭載し、次の特長があります：</p> <ul style="list-style-type: none"> <li>• 400/333/266/200 MHz フロントサイドバス (FSB) をサポート</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPUに対応</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPUのアドレスバスとデータバスを200/166/133 MHz DDR (Double Data Rate) の転送率でサポート</li> </ul>
<p><b>チップセット</b></p>	<p>このメインボードには、NVIDIA® nForce™ 2 Ultra-400 Northbridge と NVIDIA® nForce™ MCP Southbridgeとのチップセットが搭載されています。これらチップセットの一部の特徴は次の通りです：</p> <ul style="list-style-type: none"> <li>• MCP Southbridgeを、転送率が800MB/秒のHyperTransport™ インターフェースで対応</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPUのアドレスバスとデータバスを200/166/133 MHz DDR (Double Data Rate) の転送率でサポート</li> <li>• 533MHzの8x AGP 3.0 インターフェースを搭載</li> <li>• PCI 2.2 互換性インターフェースで5つまでのPCIスロットを支援</li> <li>• 二重高速 ATA-133 IDE コントローラを搭載</li> <li>• 10/100BaseT</li> <li>• USB 2.0 拡張ホスト・コントローラ・インターフェース (EHCI)/オープン・ホスト・コントローラ・インターフェース (OHCI) のコントローラを搭載</li> <li>• 二重システム管理バス (SMBus) コントローラを搭載</li> <li>• 2つのコードを同時に対応可能なAC' 97インターフェースを搭載</li> </ul>
<p><b>メモリー</b></p>	<p>184ピン DDR SDRAM DIMMスロットが3つ用意されており、3GBまでの PC1600/2100/2700 (PC3200の場合は2GB) のメモリーを装着可能です。また、それらのスロットは、データ転送率が128ビットの二重チャンネルモードをサポートします。</p>
<p><b>グラフィック</b></p>	<p>本メインボードには、本来のAGP仕様の8倍のバンド幅を提供するAGPスロットが一つ搭載されています。AGP 3.0 (8xAGP) は、AGP2.0より優れた機能と性能を持つインターフェースを実現しました。この画期的なインターフェースは、ワークステーションやデスクトップ環境において絶えずさらに高性能なグラフィックインターフェースへのニーズに応えるために、進化を遂げたものです。</p>
<p><b>オーディオ</b></p>	<p>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、PC2001要求を満たし、S/PDIF In/Outに対応しています。また、内蔵バッファと内部PLLを搭載しています。このほかに、背面用アナログスイッチ (共有)、ライン入力ジャック (共有)、中央/ベース (共有)、6チャンネル出力オーディオ用MICジャックなどを備えています。</p>

<b>拡張オプション</b>	<p>このメインボードには次の拡張オプションがあります：</p> <ul style="list-style-type: none"> <li>• 5つの32ビットPCIスロット</li> <li>• 1つのAGPスロット (1.5V AGPインターフェースのみ対応)</li> <li>• 2つのIDEコネクタ (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をサポート可能)</li> </ul> <p>メインボードはUltra DMA バスマスタ機能、33/66/100/133 MB/秒の転送レートをサポートします。</p>
<b>オンボードLAN (オプション)</b>	<p>VT6103はカテゴリ5案シールド、Type 1 シールド、光ファイバーケーブルを使ったEthernet 10BASE-Tと100BASE-TXのための物理レイヤーです。</p> <ul style="list-style-type: none"> <li>• デュアルスピード - 100/10 Mbps</li> <li>• 半/全二重</li> <li>• IEEE 802.3、10Base-T、100Base-Tx標準にすべて対応</li> <li>• 適応エコライザ</li> </ul>
<b>統合入出力ポート</b>	<p>このメインボードにはフルセットのI/Oポートおよびコネクタが搭載しています。</p> <ul style="list-style-type: none"> <li>• 2つのマウスおよびキーボード向けPS/2ポート</li> <li>• 1つのシリアルポート</li> <li>• 1つのパラレルポート</li> <li>• 4つのUSBポート</li> <li>• 1つのLANポート</li> <li>• 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</li> </ul>
<b>BIOS ファームウェア</b>	<p>本メインボードは次のシステム機能を含めた設定をすることができるAward BIOSを採用しています：</p> <ul style="list-style-type: none"> <li>• 電源管理</li> <li>• Wake-up警告</li> <li>• CPUパラメータ</li> <li>• CPUおよびメモリのタイミング</li> </ul> <p>その他に、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。</p>



一部のハードウェア仕様及びソフトウェアアイテムは予告なく変更されることがあります。

## 기능

프로세서	<p>이 메인보드는 AMD 462 핀 소켓 A 를 사용하며 다음과 같은 특징을 지닌다:</p> <ul style="list-style-type: none"> <li>• 400/333/266/200 MHz frontside bus (FSB) 지원</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPU를 사용한다.</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPU 어드레스 및 데이터 버스에서의 200/166/133 MHz DDR (Double Data Rate) 전송</li> </ul>
칩셋	<p>본 메인보드는 NVIDIA® nForce™ 2 Ultra-400 Northbridge 와 NVIDIA® nForce™ MCP Southbridge 칩셋을 사용한다. 본 칩셋의 고급 기능은 다음과 같다:</p> <ul style="list-style-type: none"> <li>• MCP Southbridge 의 고속 800MB/sec HyperTransport™ 인터페이스</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPU 어드레스 및 데이터 버스에서의 200/166/133 MHz DDR (Double Data Rate) 전송</li> <li>• 533 MHz 의 8x AGP 3.0 인터페이스</li> <li>• 5 PCI 슬롯을 지원하는 PCI 2.2 부합 인터페이스</li> <li>• 듀얼 패스트 ATA-133 IDE 컨트롤러</li> <li>• 10/100BaseT</li> <li>• USB 2.0 Enhanced Host Controller Interface (EHCI)/Open Host Controller Interface (OHCI) 컨트롤러</li> <li>• 듀얼 System Management Bus (SMBus) 컨트롤러</li> <li>• 최대 2 가지 공존 코드를 지원하는 AC' 97 인터페이스</li> </ul>
메모리	<p>본 메인보드는 PC1600/2100/2700 (2GB for PC3200) 에 3GB를 제공하는 3 개의 184 핀 DDR SDRAM DIMM 슬롯을 지원하며 또한 128 비트 데이터 전송 속도의 듀얼 채널 모드를 특징으로 한다.</p>
그래픽	<p>본 메인보드에는 기존 AGP 사양보다 8 배의 대역폭을 제공하는 AGP 슬롯이 포함되어 있다. AGP 3.0 (8xAGP) 은 AGP 2.0 보다 강화된 기능과 고성능을 제공한다. 이 인터페이스는 워크 스테이션 및 데스크탑 환경에서 최신 그래픽 인터페이스의 요구에 부합하도록 개선된 기존 AGP의 발전을 의미한다.</p>
오디오	<p>AC' 97 오디오 코덱은 AC 97 2.2 사양과 호환하여 PC2001 요구 사양에 부합하며 S/PDIF In/Out을 지원한다. 버퍼 및 PLL이 내장되어 있으며, 후면-출력 (공유), 라인 입력 잭 (공유), 중앙/베이스 (공유), 및 6 채널 오디오 출력 용 MIC 잭을 위한 아날로그 스위치를 포함한다.</p>
확장 옵션	<p>이 메인보드는 다음과 같은 확장 옵션이 있다:</p> <ul style="list-style-type: none"> <li>• 32 비트 PCI 슬롯 5 개</li> <li>• AGP 슬롯 1 개 (1.5V AGP 인터페이스만 지원)</li> <li>• 4 개의 IDE 채널 및 1 개의 플로피 디스크 드라이브 인터페이스를 지원하는 2 개의 IDE 커넥터</li> </ul> <p>메인보드는 전송 속도 33/66/100/133 MB/sec 의 Ultra DMA bus mastering 을 지원한다.</p>

<b>Onboard LAN (선택 사항)</b>	VT6103 는 카테고리 5 언실드, 타입 1 실드, 유리 섬유 케이블을 사용한 Ethernet 10BASE-T와 100BASE-TX 를 위한 물리적 레이어 장치이다. <ul style="list-style-type: none"> <li>• 듀얼 스피드 - 100/10 Mbps</li> <li>• Half 및 Full Duplex</li> <li>• IEEE 802.3, 10Base-T 및 100Base-Tx 표준 부합</li> <li>• 적용 가능한이퀄라이저</li> </ul>
<b>통합 I/O</b>	메인보드는 풀 세트의 I/O 포트와 커넥터가 있다: <ul style="list-style-type: none"> <li>• 마우스와 키보드용 PS/2 포트 2 개</li> <li>• 시리얼 포트 1개</li> <li>• 패러럴 포트 1 개</li> <li>• USB 포트 4 개</li> <li>• LAN 포트 1 개</li> <li>• 마이크 용 오디오 잭, line-in 과 line-out</li> </ul>
<b>BIOS 펌웨어</b>	이 메인보드는 Award BIOS 를 사용하여 사용자는 다음과 같은 시스템 기능을 구성할 수 있다: <ul style="list-style-type: none"> <li>• 전원 관리</li> <li>• 기상 알람</li> <li>• CPU 파라미터</li> <li>• CPU 및 메모리 타이밍</li> </ul> 펌웨어는 다른 프로세서 클럭 속도의 파라미터를 설정하는데도 사용될 수 있다.



하드웨어 사양 및 소프트웨어 아이템은 사전 통보 없이 변경될 수 있음.

## 性能

<b>處理器</b>	<p>本主機板採用了具有下列功能之AMD 462針Socket A：</p> <ul style="list-style-type: none"> <li>• 支援高達400/333/266/200 MHz之系統匯流排 (FSB)</li> <li>• 支援AMD Athlon XP/Sempron/Athlon/Duron 處理器</li> <li>• 支援高達200/166/133MHz DDR (Double Data Rate, 雙倍速資料傳輸) 之AMD Athlon XP/Sempron/Athlon/Duron CPU 位址和數據匯流排傳輸</li> </ul>
<b>晶片組</b>	<p>本主機板整合有 NVIDIA® nForce™ 2 Ultra-400 北橋及 NVIDIA® nForce™ MCP 南橋晶片組。以下為此晶片組的部份功能：</p> <ul style="list-style-type: none"> <li>• 對MCP南橋晶片組提供傳輸速率高達 800MB/秒的 Hyper-Transport™ 介面</li> <li>• 支援高達200/166/133MHz DDR (Double Data Rate, 雙倍速資料傳輸) 之AMD Athlon XP/Sempron/Athlon/Duron CPU 位址和數據匯流排傳輸</li> <li>• 具有533MHz的8x AGP 3.0介面</li> <li>• 具有PCI 2.2 相容介面，可支援 5個 PCI 插槽</li> <li>• 雙速 ATA-133 IDE 控制器</li> <li>• 10/100BaseT</li> <li>• USB 2.0增強型主控介面 (EHCI)/開放式主控介面 (OHCI) 控制器</li> <li>• 雙系統管理匯流排 (SMBus) 控制器</li> <li>• 具有AC' 97 介面，可同時支援2個編解碼</li> </ul>
<b>記憶體</b>	<p>本主機板配備有3個 184針 DDR SDRAM DIMM 插槽，藉此可安裝 3GB的PC1600/2100/2700 (PC3200時為2GB)。此外，該插槽也具有128位元資料傳輸率的雙通道模式功能。</p>
<b>繪圖卡</b>	<p>主機板配有一個AGP插槽，其可提供舊型AGP規格八倍之頻寬。此AGP 3.0 (8x AGP) 在性能及特性上遠高於AGP2.0。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。</p>
<b>音效</b>	<p>配備之AC' 97 音效解碼/編碼器，係採用AC' 97 2.2 規格，該規格符合PC2001規格要求並支援S/PDIF輸入/輸出。同時，本解碼/編碼器也具有內建緩衝器和內裝PLL。在功能上，尚包括：支援後聲道輸出(共用)、外部音源輸入(共用)、center/bass(共用)、以及可輸出6聲道音效之麥克風接頭。</p>
<b>擴充選項</b>	<p>主機板機載有下列擴充選項：</p> <ul style="list-style-type: none"> <li>• 5個32位元PCI插槽</li> <li>• 1個AGP插槽(僅支援1.5伏特電壓規格之AGP介面)</li> <li>• 2個IDE連接器，可支援4個IDE通道及1個軟碟機介面</li> </ul> <p>本主機板之Ultra DMA 匯流排主控功能可支援高達33/66/100/133 MB/秒之資料傳輸。</p>

<b>內建網路功能 (選購)</b>	<p>VT6103係為乙太10BASE-T 和 100BASE-TX之實體層元件, 使用 Category 5(速率100 Mbps) 無遮蔽式雙絞線, Type 1屏蔽電纜以及光纖電纜。</p> <ul style="list-style-type: none"> <li>• 雙倍速 - 100/10 Mbps 傳輸速率</li> <li>• 支援半或全雙工運作模式</li> <li>• 適用於所有可用之IEEE 802.3, 10BaseT和100Base-Tx雙絞線, 等之標準</li> <li>• 自適均衡器</li> </ul>
<b>已整合的I/O</b>	<p>本主機板完整地支援各種 I 輸出入及連接器：</p> <ul style="list-style-type: none"> <li>• 2個 PS/2 埠，分供滑鼠及鍵盤連接</li> <li>• 1個串列埠</li> <li>• 1個平行埠</li> <li>• 4個USB埠</li> <li>• 1個LAN埠</li> <li>• 麥克風、line-in及line-out音效端</li> </ul>
<b>BIOS 韌體</b>	<p>本主機板使用了Award BIOS，使用者可藉此對包括下列之系統功能進行設定：</p> <ul style="list-style-type: none"> <li>• 電源管理功能</li> <li>• 喚醒警示功能</li> <li>• CPU參數</li> <li>• CPU及記憶體的時序</li> </ul> <p>本BIOS也可用以設定各種有關處理器時脈的參數。</p>



部分硬體規格及軟體物件將視需要適當調整，不予另行通知。



## 特性

<b>处理器</b>	<p>主板使用一个 AMD 462-pin Socket A 插座，此插座具有以下特点：</p> <ul style="list-style-type: none"> <li>• 支持400/333/266/200 MHz 前端总线 (FSB)</li> <li>• 支持 AMD Athlon XP/Sempron/Athlon/Duron CPU</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPU 地址和数据总线上200/166/133 MHz DDR (双数据传输率) 传输</li> </ul>
<b>芯片组</b>	<p>此主板集成了 NVIDIA® nForce™ 2 Ultra-400 北桥和 NVIDIA® nForce™ MCP 南桥芯片组。此芯片组具有以下一些高级功能：</p> <ul style="list-style-type: none"> <li>• 到 MCP 南桥的高速 800MB/sec HyperTransport™ 接口</li> <li>• AMD Athlon XP/Sempron/Athlon/Duron CPU 地址和数据总线上200/166/133 MHz DDR (双数据传输率) 传输</li> <li>• 533 MHz 的 8x AGP 3.0 接口</li> <li>• PCI 2.2 接口，支持 5 个 PCI 插槽</li> <li>• 双高速 ATA-133 IDE 控制器</li> <li>• 10/100BaseT</li> <li>• USB 2.0 增强主控接口 (EHCI)/开放主控接口 (OHCI) 控制器</li> <li>• 双系统管理总线 (SMBus) 控制器</li> <li>• AC' 97 接口，支持 2 个通用码</li> </ul>
<b>内存</b>	<p>主板支持 3-个 184-pin DDR SDRAM DIMM 插槽，PC1600/2100/2700 内存最大可支持 3GB (PC3200 最大可支持 2GB)。它还可以工作在数据传输速率为 128 位的双通道模式下。</p>
<b>图形</b>	<p>该主板包括一个 AGP 插槽，可提供普通 AGP 规格 8-倍的带宽。AGP 3.0 (8xAGP) 在增强了 AGP2.0 功能的同时极大地提高了性能。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。</p>
<b>音频</b>	<p>AC' 97 Audio 编解码器兼容 AC 97 2.2 规格，符合 PC2001 标准，支持 S/PDIF Out。它还带有集成缓存和内部 PLL。它支持用于后置输出的模拟开关 (共享)、线入插孔 (共享)、中/低音 (共享) 和输出 6 路音频的 MIC 插孔。</p>
<b>扩展 选项</b>	<p>此主板提供如下扩展选项：</p> <ul style="list-style-type: none"> <li>• 5 个 32 位 PCI 扩展插槽</li> <li>• 1 个 AGP 插槽 (只支持 1.5V AGP 接口)</li> <li>• 2 个 IDE 接口，可支持 4 个 IDE 通道；1 个软驱接口</li> </ul> <p>主板支持 Ultra DMA 总线控制，传输速率可达 33/66/100/133 MB/sec。</p>
<b>Onboard LAN (可选)</b>	<p>VT6103 是一种物理层设备，可用于使用 5 类非屏蔽线、1 类屏蔽线的以太网 10BASE-T 和 100BASE-TX。</p> <ul style="list-style-type: none"> <li>• 双速 - 100/10 Mbps</li> <li>• 半双工和全双工</li> <li>• 符合所有相应的 IEEE 802.3、10Base-T 和 100Base-Tx 标准</li> <li>• 自适应均衡器</li> </ul>
<b>集成 I/O</b>	<p>此主板具有完整的 I/O 端口和插孔：</p>

	<ul style="list-style-type: none"><li>• 2 个用于连接鼠标和键盘的 PS/2 端口</li><li>• 1 个串口</li><li>• 1 个并口</li><li>• 4 个 USB 端口</li><li>• 1 个 LAN 端口</li><li>• 麦克风、线入和线出声音插孔</li></ul>
<b>BIOS</b>	<p>此主板使用 Award BIOS，可以让用户自己配置以下系统功能：</p> <ul style="list-style-type: none"><li>• 电源管理</li><li>• 唤醒报警</li><li>• CPU 参数</li><li>• CPU 和记忆定时</li></ul> <p>还可用于设置不同处理器时钟速度的参数。</p>



部分硬件规格和软件项目若有更改恕不另行通知。

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# Chapter 1

## Introducing the Motherboard

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### Introduction

Thank you for choosing the N2U400-A motherboard. The N2U400-A is designed to fit the advanced AMD processors in the 462-pin package, supporting socket 462 AMD Athlon XP / Sempron / Athlon / Duron processors. Based on NVIDIA® nForce™ 2 ULTRA-400 Northbridge and NVIDIA® nForce™ MCP Southbridge chipsets. This ATX form factor motherboard with a measurement of 305 mm x 244 mm is intended to give customers a high performance and utmost intelligent PC solution.

The nForce2 ULTRA-400 is designed for AMD Athlon XP / Sempron / Athlon / Duron processors and delivers 128-bit DDR 400 memory controller with Dual DDR. It works together with nForce2 MCP media communication processor providing Universal Serial Bus 2.0 Host Controllers and Audio Controller with AC 97 interface. It also features AGP3.0 8X host interface, HyperTransport<sup>1</sup> interface and support Front Side Bus (FSB) up to 400/333/266 MHz.

The N2U400-A motherboard provides an advanced set of I/O ports, such as dual channel IDE interfaces, a floppy controller, one high-speed serial port, an EPP/ECP capable bi-directional parallel port connector, four USB (Universal Serial Bus) connectors, a PS/2 keyboard connector, mouse connector and audio jacks for microphone, line-in and line-out. One AGP slot and five PCI local bus slots provide expandability for add-on peripheral cards.

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<sup>1</sup> The HyperTransport interface is used to ensure that the bandwidth required by current peripheral devices would be available and not impact bus performance.

## Features

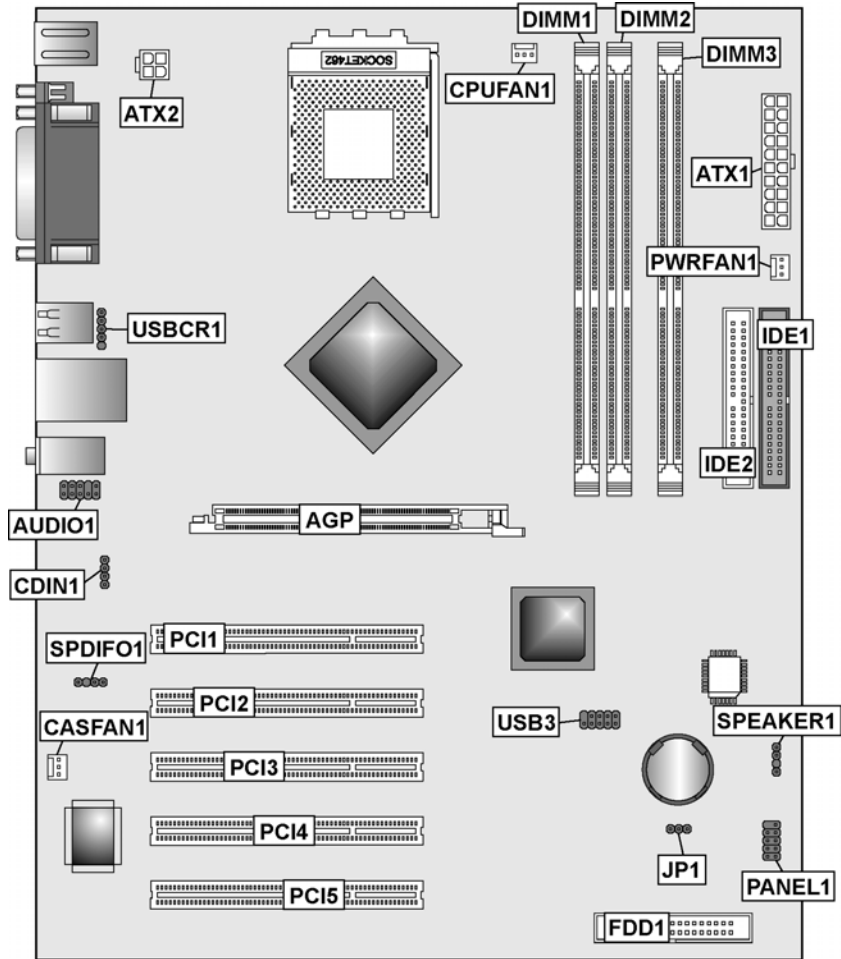
<b>Processor</b>	<p>The motherboard uses a 462-pin Socket that has the following features:</p> <ul style="list-style-type: none"> <li>• Supports 400/333/266/200 MHz Front Side Bus (FSB)</li> <li>• Accommodates AMD Athlon XP/Sempron/Athlon/Duron CPU</li> <li>• 200/166/133 MHz DDR (Double Data Rate) transfer on Athlon XP/Sempron/Athlon/Duron CPU address and data buses</li> </ul>
<b>Chipset</b>	<p>The motherboard integrates the NVIDIA® nForce™ 2 Ultra-400 Northbridge and NVIDIA® nForce™ MCP Southbridge chipsets. A few of the chipset's advanced features are:</p> <ul style="list-style-type: none"> <li>• High speed 800MB/sec HyperTransport™ interface to the MCP Southbridge</li> <li>• 200/166/133 MHz DDR (Double Data Rate) transfer on Athlon XP/Sempron/Athlon/Duron CPU address and data buses</li> <li>• 8x AGP 3.0 interface at 533 MHz</li> <li>• PCI 2.2 compatible interface supporting 5 PCI slots</li> <li>• Dual fast ATA-133 IDE controllers</li> <li>• 10/100BaseT</li> <li>• USB 2.0 Enhanced Host Controller Interface (EHCI)/Open Host Controller Interface (OHCI) controller</li> <li>• Dual System Management Bus (SMBus) controllers</li> <li>• AC'97 interface supporting up to two concurrent codes</li> </ul>
<b>Memory</b>	<p>The motherboard supports three 184-pin DDR SDRAM DIMM slots, which accommodates 3GB for PC1600/2100/2700 (2GB for PC3200). It also features dual-channel mode of 128-bit data transfer rate.</p>
<b>Graphics</b>	<p>The motherboard includes an AGP slot that provides eight times the bandwidth of the original AGP specification. The AGP 3.0 (8x AGP) 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.</p>
<b>Audio</b>	<p>The AC' 97 Audio codec is compliant with the AC 97 2.2 specification that meets the PC2001 requirements and supports S/PDIF Out. It also has a built-in buffer and internal PLL. Features include support for analog switch for rear-out (share), the line-in jack (share), center/bass (share), and MIC jack to output 6 channels audio.</p>
<b>Expansion Options</b>	<p>The motherboard comes with the following expansion options:</p> <ul style="list-style-type: none"> <li>• Five 32-bit PCI slots</li> <li>• One AGP slot (supports 1.5V AGP Interface only)</li> <li>• Two IDE connectors which support four IDE channels and a floppy disk drive interface</li> </ul> <p>The motherboard supports Ultra DMA bus mastering with transfer rates of 33/66/100/133 MB/sec.</p>

<b>Onboard LAN (optional)</b>	<p>The VT6103L is a Physical Layer device for Ethernet 10BASE-T and 100BASE-TX using category 5 Unshielded, Type 1 Shielded, and Fiber Optic cables.</p> <ul style="list-style-type: none"> <li>• Dual Speed – 100/10 Mbps</li> <li>• Half And Full Duplex</li> <li>• Meet All Applicable IEEE 802.3, 10Base-T and 100Base-Tx Standards</li> <li>• Adaptive Equalizer</li> </ul>
<b>Integrated I/O</b>	<p>The motherboard has a full set of I/O ports and connectors:</p> <ul style="list-style-type: none"> <li>• Two PS/2 ports for mouse and keyboard</li> <li>• One serial port</li> <li>• One parallel port</li> <li>• Four USB ports</li> <li>• One LAN port</li> <li>• Audio jacks for microphone, line-in and line-out</li> </ul>
<b>BIOS Firmware</b>	<p>This motherboard uses Award BIOS that enables users to configure many system features including the following:</p> <ul style="list-style-type: none"> <li>• Power management</li> <li>• Wake-up alarms</li> <li>• CPU parameters</li> <li>• CPU and memory timing</li> </ul> <p>The firmware can also be used to set parameters for different processor clock speeds.</p>



Some hardware specifications and software items are subject to change without prior notice.

## Motherboard Components





## Table of Motherboard Components

Label	Component
AGP	Accelerated Graphics Port (supports 1.5V AGP card only)
ATX1	Standard 20-pin ATX power connector
ATX2	ATX 12V Power Connector
AUDIO1	Front audio connector
CASFAN1	Case fan connector
CDIN1	Primary CD-in connector
CPU SOCKET	Socket A for AMD CPU
CPUFAN1	Cooling fan for CPU
DIMM1 ~ DIMM3	Three 184-pin DDR SDRAM
FDD1	Floppy disk drive connector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
JP1	Clear CMOS jumper
PANEL1	Connector for case front panel switches and LED indicators
PCI1 ~ PCI5	Five 32-bit add-on card slots
PANEL1	Panel connector for case switches and LEDs
PWRFAN1	Power fan connector
SPDIFO1	SPDIF out header (optional)
SPEAKER1	Speaker connector
USB3	Connector for front panel USB ports
USBCR1	USB Card reader connector

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

## Installing the Motherboard

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### Safety Precautions

Follow these safety precautions when installing the motherboard:

- 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 motherboard.
- Leave components in the static-proof bags they came in.
- Hold all circuit boards by the edges. Do not bend circuit boards.

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### Choosing a Computer Case

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

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

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### Quick Guide

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

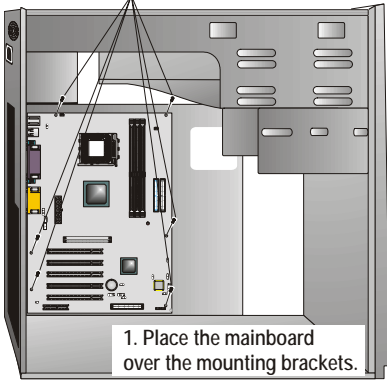
The following table provides a reference for installing specific components:

<b>Locating Motherboard Components</b>	Go to page 4
<b>Installing the Motherboard in a Case</b>	Go to page 7
<b>Setting Jumpers</b>	Go to page 7
<b>Installing Case Components</b>	Go to page 9
<b>Installing the CPU</b>	Go to page 12
<b>Installing Memory</b>	Go to page 15
<b>Installing a HDD and CD-ROM Drive</b>	Go to page 17
<b>Installing an FDD</b>	Go to page 18
<b>Installing Add-on Cards</b>	Go to page 19
<b>Connecting Options</b>	Go to page 20
<b>Connecting Peripheral (I/O) Devices</b>	Go to page 23

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## Installing the Motherboard in a Case

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

<p>This illustration shows an example of a motherboard being installed in a tower-type case:</p> <p><b>Note:</b> Do not overtighten the screws as this can stress the motherboard.</p> <p>Most system cases have mounting brackets installed in the case, which correspond to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.</p>	<p>2. Secure the mainboard with screws where appropriate.</p>  <p>1. Place the mainboard over the mounting brackets.</p>
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Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.

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## Checking Jumper Settings

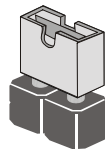
This section explains how to set jumpers for correct configuration of the motherboard.

### Setting Jumpers

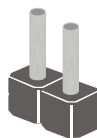
Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations below show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.

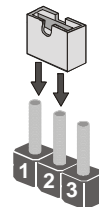
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



Short

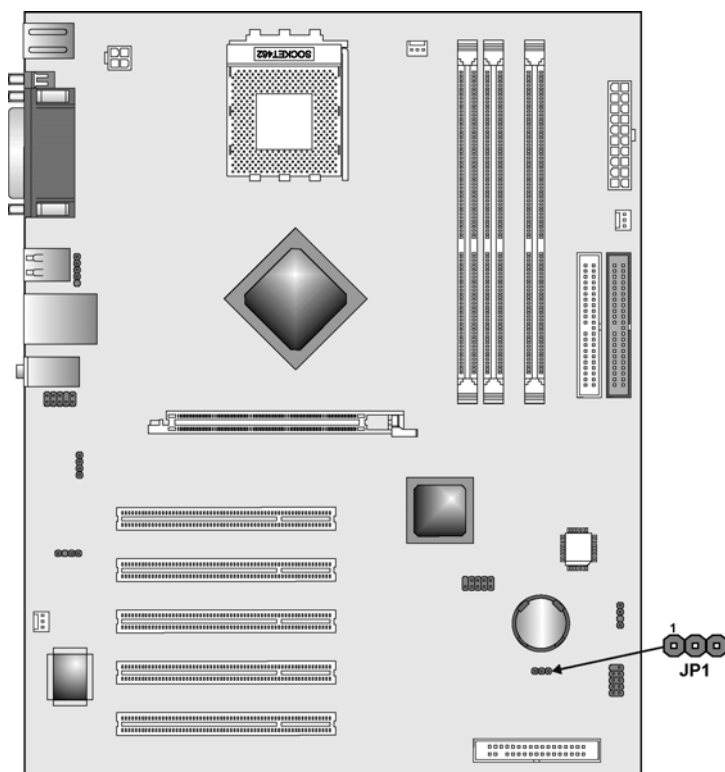


Open



## Checking Jumper Settings

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



## Jumper Settings

Jumper	Type	Description	Setting (default)
JP1	3-pin	Clear CMOS	1-2: Normal 2-3: Clear CMOS Before clearing CMOS, make sure to turn off the system.



## Connecting Case Components

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

<ol style="list-style-type: none"> <li>1. Connect the Pentium 4 auxiliary power supply connector to <b>ATX2</b>.</li> <li>2. Connect the standard power supply connector to <b>ATX1</b>.</li> <li>3. Connect the CPU cooling fan cable to <b>CPUFAN1</b>.</li> <li>4. Connect the case cooling fan connector to <b>CASFAN1</b>.</li> <li>5. Connect the power cooling fan connector to <b>PWRFAN1</b>.</li> <li>6. Connect the case speaker cable to <b>SPEAKER1</b>.</li> <li>7. Connect the case switches and indicator to <b>PANEL1</b>.</li> </ol>	
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### ATX2: ATX 12V Power Connector

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

### 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

**CPUFAN1/CASFAN1/PWRFAN1: FAN Power Connectors**

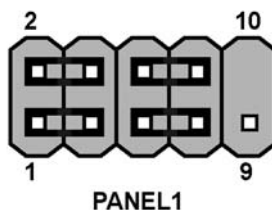
Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

**SPEAKER1: Internal speaker**

Pin	Signal Name
1	Signal
2	Key
3	Ground
4	VCC

## Front Panel Connector

The front panel connector (PANEL1) provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. Refer to the table below for information:



Pin	Signal	Function	Pin	Signal	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.

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## Installing Hardware

### Installing the Processor

**Caution:** When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, 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 motherboard and processor socket.

### Before installing the Processor

This motherboard 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 motherboard, 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.

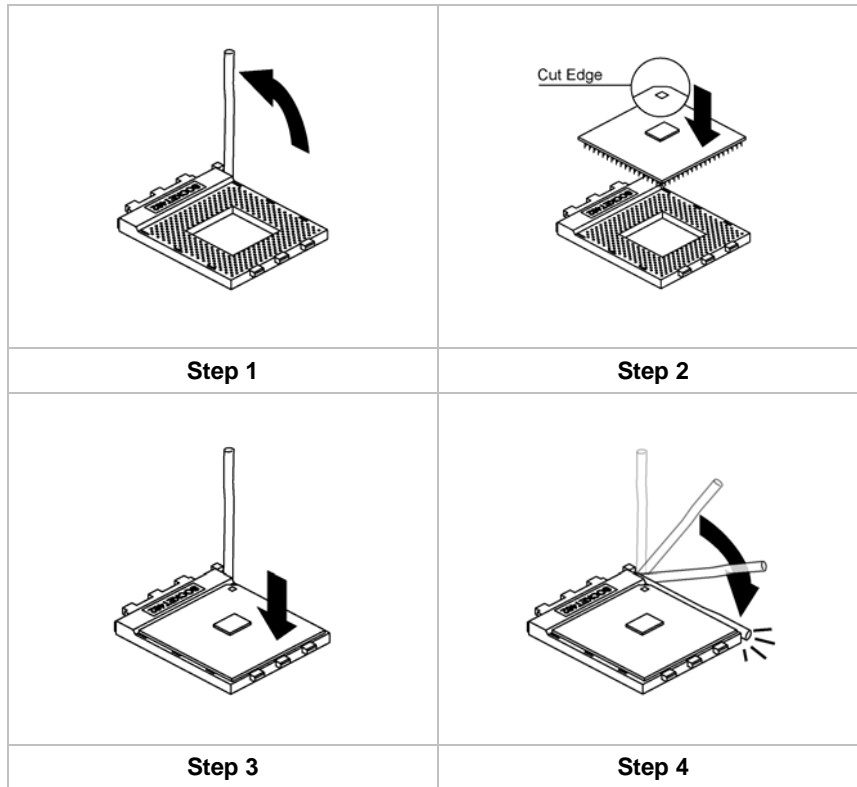
**Warning:** Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

This motherboard 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

This motherboard is built with Socket 462 processor socket. When choosing a processor, consider the performance requirements of the system. The following illustration shows CPU installation components:

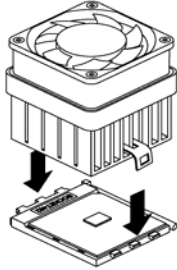
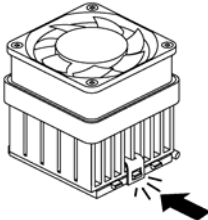
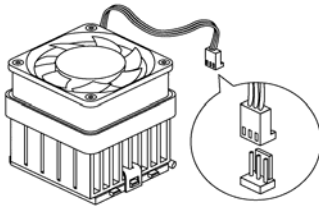


Orient the CPU so the odd corner matches the odd corner of the socket. With the lever in an upright position, gently place the CPU on the socket; make sure that all pins line up with the socket holes. When pins are aligned, the CPU should seat itself in the socket. Apply very light pressure to ensure the CPU is evenly seated. Push the lever down and ensure it latches firmly.

**Note:** Remember to apply thermal grease on top of the CPU.

## Installing CPU Fan and Fan Connector

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. Without an effective cooling fan, the CPU can overheat and cause damage to both CPU and the motherboard.

<p>1. Lower the CPU cooling fan/heatsink assembly onto the CPU.</p>	 A line drawing showing a square CPU cooling fan/heatsink assembly being lowered onto a CPU socket. Two black arrows point downwards from the assembly towards the socket, indicating the direction of movement. A vertical red line is on the right side of the diagram.
<p>2. Secure the two retention clips on either side of the fan/heatsink unit onto the Socket 462 base.</p>	 A line drawing showing the fan/heatsink unit secured onto the Socket 462 base. Two black arrows point to the retention clips on either side of the unit, indicating they are being secured. A vertical red line is on the right side of the diagram.
<p>3. Connect the CPU Cooling Fan power cable connector to the CPUFAN connector.</p>	 A line drawing showing the CPU Cooling Fan power cable connector connected to the CPUFAN connector. A circular inset shows a close-up of the connector connection. A vertical red line is on the right side of the diagram.

## Installing Memory Modules

This motherboard accommodates three 184-pin 2.5V unbuffered non-ECC Double Data Rate (DDR) SDRAM memory modules.

This motherboard can support DDR266/DDR333/DDR400 memory modules and allow up to 6.4 GB/s data transfer rate. Utilizing the dual-channel DDR memory architecture, this motherboard provides a solution which doubles the system memory bandwidth of your system memory and boost the system performance. Please refer to page 16 for suggested dual-channel DDR combinations.

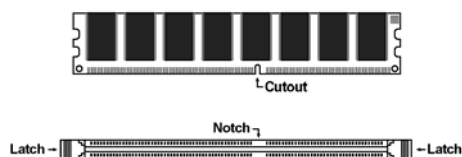
You must install at least one module in any of the three slots. Each module can be installed with 128 MB to 1 GB of memory. Total capacity is 3GB.



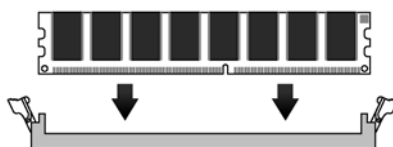
Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Refer to the following to install the memory modules.

1. This motherboard 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.

**Table A: Recommended dual-channel DDR configurations**

DIMM1	DIMM2	DIMM3	Dual Channel
✓		✓	✓
	✓	✓	✓
✓	✓	✓	✓

**Note:** When using dual channel mode, install only similar (same density, DRAM technology and DRAM bus width) module for each channel.

**Table B: CPU FSB and Memory Frequency**

CPU FSB	DDR Module support	DDR Type
400 MHz	DDR 400/333/266	PC3200/PC2700/PC2100
333 MHz	DDR 333/266	PC2700/PC2100
266 MHz	DDR 266	PC2100

**Table C: DDR (memory module) QVL (Qualified Vendor List)**

The following DDR400 memory modules have been tested and qualified for use with this motherboard.

Size	Vendor	Brand	Model Number
<b>128MB</b>	SAMSUNG	SAMSUNG	K4H280838D-TCC4
	NANYA	NANYA	NT5DS16M16BT-5
	Infineon	Infineon	HYB25D256160BT-5
	NANYA	NANYA	NT5DS16M16BT-5T
<b>256MB</b>	SAMSUNG	SAMSUNG	K4H560838D-TCC4
	NANYA	NANYA	NT5DS32M8BT-6K
	Micron	Micron	MT46V16M8-5 ESB
	Infineon	Infineon	HYB25D256800BT-5
	Micron	Micron	MT46V32M8-5BC
	NANYA	NANYA	NT5DS32M8BT-5T
	Apacer	SAMSUNG	K4H560838D-TCC4
<b>512MB</b>	SAMSUNG	SAMSUNG	K4H560838D-TCC4
	NANYA	NANYA	NT5D32M8BT-5
	Micron	Micron	MT46V32M8-5BC
	NANYA	NANYA	NT5DS32M8BT-5T

## Installing a Hard Disk Drive/CD-ROM

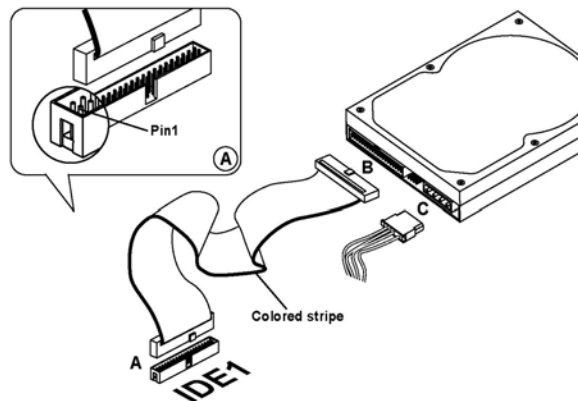
This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

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

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.

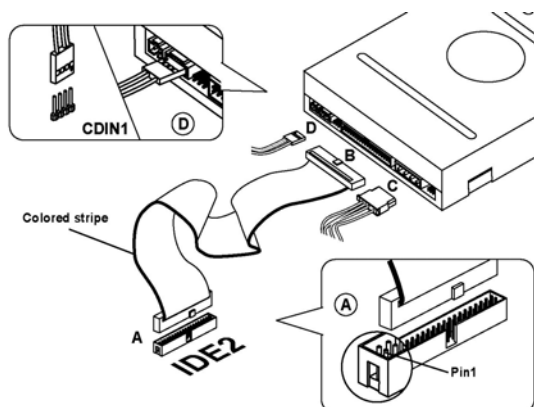
### IDE1: Primary IDE Connector

The first hard drive should always be connected to IDE1.



### IDE2: Secondary IDE

The second drive on this controller must be set to slave mode. The configuration is the same as IDE1.



You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

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

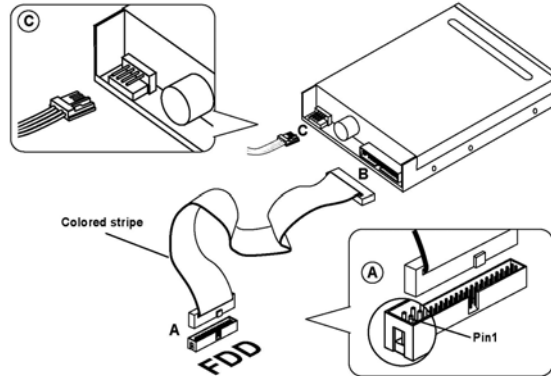
This motherboard supports UltraDMA 66/100/133. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100/133.

## Installing a Floppy Diskette Drive

The motherboard 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.

### FDD1: Floppy Disk Connector

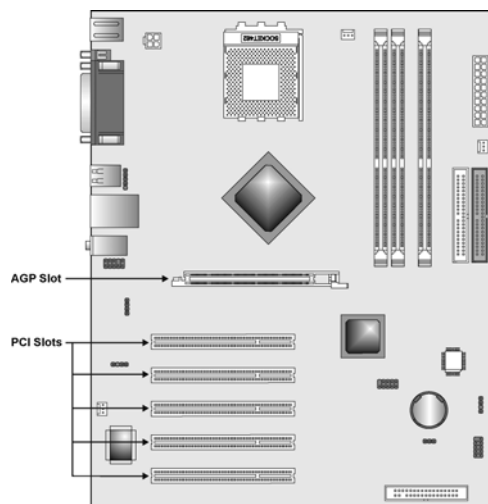
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

## Installing Add-on Cards

The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware which performs tasks that are not part of the basic system.



**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 3D graphics adapter that supports the 8x AGP card which is also backward compatible with 4x AGP card. The slot is keyed to support only the latest 1.5-volt AGP cards.

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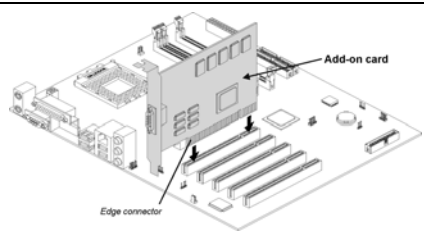
**Note:** Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

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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.

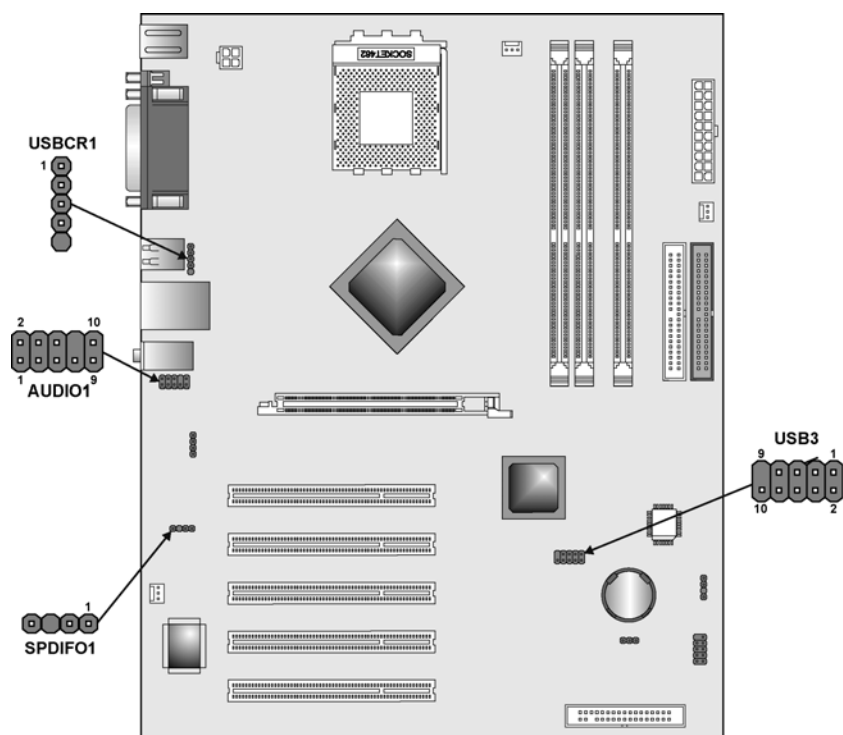
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**Note:** For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

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## Connecting Optional Devices

Refer to the following for information on connecting the motherboard'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 Head-phone Amplifier
8	KEY	No Pin
9	AUD_FPOUT_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal Return from Front Panel



## USB3: Front panel USB connectors

The motherboard 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 motherboard.

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.

## USBCR1: USB Card Reader connector

This connector is for connecting internal USB card reader. You can use a card reader to read or transfer files and digital images to your computer.

Pin	Signal Name	Function
1	USBVCC2	+5V dual
2	USB2-	Data signal port 2-
3	USB2+	Data signal port 2+
4	GND	Ground
5	Key	No pin

**Note:** The USBCR1 is shared with one of the USB ports of the I/O back panel. See “Connecting I/O Devices” for more information.



Please check the pin assignment of the cable and the USB header on the motherboard. Make sure the pin assignment will match before plugging in. Any incorrect usage may cause unexpected damage to the system.

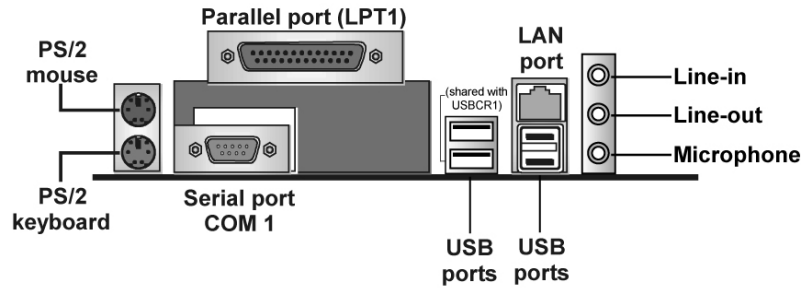
### **SPDIF01: SPDIF out header (optional)**

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

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

## Connecting I/O Devices

The backplane of the motherboard 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** Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
- 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	Light Green
Microphone	Pink
Parallel	Burgundy
PS/2-compatible keyboard	Purple
PS/2-compatible mouse	Green
Serial	Teal or Turquoise
USB	Black
LAN	Black

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

## *Chapter 3*

# Using BIOS

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### **About the Setup Utility**

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

### **The Standard Configuration**

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


This Setup Utility should be used:

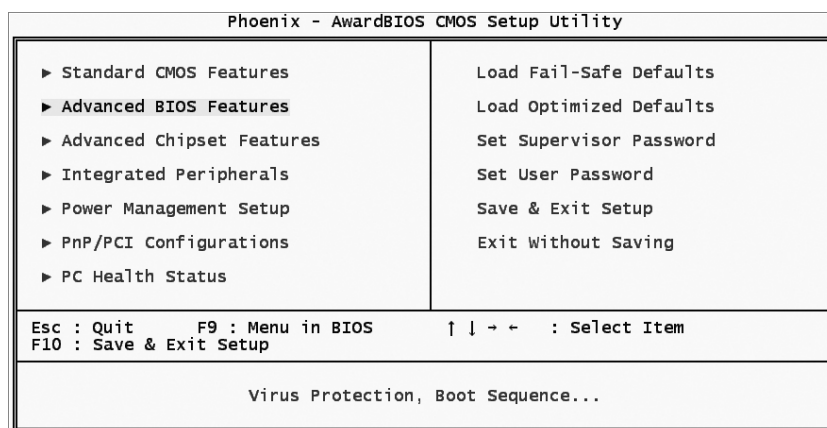
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

## Entering the Setup Utility

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

### **Press DEL to enter SETUP**

Pressing the delete key  accesses the BIOS Setup Utility:



## BIOS Navigation Keys

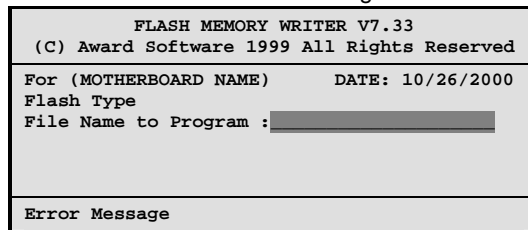
The BIOS navigation keys are listed below:

Key	Function
←↑↓→	Scrolls through the items on a menu
Enter	Select
+/-/PU/PD	Modifies the selected field's values
Esc	Exits the current menu
F1	Displays a screen that describes all key functions
F2	Item Help
F5	Loads previously saved values to CMOS
F6	Loads a minimum configuration for troubleshooting.
F7	Loads an optimum set of values for peak performance
F9	Menu in BIOS
F10	Saves the current configuration and exits setup

## Updating the BIOS

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

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
5. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
6. At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:



7. Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
8. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

---

## Using BIOS

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

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

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

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

## Standard CMOS Features

In the Standard CMOS menu you can set the system clock and calendar, record disk drive parameters and the video subsystem type, and select the type of errors that stop the BIOS POST.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features		
Date (mm:dd:yy)	Tue, Jul 8 2003	Item Help
Time (hh:mm:ss)	11 : 16 : 47	Menu Level ▶
▶ IDE Primary Master		Change the day, month, year and century
▶ IDE Primary Slave		
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	
--: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

### Date and Time

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

### ▶ IDE Devices (None)

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

Press <Enter> to display the IDE submenu:

Phoenix - AwardBIOS CMOS Setup Utility IDE Primary Master		
IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master Access Mode	[Auto]	Menu Level ▶▶
Capacity	0 MB	To auto-detect the HDD's size, head . . . on this channel
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

### **IDE HDD Auto-Detection**

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

---

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

---

### **IDE Primary/Secondary Master/Slave (Auto)**

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

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

---

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

---

### **Access Mode**

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

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

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

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

### **Floppy 3 Mode Support (Disabled)**

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

### **Video (EGA/VGA)**

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

### **Halt On (All Errors)**

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

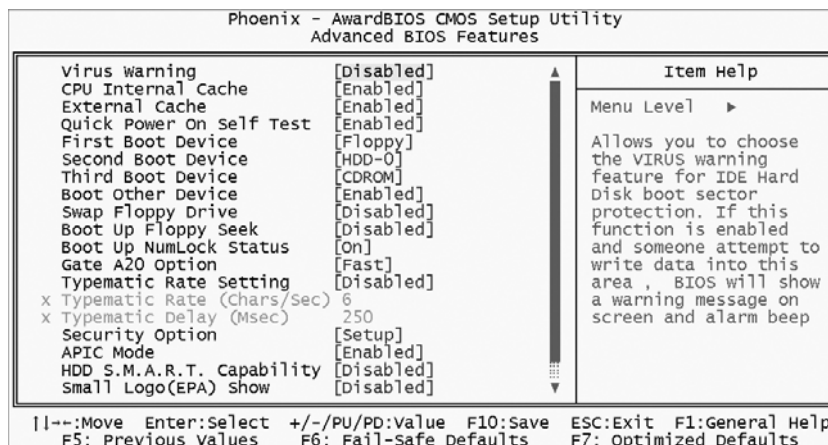
### **Base Memory, Extended Memory, and Total Memory**

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



## Advanced BIOS Features

*This option defines advanced information about your system.*



### Virus Warning (Disabled)

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

---

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

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### CPU Internal Cache (Enabled)

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

### External Cache (Enabled)

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

### Quick Power On Self Test (Enabled)

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

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

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

### Boot Other Device (Enabled)

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

Second, and Third boot devices.

**Swap Floppy Drive (Disabled)**

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

**Boot Up Floppy Seek (Disabled)**

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

**Boot Up NumLock Status (On)**

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

**Gate A20 Option (Fast)**

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

**Typematic Rate Setting (Disabled)**

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

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

**Security Option (Setup)**

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

**APIC Mode (Enabled)**

This item allows you to enable APIC (Advanced Programmable Interrupt Controller) functionality. APIC is an Intel chip that provides symmetric multiprocessing (SMP) for its Pentium systems.

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

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

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

### Small Logo (EPA) Show (Disabled)

Determines whether or not the EPA logo appears during boot up.

### ATA 66/100 Cable MSG (Enabled)

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

## Advanced Chipset Features

The Advanced Chipset Features 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.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Advanced Chipset Features		
System Performance	[Optimal]	Menu Level ▶
FSB Frequency	[100 MHz]	[Optimal] - Use the most stable settings.
CPU Interface	[Optimal]	[Aggressive/Turbo] - Use over clocked settings for higher performance but with higher risk of instability.
Memory Frequency	[By SPD]	[Expert] - Allows full customization of performance options. Advanced users only.
Resulting Frequency	194 MHz	
Memory Timings	[Optimal]	
T(RAS)	[7]	
T(RCD)	[1]	
T(RP)	[1]	
CAS Latency	[2.5]	
FSB Spread Spectrum	[0.50 %]	
AGP Spread Spectrum	[0.50 %]	
AGP Aperture Size (MB)	[128M]	
AGP 8X Support	[Enabled]	
AGP Fast Write Capability	[Enabled]	

||--:Move Enter:Select +/-/PU/PD:Value F10:save ESC:Exit F1:General Help  
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

### System Performance (Optimal)

[Optimal] – Use for stable settings.

[Aggressive/Turbo] – Use for overclocking.

[Expert] – Allows full customization of performance options. This is for advanced users only.

### FSB Frequency (100 MHz)

This item is for selecting the FSB frequency.

### CPU Interface (Optimal)

[Optimal] – Use for stable settings.

[Aggressive/Turbo] – Use for overclocking.

### Memory Frequency (By SPD)

This item is for selecting the DDR SDRAM frequency.

### Resulting Frequency (194 MHz)

This item shows the DDR SDRAM frequency you've selected in the previous item.

### **Memory Timings (Optimal)**

This item allows you to set the Memory Timings. The following four items become available when this item is set to Expert.

#### **T(RAS) (7)**

This item defines the timing delay for DRAM precharge.

#### **T(RCD) (1)**

This item defines the timing of the transition from RAS (row address strobe) to CAS (column address strobe) as both rows and columns are separately addressed shortly after DRAM is refreshed.

#### **T(RP) (1)**

This item defines the numbers of cycles for RAS to be allowed to precharge.

#### **CAS Latency (2.5)**

This item defines the timing delay in clock cycles before SDRAM starts a read command after receiving it.

#### **FSB Spread Spectrum (0.50%)**

This item allows you to set the FSB spread spectrum modulation.

#### **AGP Spread Spectrum (0.50%)**

This item allows you to set the AGP spread spectrum modulation.

#### **AGP Aperture Size (MB) (128M)**

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.

#### **AGP 8X Support (Enabled)**

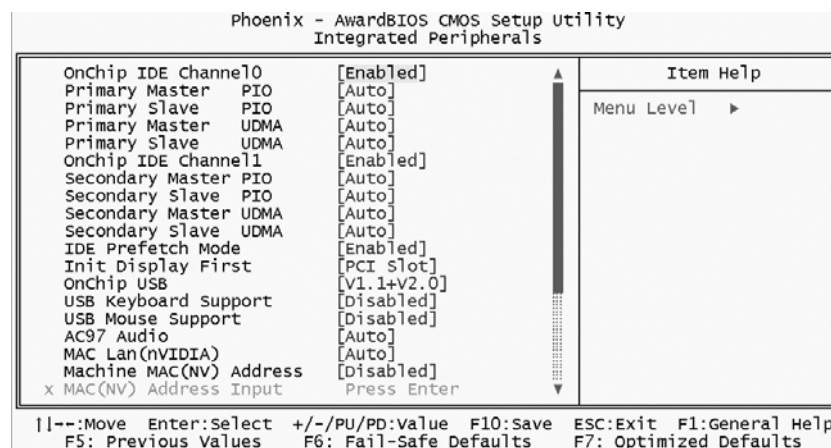
This item allows you to enable or disable AGP 8X Support.

#### **AGP Fast Write Capability (Enabled)**

This item enables an end user to manually select the AGP output buffer driver strength.

## Integrated Peripherals

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



### OnChip IDE Channel 0/Channel 1 (Enabled)

The chipset contains a PCI IDE interface with support to two IDE channels. Select Enabled to activate the primary/secondary IDE interface. Select Disabled to deactivate the primary/secondary interface.

### Primary/Secondary Master/Slave PIO (Auto)

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

### Primary/Secondary Master/Slave UDMA (Auto)

Ultra DMA/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA/100, select Auto to enable BIOS support.

### IDE Prefetch Mode (Enabled)

The onboard IDE drive interface support IDE prefetching for faster drive access. If you install a primary and/or secondary add-on IDE interface, set this field to Disabled if the interface does not support prefetching.

### Init Display First (PCI Slot)

This item is used to determine initial device when system power on.

### OnChip USB (V1.1+v2.0)

This should be enabled if your system has a USB installed on the system board and you want to use it.

**USB Keyboard Support (Disabled)**

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

**AC97 Audio (Auto)**

This item allows you to control the onboard AC97 Audio.

**MAC Lan (nVIDIA) (Auto)**

This option allows you to enable/disable the Onboard LAN Controller.

**Machine MAC (NV) Address (Disabled)**

This option allows you to enable/disable the Onboard LAN Controller Address setting.

**IDE DMA transfer access (Enabled)**

This item allows you to enable the transfer access of the IDE DMA then burst onto the PCI bus and nonburstable transactions do not.

**IDE HDD Block Mode (Enabled)**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

**Onboard FDC Controller (Enabled)**

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

**Onboard Serial Port 1 (378/IRQ7)**

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

**Onboard Parallel Port (378/IRQ7)**

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

**Parallel Port Mode (ECP)**

Select an operating mode for the onboard parallel port. Select ULTRA-400 unless you are certain your system supports other modes.

**ECP Mode Use DMA**

When the parallel port mode is set to ECP, this item becomes selectable.

## Power Management Setup

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

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Power Management Setup		Menu Level ▶
Power Management	[User Define]	
HDD Power Down	[Disabled]	
Soft-Off by PBTN	[Instant-Off]	
PCIPME Power Up Control	[Enabled]	
Modem Ring Power up Cont	[Disabled]	
Power-On by Alarm	[Disabled]	
x Day of Month Alarm	0	
x Time (hh:mm:ss) Alarm	0 : 0 : 0	
PWRON After PWR-Fail	[Off]	

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

### Power Management

This category allows you to select the type (or degree) of power saving mode settings.

**Min Saving** Minimum power management. Suspend Mode=1 hr.

**Max Saving** Maximum power management.Suspend Mode=1 min.

**User Define** Allows you to set each mode individually.  
Suspend Mode= Disabled or 1 min ~1 hr.

### HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time.

### Soft-Off by PBTN (Instant-Off)

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hang".

### PCIPME Power Up Control (Enabled)

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

### Modem Ring Power up Contl (Disabled)

Use this item to enable the modem ring to wakeup the system from a power saving mode.

### Power-On by Alarm (Disabled)

When set to Enabled, the following three fields become available and you can set the hour, minute and second to turn on your system.

## PWRON After PWR-Fail (Off)

This item allows you to select power on function when power fail.

## PNP/PCI Configurations

This option configures how PnP (Plug and Play) and PCI expansion cards operate in your system. Both the ISA and PCI buses on the Motherboard use system IRQs (Interrupt ReQuests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configurations Setup utility for the motherboard to work properly. Selecting PnP/PCI Configurations on the main program screen displays this menu:

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations		Item Help
Reset Configuration Data	[Disabled]	Menu Level ▶  Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
Resources Controlled By	[Auto(ESCD)] x IRQ Resources Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	
--:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

### Reset Configuration Data (Disabled)

If enabled, this feature will reset the Extended System Configuration Data (ESCD) upon exiting Setup. This may correct hardware conflicts that prevent the Operating System from booting.

### Resources Controlled By (Auto (ESCD))

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

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

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

In the Memory Resources submenu, use the first item Reserved Memory Base to set the start address of the memory you want to reserve for the ISA expansion card. Use the second item Reserved Memory Length to set the amount of reserved memory. Press <Esc> to close the Memory Resources submenu.



### IRQ Resources (Press Enter)

When the previous item is set to manual, this item allows you respectively assign an interruptive type for IRQ-3, 4, 5, 7, 9, 10, 11, 12, 14, and 15.

### PCI/VGA Palette Snoop (Disabled)

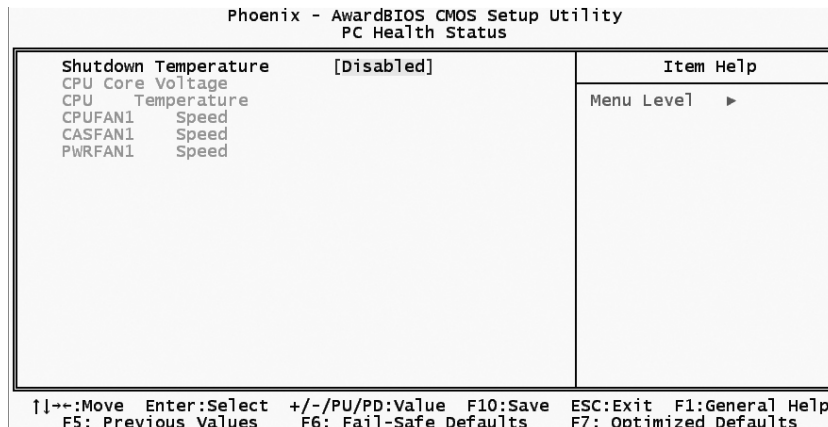
This item is designed to overcome problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

### INT Pin1~8 Assignment (Auto)

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

## PC Health Status

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



### Shutdown Temperature (Disabled)

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

### System Component Characteristics

These items allow end users and technicians to monitor data provided by the BIOS on this motherboard. You cannot make changes to these fields.

- CPU Core voltage
- CPU Temperature
- CPUFAN1 Speed
- CASFAN1 Speed
- PWRFAN1 Speed

## Load Fail-Safe Defaults

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

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

## Load Optimized Defaults

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

## Set Supervisor/User Password

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

### ENTER PASSWORD

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

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

### PASSWORD DISABLED

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

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

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

## **Save & Exit Setup**

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.

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

## Using the Motherboard Software

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### About the Software CD-ROM

The support software CD-ROM that is included in the motherboard 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 motherboard version. More information on some programs is available in a README file, located in the same directory as the software.

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

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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.

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

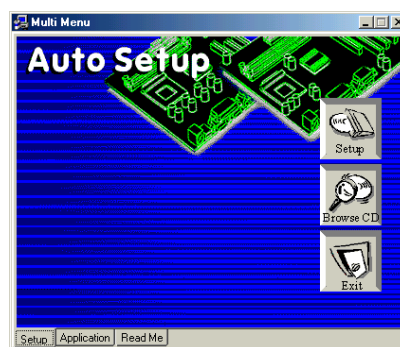
The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.

---

**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.

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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.



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**Note:** If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

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## Setup Tab

<b>Setup</b>	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
<b>Browse CD</b>	<p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<b>Exit</b>	The <b>Exit</b> button closes the Auto Setup window.

## Application Tab

Lists the software utilities that are available on the CD.

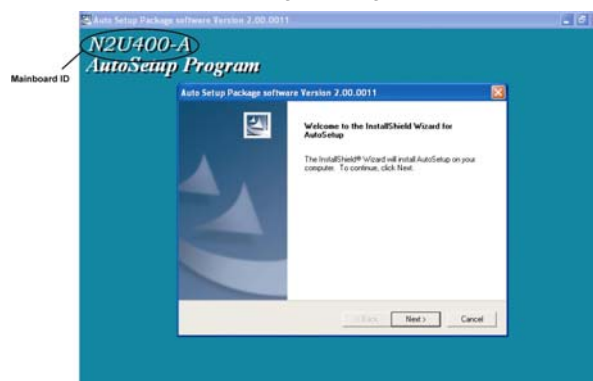
## Read Me Tab

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 motherboard:

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



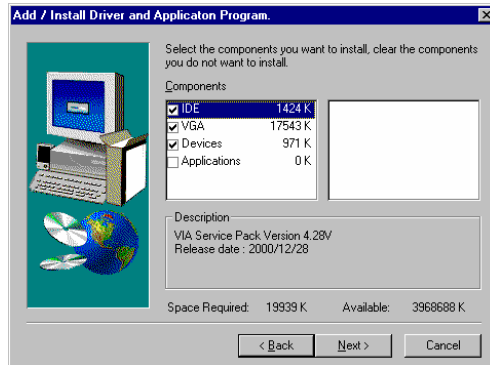
---

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

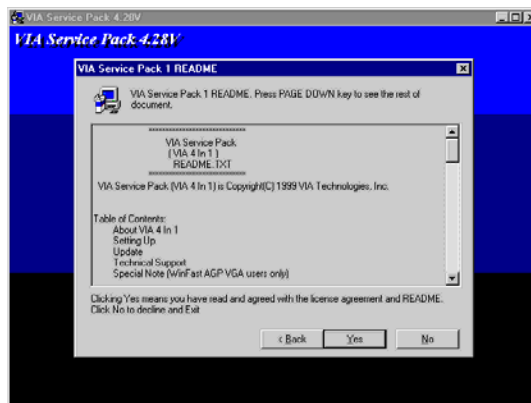
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The motherboard identification is located in the upper left-hand corner.

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



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



5. Follow the instructions on the screen to install the items.

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

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## 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 motherboard.

Look for the chipset and motherboard 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.

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## 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.

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

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### AWARD Flash Memory Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, 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 motherboard 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

The PC-CILLIN 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.

This concludes Chapter 4.