CERTIFICATE

The TÜV CERT Certification Body for QM Systems of RWTÜV Systems GmbH

hereby certifies in accordance with TÜV CERT procedure that

ELITEGROUP COMPUTER SYSTEMS CO., LTD.
ECS MANUFACTURING (SHENZHEN) CO., LTD.
ELITE TECHNOLOGY (SHENZHEN) CO., LTD.

2F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114
No. 22, Alley 38, Lane 91, Sec. 1, Nei Hu Road, Taipei, Taiwan 114
No. 20 & No. 26, Free Trade Zone, Shatoujiao, Shenzhen City, GuangDong Province, China

has established and applies a quality system for

Design, Manufacturing and Sales of Mainboards, Personal Computers, Notebooks and Peripheral Cards

An audit was performed, Report No. **2.5-1585/2000**

Proof has been furnished that the requirements according to

ISO 9001 : 2000 / EN ISO 9001 : 2000 / JIS Q 9001 : 2000 / ANSI/ASQC Q9001 : 2000

are fulfilled. The certificate is valid until **27 January 2007**

Certificate Registration No. **04100 2000 1325**

The company has been certified since **2000**

TGA-ZM-30-96-00

Essen, 04.03.2004

RWTÜV

The TÜV CERT Certification Body for QM Systems of RWTÜV Systems GmbH

ISO14001 CERTIFICATE

Certificate NO.: 05-2001-065

We hereby certify that

ECS Manufacturing(Shenzhen) Co.,Ltd

by reason of its

Environmental Management System

has been awarded this certificate for compliance with the standard

ISO14001:1996

The Environmental Management System applies in the following area:

The manufacture of Mother Board and Peripheral Card and interrelated management activities of ECS Manufacturing(Shenzhen) Co.,Ltd. which is located in No.20,Free Trade Zone,Shatoujiao,Shenzhen, P. R.China.

Date of issue: 30th Dec 2001
Date of expiry: 29th Dec 2004
Signed by:

SHENZHEN ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION CENTER

Trademarks

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AMI is a registered trademark of American Megatrends Inc.
Other names used in this publication may be trademarks and are acknowledged.

Static Electricity Precautions

1. Don't take this motherboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this motherboard by its edges. Do not touch those components unless it is absolutely necessary. Put this motherboard on the top of static-protection package with component side facing up while installing.

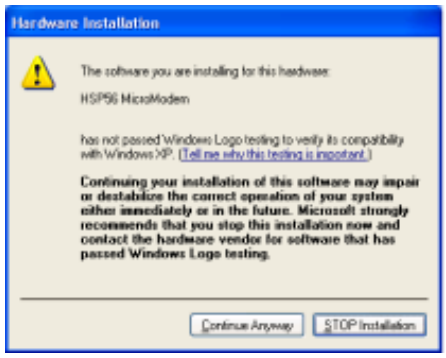
Pre-Installation Inspection

1. Inspect this motherboard whether there are any damages to components and connectors on the board.
2. If you suspect this motherboard has been damaged, do not connect power to the system. Contact your mainboard vendor about those damages.

M870 Series, V2.0
January 2005

Notice:

1. Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pops out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Just click the "Continue Anyway" button and go ahead the installation.



2. USB 2.0 Driver Limitations:

2-1. The USB 2.0 driver only supports Windows XP and Windows 2000.

2-2. If you connect a USB 2.0 hub to the root hub, plugging USB devices into this hub, the system might not successfully execute certain USB devices' connection because it could not recognize these devices.

Currently, we are working on such limitations' solution. As soon as the olution is done, the updated USB drive will be released to our website: www.pcchips.com for your downloading.

Features Translations

Caractéristiques

<table>
<tr><td>Processeur</td><td>La carte mère utilise le Socket K8 AMD 754supportant un bus frontal (FSB) de 800 MHz et un bus système de 1600 MT/s</td></tr>
<tr><td>Chipset</td><td>Le chipset sur cette carte mère comprend le chipset SiS755 Northbridge combiné avec le chipset SiS964 ou SiS964L Southbridge. Le tableau ci-dessous explique brièvement certaines des caractéristiques avancées du chipset.
<table>
<tr><th>Chipset</th><th>Caractéristiques</th></tr>
<tr><td rowspan="4">SiS755 NB</td><td>Supporte les CPU AMD K8</td></tr>
<tr><td>Supporte le pilote de bus compatible Hyper-Transport™ avec capacité de compensation auto</td></tr>
<tr><td>Compatible avec AGP 3.0 Universel</td></tr>
<tr><td>Supporte l’interface AGP 8X/4X avec w/Fast Write Transaction</td></tr>
<tr><td rowspan="6">SiS964/ 964L SB</td><td>Supporte les registres de configuration de gestion d’alimentation PCI pour prendre en charge le contrôleur de coupure d’alimentation ACPI</td></tr>
<tr><td>Entretien simultané pour tous les Périphériques DMA: Contrôleurs IDE Doubles, contrôleur SATA (excepté pour SiS964L), trois USB 1.1 HC, USB 2.0 HC, Contrôleur MAC et Contrôleur DMA Audio/Modem</td></tr>
<tr><td>Conforme aux spécifications PCI 2.3</td></tr>
<tr><td>Prend en charge les réseaux domestiques full duplex 10base-T, 100base-Tx, 1Mb/s & 10Mb/s</td></tr>
<tr><td>Conforme à AC’ 97 v2.3 supportant 6 Chanaux de sortie haut-parleur AC’ 97 et Modem V.90 HSP</td></tr>
<tr><td>Gestion d'Alimentation avancée</td></tr>
</table></td></tr>
<tr><td>Mémoire</td><td>• Peut recevoir deux logements sans mémoire tampon en 2.5V de 184 broches
• Supporte le module mémoire DDR/SDRAM jusqu’à 200/266/333/400 MHz
• Chaque logement supporte jusqu’à 1 Go avec une capacité maximum totale de 2 Go</td></tr>
<tr><td>Graphiques</td><td>Cette carte mère comprend un logement AGP qui offre huit fois la bande passante des spécifications AGP d’origine. L’AGP 3.0 (8X AGP) offre une amélioration significative de performances accompagnée d’améliorations de fonctionnalités sur l’AGP 2.0. 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.</td></tr>
</table>

Audio	Il est conforme aux spécifications AC'97 2.3 et supporte les extensions de CODEC multiples avec vitesses d'échantillonnage variables indépendantes et effets 3D intégrés. Elle intègre la technologie de convertisseur propriétaire pour obtenir une SNR élevée, supérieure à 90 dB. Le circuit de l'interface numérique fonctionne à partir d'une alimentation en 5V/3.3V et supporte une fonction de sortie SPDIF conforme AC'97 2.3 permettant une connexion facile à partir du PC sur d'autres produits électroniques. Les fonctions supplémentaires comprennent le support de quatre entrées stéréo de niveau de ligne analogique.
Options d'Extensions	La carte mère est livrée avec les options d'extensions suivantes: • Un logement AGP (supporte la carte 1.5V AGP seulement) • Cinq logements PCI 32 bits • Un logement Communications Network Riser (CNR) (Interface AC' 97 seulement) • Deux connecteurs IDE supportant quatre canaux IDE et une interface de lecteur de disquette • Deux connecteurs SATA supportant une deux disques durs SATA Cette carte mère supporte la maîtrise de bus Ultra DMA avec des vitesses de transfert de 133/100/66/33 Mo/sec.
LAN Interne (optionnel)	Le LAN Interne est un Fast Ethernet Phyceiver avec interface MII sur puce MAC. Il offre les fonctionnalités suivantes: • Supporte l'interface MII • Supporte le fonctionnement en 10/100 Mbps • Supporte le fonctionnement en half/full duplex • Fonctionnement en 3.3V avec signal 5V • Fonctionnement à faible consommation d'énergie
E/S Intégrées	La carte mère possède un jeu complet de ports d'E/S et de connecteurs: • Deux ports PS/2 pour souris et clavier • Un port série • Un port parallèle • Quatre ports USB • Un port LAN (optionnel) • Prises audio pour microphone, ligne d'entrée et ligne de sortie

Microprogramme BIOS	Cette carte mère utilise Award BIOS qui permet aux utilisateurs de configurer de nombreuses caractéristiques du système comprenant les suivantes: • Gestion d'alimentation • Alarmes de réveil • Paramètres de CPU • Synchronisation de CPU et de mémoire Le microprogramme peut aussi être utilisé pour définir les paramètres pour les vitesses d'horloges de différents processeurs.

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

Funktionen

<table>
<tr><td>Prozessor</td><td>Das Motherboard verwendet einen AMD K8 Socket 754, der 800 MHz Frontsidebus (FSB) und 1600 MT/s Systembus unterstützt.</td></tr>
<tr><td>Chipsatz</td><td>Der Chipsatz dieses Motherboards verfügt über die SiS755 Northbridge, die mit der SiS964 oder SiS964L Southbridge verbunden ist In der untenstehenden Tabelle werden einige der fortschrittlichen Funktionen des Chipsatzes kurz vorgestellt:
<table>
<tr><th><u>Chipsatz</u></th><th><u>Funktionen</u></th></tr>
<tr><td rowspan="5">SiS755 NB</td><td>Unterstützt AMD K8-CPUs</td></tr>
<tr><td>Unterstützt HyperTransport™ –kompatiblen Bustreiber mit autom. Kompensationsfähigkeit</td></tr>
<tr><td>Entspricht Universal AGP v3.0</td></tr>
<tr><td>Unterstützt AGP 8X/4X-Interface mit Fast Write-Abwicklung</td></tr>
<tr><td>Unterstützung PCI-Power-Management-Konfigurationsregister zur Unterstützung eines ACPI Power Down-Controllers</td></tr>
<tr><td rowspan="6">SiS964/ 964L SB</td><td>Gleichzeitiger Zugriff auf alle DMA-Geräte: Duale IDE-Controller, SATA-Controller (außer bei SiS964L), drei USB 1.1 HC, USB 2.0 HC, MAC-Controller und Audio/Modem DMA-Controller</td></tr>
<tr><td>Kompatibel mit der PCI 2.3-Spezifikation</td></tr>
<tr><td>Unterstützung für Vollduplex 10base-T, 100base-Tx, 1Mb/Sek. & 10 Mb/Sek. Home-Networking</td></tr>
<tr><td>Kompatibel mit AC’97 v2.3; Unterstützung für sechst Kanäle für AC’97-Lautsprecherausgänge sowie für ein V.90 HSP-Modem</td></tr>
<tr><td>Advanced Power Management</td></tr>
</table>
</td></tr>
<tr><td>Speicher</td><td>• Nimmt zwei ungepufferte 2.5V 184-Pin Steckplätze auf
• Unterstützt DDR/SDRAM bis zu 200/266/333/400 MHz SDRAM-Speichermodul
• Jeder Steckplatz unterstützt bis zu 1 GB mit einer maximalen Gesamtkapazität von bis zu 2 GB</td></tr>
<tr><td>Grafik</td><td>Das Motherboard enthält einen AGP-Steckplatz mit der achtfachen Bandbreite der ursprünglichen AGP-Spezifikation. AGP 3.0 (8X AGP) bietet gegenüber AGP 2.0 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.</td></tr>
</table>

Audio	Das kompatibel mit der AC´97 2.3-Spezifkation und unterstützt mehrfache CODEC-Erweiterungen mit variablen, unabhängigen Samplingraten und integrierten 3D-Effekten. Er verfügt über eine gesetzlich geschützte Konverter-Technologie zur Erreichung eines hohen SNR von mehr als 90 dB. Der digitale Interface-Schaltschreis wird von einem 5 Volt /3.3 Volt-Netzteil betrieben und unterstützt zum einfachen Anschluss an einen PC oder andere elektronische Geräte eine SPDIF-Out-Funktion. Weitere Funktionen beinhalten z.B. die Unterstützung von vier analogen Line-Level-Eingängen.
Erweiterungs-optionen	Das Motherboard bietet die folgenden Erweiterungsoptionen: • Einen AGP-Steckplatz (unterstützt nur 1.5V AGP Interface) • Fünf 32-bit PCI-Steckplätze • Einen Steckplatz für Communications Network Riser (CNR) (nur AC'97-Interface) • Zwei IDE-Stecker, die vier IDE-Kanäle und eine Schnittstelle für ein Floppydiskettenlaufwerk unterstützen • Zwei SATA-Anschlüsse, die Zwei SATA-festplatten Dieses Motherboard unterstützt Ultra DMA Bus-Mastering mit Übertragungsraten von 133/100/66/33 MB/s.
Integriertes LAN (optional)	Der Integriertes LAN ist ein Fast Ethernet Phyceiver mit einem MII-Interface und einem MAC-Chip. Er hat folgende Funktionen: • Unterstützung für MII-Interface • Unterstützung für 10/100 Mbps-Betrieb • Unterstützung für Halb-/Vollduplexbetrieb • 3.3 Volt-Betrieb mit 5 Volt-Signalen • Geringer Stromverbrauch beim Betrieb
Integrierte I/O	Das Motherboard verfügt über einen kompletten Satz von I/O-Schnittstellen und Anschlüssen: • Zwei PS/2-Schnittstellen für Maus und Tastatur • Eine serielle Schnittstelle • Eine parallele Schnittstelle • Vier USB-Schnittstellen • Eine LAN-Schnittstelle (optional) • Audiobuchsen für Mikrofon, Line-in und Line-out
BIOS-Firmware	Dieses Motherboard setzt das Award BIOS ein, mit dem der Anwender viele Systemeigenschaften selbst konfigurieren kann, einschließlich der folgenden: • Energieverwaltung • Wake-up-Alarm • CPU-Parameter • CPU und Speichertiming Mit der Firmware können auch die Parameter für verschiedene Prozessortaktgeschwindigkeiten eingestellt werden.

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

Caratteristiche

<table>
<tr><td>Processore</td><td>La scheda madre utilizza una piattaforma AMD K8 a 754 pin che supporta un front side bus (FSB) a 800 MHz ed un bus di sistema a 1600 MT/s.</td></tr>
<tr><td>Chipset</td><td>Il chipset è composto dai chipset Northbrigde SiS755 e Southbridge SiS964 o SiS964L. La tabella sottostante presenta una panoramica delle funzioni avanzate del chipset:
<table>
<tr><th><u>Chipset</u></th><th><u>Caratteristiche</u></th></tr>
<tr><td rowspan="4">SiS755 NB</td><td>Supporta CPU AMD K8</td></tr>
<tr><td>Supporto del Bus HyperTransport™ con funzione di autocompensazione automatica</td></tr>
<tr><td>Conforme Universal AGP 3.0</td></tr>
<tr><td>Supporta l'interfaccia AGP 8X/4X con Funzione Transizione Fast Write</td></tr>
<tr><td rowspan="6">SiS964/ 964L SB</td><td>Supporto per la gestione “Risparmio Energia” PCI garantendo la compatibilità con i controller ACPI</td></tr>
<tr><td>Servizio Simultaneo a tutte le periferiche DMA: Doppio Controller IDE, Controller SATA (ad eccezione del SiS964L), Tree HC USB 1.1 HC, USB 2.0 HC, Controller MAC e controller DMA Audio/Modem</td></tr>
<tr><td>Conforme allo standard PCI 2.3</td></tr>
<tr><td>Supporto home networking full duplex per 10base-T, 100base-Tx, 1Mb/s & 10 Mb/s</td></tr>
<tr><td>Conforme allo standard AC’ 97 v2.3 garantendo il supporto a 6 Canali dele uscite speaker AC’97 e modem HSP-Modem V.90</td></tr>
<tr><td>Gestione avanzata per il risparmio energetico</td></tr>
</table></td></tr>
<tr><td>Memoria</td><td>• Presenta due slot a 184 pin 2,5 V unbuffered
• Supporta moduli di memoria DDR SDRAM fino a 200/266/333/400 Mhz
• Ciascun slot supporta fino a 1 GB per una capacità totale massima di 2 GB</td></tr>
<tr><td>Grafica</td><td>La scheda madre include uno slot AGP che fornisce otto volte la larghezza di banda delle specifiche AGP originarie. Lo standard AGP 3.0 (8X AGP) garantisce prestazioni significativamente superiori oltre ad altri miglioramenti rispetto allo standard AGP 2.0. Questa interfaccia rappresenta la naturale evoluzione dell'AGP esistente ed è in grado di soddisfare le sempre maggiori aspettative del mercato nel campo delle interfacce grafiche, sia in ambiente workstation che in ambiente desktop</td></tr>
</table>

Audio	Il conforme alla specifiche AC'97 2.3 che supporta estensioni CODEC multiple con capacità di campionamento multiple e scalabili ed effetti 3D integrati. É dotato di una tecnologia di conversione integrata per ottenere un SNR di qualità elevata, maggiore di 90 dB. L'interfaccia digitale è alimentata da un alimentatore a 5V/3.3V e supporta un SPDIF compatibile con le specifiche AC'97 2.3 con funzioni che facilitano il collegamento di strumenti elettronici al PC. Altre caratteristiche includono il supporto di quattro entrate LINE STEREO analogiche
Opzioni di espansione	La scheda madre presenta le seguenti opzioni di espansione: • Uno slot AGP (supporta solo l'interfaccia 1.5V AGP) • cinque slot PCI 32 bit • Una slot Communications e Network Riser (CNR) (solo interfaccia AC' 97) • Due connettori IDE che supportano quattro canali IDE e un floppy disk • Due connettori SATA che supportano unità disco rigido connettori SATA La scheda madre supporta il bus mastering Ultra DMA con transfer rate 133/100/66/33 MB/sec.
LAN integrato (opzionale)	La LAN integrato é una periferica Fast Ethernet dotata di interfaccia MII per chip MAC. É dotata delle seguenti caratteristiche: • Dotata di interfaccia MII • Supporto – 100/10 Mbps • Supporto Half e Full Duplex • Funzionamento a 3.3V con segnale a 5V • Basso consumo energetico
I/O Integrati	La scheda madre è dotata da una serie completa di porte e connettori I/O: • Due porte PS/2 per tastiera e mouse • una porta seriale • Una porta parallela • Quattro porte USB • Una porta LAN (opzionale) • Jack audio per microfono, ingresso linea e uscita linea
Firmware BIOS	Questa scheda madre adotta un BIOS Award che permette agli utenti di configurare le caratteristiche principali del sistema, inclusi: • Gestione energia • Allarmi wake up • Parametri CPU • Temporizzazione CPU e memoria Il firmware può anche essere usato per impostare i parametri per diverse velocità di clock.

Alcune specifiche hardware o software potrebbero essere soggette a cambiamenti senza preavviso.

Características

<table>
<tr><td>Procesador</td><td>La placa principal usa un AMD K8 Ranura 754 que soporta bus de lado frontal 800 MHz (FSB) y el bus de sistema 1600 MT/s.</td></tr>
<tr><td>Chipset</td><td>El chipset en esta placa principal incluye la SiS755 Northbridge combinado con el chipset SiS964 o SiS964L Southbridge. La tabla abajo explica algunas de las características avanzadas del chipset:
<table>
<tr><th>Chipset</th><th>Características</th></tr>
<tr><td rowspan="5">SiS755 NB</td><td>Soporta CPUS de AMD K8</td></tr>
<tr><td>Soporte HyperTransport™ con driver de bus conforme con la capacidad de auto-compensación</td></tr>
<tr><td>Conforme con Universal AGP 3.0</td></tr>
<tr><td>Soporta la interfaz AGP 8X/4X c/ Transacción de Escritura Rápida</td></tr>
<tr><td>Soporta los registros de configuración de ad-ministración de suministro PCI para soportar el controlador de apagado ACPI</td></tr>
<tr><td rowspan="6">SiS964/ 964L SB</td><td>Servicio conjunto de todos los Dispositivos DMA: Controladores IDE Dual, controlador SATA (excepto para SiS964L), tres USB 1.1 HC, USB 2.0 HC, Controlador MAC y Controlador Sonido/Módem DMA</td></tr>
<tr><td>Conforme con la especificación PCI 2.3</td></tr>
<tr><td>Soporta la red de trabajo residencial de duplex completo 10base-T, 100base-Tx, 1 Mb/s & 10 Mb/s</td></tr>
<tr><td>Conforme con AC’97 v2.3 que soporta 6 Cana-les de salidas de altoparlante AC’97 y V.90 HSP-Módem</td></tr>
<tr><td>Administración de Suministro Avanzada</td></tr>
</table></td></tr>
<tr><td>Memoria</td><td>• Acomoda dos ranuras 2.5V 184-pin sin buffer
• Soporta DDR/SDRAM hasta módulo de memoria 200/266/333/400 MHz SDRAM
• Cada ranura soporta hasta 1 GB con una capacidad máxima total de 2 GB</td></tr>
<tr><td>Gráficas</td><td>Esta placa principal incluye una ranura AGP que provee ocho veces la ancha de banda de la especificación de AGP original. El AGP 3.0 (8X AGP) ofrece un aumento significativo en rendimiento junto con mejoramientos de característica para AGP 2.0. Esta interfaz representa la evolución natural del AGP existente para satisfacer las crecientes demandas enfocadas en las interfaces de gráficas dentro de los ambientes de estación de trabajo y sobremesas.</td></tr>
</table>

Sonido	El conforma con la especificación AC'97 2.3 y soporta múltiples extensiones CODEC con índice de muestreo variable y efectos 3D incorporados. Incorpora la tecnología de conversor propietaria para lograr un SNR alto, mayor que 90 dB. El circuito de interfaz digital opera de un suministro de 5V/3.3V y soporta una función de salida SPDIF conforme con AC'97 2.3 que permite la conexión fácil del PC a otros productos electrónicos. Otras características incluyen soporte para cuatro entradas estereofónicas a nivel de línea analógica.
Opciones de Expansión	La placa principla viene con las sigtes. opciones de expansión: • Una ranura AGP (soporta interfaz 1.5V AGP solamente) • Cinco ranuras 32-bit PCI • Una ranura de Communications Network Riser (CNR) (Intrefaz AC'97 solamente) • Dos conectores IDE que soportan cuatro canales IDE y una interfaz de unidad de disco floppy • Dos conectores SATA que soportan dos unidades rígidas SATA Esta placa principal soporta mastering de bus Ultra DMA con índices de transferencia de 133/100/66/33 MB/seg.
LAN Abordo (optativo)	El LAN Abordo es un Fast Ethernet Phyceiver con interfaz MII para el chip MAC. Provee las sigtes. características: • Soporta Interfaz MII • Soporta operación 10/100 Mbps • Soporta operación medio/full duplex • Operación 3.3V con señal 5V • Bajo consumo de operación
I/O Integrado	La placa principal tiene un juego completo de puertos y conectores I/O: • Dos puertos PS/2 para ratón y teclado • Un puerto serial • Un puerto paralelo • Cuatro puertos USB • Un puerto LAN (optativo) • Clavijas de sonido para micrófono, entrada y salida de línea
Firmware de BIOS	Esta placa principal usa AwardI BIOS que habilita los usuarios a configurar muchas características de sistema que incluyen las sigtes.: • Administración de energía • Alarmas despertadoras • Parámetros de CPU • CPU y cronometraje de memoria El firmware también se puede usar para configurar parámetros para diferentes velocidades de reloj.

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

Características

<table>
<tr><td>Processador</td><td>Esta motherboard usa a Ficha AMD K8 754 que suporta bus de lado frontal 800 MHz (FSB) e bus de sistema 1600 MT/s.</td></tr>
<tr><td>Conjunto de Chips</td><td>O conjunto de chips nesta motherboard inclui o SiS755 Northbridge combinado com o conjunto de chips SiS964 ou SiS964L Southbridge. A tabela abaixo explica de forma sucinta algumas das características mais avançadas do conjunto de chips.
<table>
<tr><th>Conjunto de Chips</th><th>Características</th></tr>
<tr><td rowspan="5">SiS755 NB</td><td>Suporta CPUs AMD K8</td></tr>
<tr><td>Suporta HyperTransport™ compatível com bus driver com capacidade de auto-compensação</td></tr>
<tr><td>Compatível com AGP 3.0 Universal</td></tr>
<tr><td>Suporta Interface AGP 8X/4X com Transação de Escrita Rápida</td></tr>
<tr><td>Suporta registos de configuração de gestão de potência PCI para suportar controlador de baixa potência ACPI</td></tr>
<tr><td rowspan="6">SiS 964/ 964L SB</td><td>Manutenção concorrente de todos os dispositivos DMA: Controladores Duplos IDE, controlador SATA (excepto para SiS964L), três USB 1.1 HC, USB 2.0 HC, Controlador MAC e Controlador Áudio/Modem DMA</td></tr>
<tr><td>Cumpre com a especificação PCI 2.3</td></tr>
<tr><td>Suporta Rede Local de duplex completo 10base-T, 100base-Tx, 1 Mb/s & 10 Mb/s</td></tr>
<tr><td>Cumpre com a AC’97 v2.3 suportando 6 Canais de saídas de altifalantes AC’97 e HSP-Modem V.90</td></tr>
<tr><td>Gestão Avançada de Potência</td></tr>
</table></td></tr>
<tr><td>Memória</td><td>• Acomoda duas ranhuras sem buffers 2.5V de 184 pinos
• Suporta DDR até módulo de memória 200/266/333/400 MHz DDR SDRAM
• Cada ranhura suporta até 1 GB com uma capacidade máxima de 2 GB</td></tr>
<tr><td>Gráficos</td><td>Esta motherboard inclui uma ranhura AGP que fornece oito vezes a largura de banda da especificação AGP original.
O AGP 3.0 (8X AGP) oferece um aumento significante na performance juntamente com melhoramentos nas características para o AGP2.0.
Este interface representa a evolução natural a partir do AGP existente de forma a satisfazer os pedidos cada vez mais incessantes pelos interfaces de gráficos nos ambientes da estação de trabalho e desktop</td></tr>
</table>

Áudio	É compatível com a especificação AC'97 2.3 e suporta extensões CODEC múltiplas com taxas de amostragem variáveis e independentes e incorporado com efeitos 3D. Incorpora tecnologia de conversor próprio de forma a atingir um SNR elevado, superior a 90 dB. O circuito de interface digital opera a partir de um fornecimento de energia 5V/3.3V e suporta um AC'97 2.3 compatível com a função de saída SPDIF a qual permite uma ligação mais fácil a partir do PC para outros produtos electrónicos. Outras características incluem suporte para quatro entradas estéreo níveis de linha analógicas.
Opções de Expansão	A motherboard é fornecida com as seguintes opções de expansão: • Uma ranhura AGP (suporta somente Interface 1.5V AGP) • Cinco ranhuras PCI de 32 bits • Uma ranhura de Aumento da Rede de Comunicações (CNR) (somente interface AC'97) • Dois conectores IDE que suportam quatro canais IDE • Um interface com drive de disco flexível • Dois conectores SATA que suportam duas hard drives SATA Esta motherboard suporta mastering bus Ultra DMA com taxas de transferência de 133/100/66/33 MB/s.
Onboard LAN (opcional)	O onboard LAN é um Receptor de Ethernet Rápido com interface MII para chip MAC. Fornece as seguinets características: • Suporta interface MII • Suporta operação10/100Mbps • Suporta operação de duplex pela metade/completo • Operação 3.3V com sinal 5V • Consumo baixo de energia de operação
I/O Integrado	A motherboard possui um conjunto completo de portas I/O e conectores: • Duas portas PS/2 para rato e teclado • Uma porta de série • Uma porta paralela • Quatro portas USB • Uma porta LAN (opcional) • Fichas áudio para microfone, entrada de linha e saída de linha

Microprogramação BIOS	Esta motherboard usa Award BIOS que permitem aos utilizadores configurar muitas características do sistema incluindo as seguintes: • Gestão de corrente • Alarmes de despertar • Parâmetros CPU • Temporização de memória e CPU A microprogramação poderá ser também usada para estabelecer parâmetros para diferentes velocidades de relógio do processador.

Algumas especificações de hardware e itens de software poderão ser sujeitos a alterações sem aviso prévio.

功能

<table>
<tr><td>处理器</td><td>主板使用 AMD K8 Socket 754 插座，支持 800 MHz 前端总线(FSB) 和 1600 MT/s 系统总线。</td></tr>
<tr><td>芯片组</td><td>此主板使用了 SiS755 北桥和 SiS964 或 SiS964L 南桥芯片组。 下表中简要介绍了芯片组的先进功能。
<table>
<tr><th>芯片组</th><th>功能</th></tr>
<tr><td rowspan="5">SiS755 NB</td><td>支持 AMD K8 CPU</td></tr>
<tr><td>支持带自动补偿功能的 HyperTransportTM 总线驱动程序</td></tr>
<tr><td>符合通用 AGP 3.0 标准</td></tr>
<tr><td>支持带快写处理功能的 AGP 8X/4X 接口</td></tr>
<tr><td>支持 PCI电源管理配置寄存器，用于支持 ACPI 掉电控制器</td></tr>
<tr><td rowspan="6">SiS964/ 964L SB</td><td>所有 DMA 设备的并发服务： 双 IDE 控制器、SATA 控制器（SiS964L 除外）、3 个 USB 1.1 HC、USB 2.0 HC、MAC 控制器和音频/调制解调器 DMA 控制器</td></tr>
<tr><td>符合 PCI 2.3 规格</td></tr>
<tr><td>支持全双工 10base-T、100base-Tx、1Mb/s & 10 Mb/s 本地网络</td></tr>
<tr><td>符合 AC'97 v2.3（支持 AC'97 扬声器 6 通道）标准和 V.90 HSP-Modem 标准</td></tr>
<tr><td>高级电源管理</td></tr>
</table></td></tr>
<tr><td>内存</td><td>• 提供 2 个非缓冲 2.5V 184 pin 插槽
• 支持 200/266/333/400MHz DDR/SDRAM 内存条
• 每个插槽支持 1 GB，总共最大可支持 2 GB</td></tr>
<tr><td>图形</td><td>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 (8X AGP) 在增强了 AGP 2.0 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。</td></tr>
<tr><td>音频</td><td>符合 AC'97 2.3规格，支持多个具有独立可调采样 速率和内建3D音效的编解码器。它与专有的转换器技术相结合，能够获得大于 90 dB SNR（信噪比）。数字接口电路可以在 5V/3.3V 电源下工作，并支持符合 AC'97 2.3 规格的 SPDIF输出功能，此功能可以方便的将PC与其它电子产品连接在一起。其它功能包括支持 4 路模拟线路级立体声输入。</td></tr>
</table>

扩展 选项	此主板提供如下扩展选项： • 1 个 AGP 插槽（只支持 1.5V AGP 接口） • 5 个 32 位 PCI 扩展插槽 • 1 个通信网络转接 (CNR) 插槽（仅对于 AC'97 接口） • 2 个 IDE 接口，可支持 4 个 IDE 通道；1 个软驱接口 • 2 个 SATA 接口，支持 2 个 SATA硬盘 此主办支持 Ultra DMA 总线控制，传输速率可达 133/100/66/33 MB/sec。
Onboard LAN（可选）	Onboard LAN 是一个高速以太网 Phyceiver，带有到 MAC 芯片的 MII 接口。它具有以下特点： • 支持 MII 接口 • 支持 10/100 Mbps 工作 • 支持半双工/全双工工作 • 3.3V 工作，5V 信号 • 低功耗
集成 I/O	此主板具有完整的 I/O 端口和插孔： • 2 个用于连接鼠标和键盘的 PS/2 端口 • 1 个串口 • 1 个并口 • 4 个 USB 端口 • 1 个 LAN 端口（可选） • 麦克风、线入和线出声音插孔
BIOS	此主板使用 Award BIOS，可以让用户自己配置以下系统功能： • 电源管理 • 唤醒报警 • CPU 参数 • CPU 和记忆的定时 还可用于设置不同处理器时钟速度的参数。

某些硬件规格和软件项目若有更改恕不另行通知。

Table of Contents

Chapter 1 Introduction

Thank you for choosing this motherboard. It is designed to fit the newest and advanced AMD K8 processors. This 64-bit and 32-bit x86 PC processor brings continued performance scaling for applications that demand multiprocessor scalability, larger addressable memory, better multimedia performance, and improvements in computational accuracy.

Based on the ATX form factor, the motherboard incorporates the **SiS755 Northbridge** and **SiS964/964(L) Southbridge** chipsets. The SiS755 Northbridge features the **HyperTranport™** complaint bus driver technology to support AMD Athlon 64 processors up to 1600MT/s data rate. It also support external AGP slot with **AGP 4X/8X** capability and Fast Write Transactions. The "HyperTransport" technology is designed to increase the communication speed between integrated circuits in computers up to 48 times faster, helps reduce the number of buses in a system and reduce system bottlenecks and reduce the system bottlenecks.

The SiS964/964(L) Southbridge on the other hand implements an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports, integrates AC'97 v2.3 compliance audio controller that features a 6-channels of audio speaker out and HSP v.90 modem support, the SiS964 Southbridge integrated Serial ATA Host Controller compliant with SATA 1.0 specification which supports 1.5Gb/s bandwidth for each serial port and support IDE channels supporting PIO mode 0,1,2,3,4 and Ultra DMA **133**/100/66/33.

This high performance motherboard is intended to give customers a high quality, rich multimedia solution and state-of-the-art technology. It provides a complete set of I/O ports, such as dual SATA interfaces, a floppy controller, a high-speed serial port, an EPP/ECP capable bi-directional parallel port connector, eight USB (Universal Serial Bus) connectors, LAN, a PS/2 keyboard and mouse connector, and audio jacks for microphone, line-in, line-out. One AGP slot (support 1.5V AGP interface only), five PCI local bus slots and one CNR Communication and Networking Riser slot providing expandability for add-on peripheral cards.

Key Features

The key features of this motherboard include:

Processor

- The motherboard uses the **AMD K8 Socket 754** that supports **800 MHz** frontside bus (FSB) and 1600 MT/s system bus.

Note: HyperTransport Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

Chipset

The chipset on this motherboard includes the **SiS755 Northbridge** combine with **SiS964 or SiS964L Southbridge** chipset. The table below briefly explains some of the chipset's advanced features.

SiS755 Northbridge:

- Supports **AMD K8** CPUs
- Support **HyperTransport™** compliant bus driver with auto compensation capability
- Compliant with Universal AGP 3.0
- Supports **AGP 8X/4X** Interface w/ Fast Write Transaction
- Supports PCI power management configuration registers for supporting ACPI power down controller

SiS964/964L Southbridge:

- Concurrent servicing of all DMA Devices: Dual IDE Controllers, SATA controller *(except for SiS964L)*, three USB 1.1 HC, USB 2.0 HC, MAC Controller and Audio/Modem DMA Controller
- Compliant with PCI 2.3 specification
- Supports full duplex 10base-T, 100base-Tx, 1 Mb/s & 10 Mb/s Home Networking
- Compliant with AC'97 v2.3 supporting 6 Channels of AC'97 speaker outputs and V.90 HSP-Modem

Memory Support

- Accommodates two unbuffered 2.5V 184-pin slots
- Supports DDR/SDRAM up to 200/266/333/400 MHz memory module
- Each slot supports up to 1 GB with a total maximum capacity of 2 GB

Graphics

- This 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.

Audio

- It is compliant with the AC'97 2.3 specification and supports multiple CODEC extensions with independent variable sampling rates and built-in 3D effects. It incorporates proprietary converter technology to achieve a high SNR, greater than 90 dB. The digital interface circuitry operates from a 5V/3.3V power supply and supports an AC'97 2.3 compliant SPDIF out function which allows easy connection from the PC to other electronic products. Further features include support for four analog line-level stereo inputs.

Expansion Options

The motherboard comes with the following expansion options:

- One AGP slot (supports 1.5V AGP Interface only)
- Five 32-bit PCI slots
- A Communications Network Riser (CNR) slot (AC'97 interface only)
- Two IDE connectors which support four IDE channels
- One floppy disk drive interface
- Two SATA connectors which support two SATA hard drives

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/sec.

Onboard LAN (optional)

The onboard LAN is a Fast Ethernet Phyceiver with MII interface to MAC chip. It provides the following features:

- Support MII interface
- Support 10/100Mbps operation
- Support half/full duplex operation
- 3.3V operation with 5V signal
- Low operation power consumption

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- Four USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

BIOS Firmware

This motherboard uses Award BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

Dimensions

- ATX form factor of 305 x 220 mm

Note: Hardware specifications and software items are subject to change without notification.

Package Contents

Your motherboard package ships with the following items:

- ❑ The motherboard
- ❑ The User's Guide
- ❑ One diskette drive ribbon cable (optional)
- ❑ One IDE drive ribbon cable
- ❑ The Software support CD

Optional Accessories

You can purchase the following optional accessories for this motherboard.

- ❑ The Extended USB module
- ❑ The CNR v.90 56K Fax/Modem card

Note: You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.

Chapter 2 Motherboard Installation

To install this motherboard in a system, please follow these instructions in this chapter:

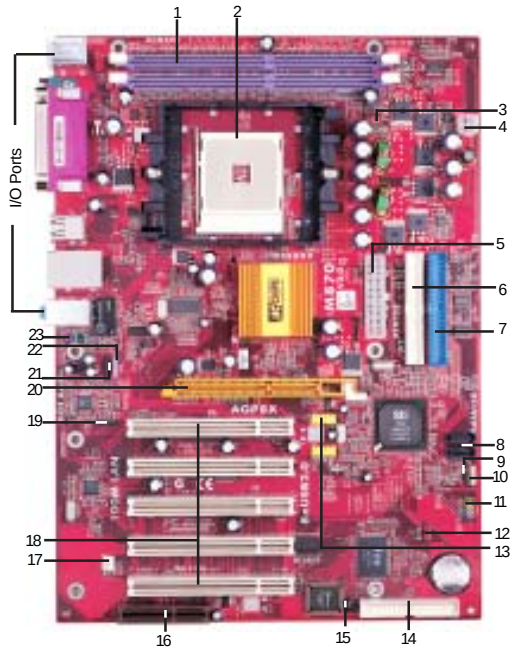
- Identify the motherboard components
- Install a CPU
- Install one or more system memory modules
- Make sure all jumpers and switches are set correctly
- Install this motherboard in a system chassis (case)
- Connect any extension brackets or cables to headers/connectors on the motherboard
- Install peripheral devices and make the appropriate connections to headers/connectors on the motherboard

Note:

1 Before installing this motherboard, make sure jumper JP1 is under Normal setting. See this chapter for information about locating JP1 and the setting options.

2 Never connect power to the system during installation; otherwise, it may damage the motherboard.

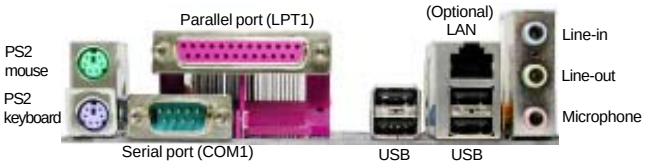
Motherboard Components



ITEM	LABEL	COMPONENTS	COLOR
1	DIMM1/2	Two 184-pin DDR SDRAM sockets	PURPLE
2	CPU Socket	Socket-754 for AMD K8 processors	WHITE
3	CPUFAN1	CPU Fan connector(3PIN)	DARK RED
4	ATX12V	Standard 4-Pin ATX Power connector	WHITE
5	ATX1	Standard 20-Pin ATX Power connector	WHITE
6	IDE2	Sceondary IDE connector	WHITE
7	IDE1	Primary IDE connector	BLUE
8	SATA1/2	Serial ATA connectors	BLACK
9	SJ1	Single color LED header	BLACK
10	SPK1	Speaker header	LIME
11	PANEL1	Front Panel Switch/LED header	COLOR
12	JP1	Clear CMOS jumper	RED
13	USB3/4	Front Panel USB headers	YELLOW
14	FDD1	Floppy Disk Drive connector	WHITE
15	JP3	BIOS Protection jumper	BLACK
16	CNR1	CNR slot	BROWN
17	CASFAN1	System Fan connector	WHITE
18	PCI 1-5	32-bit PCI slots	WHITE
19	AUXIN1	Auxiliary Audio-In header	BLACK
20	AGP1	AGP 8X slot	ORANGE
21	CDIN1	Analog Audio Input header	BLACK
22	SPDIFO1	SPDIF Out header	LIGHT PURPLE
23	AUDIO1	Front Panel Audio header	PURPLE

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.



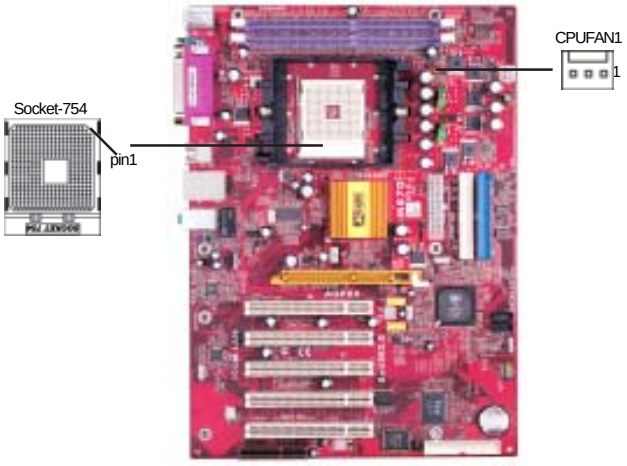
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
Parallel Port (LPT1)	Use the Parallel port to connect printers or other parallel communications devices.
Serial Port (COM1)	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
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.
Audio Ports	Use these three audio jacks to connect audio devices. The first jack is for stereo Line-In signal, the second jack for stereo Line-Out signal, and the third jack for Microphone.

Installing the Processor

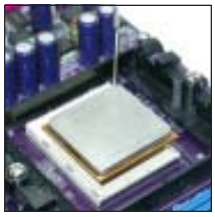
This motherboard has a socket 754 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

Follow these instructions to install the CPU:



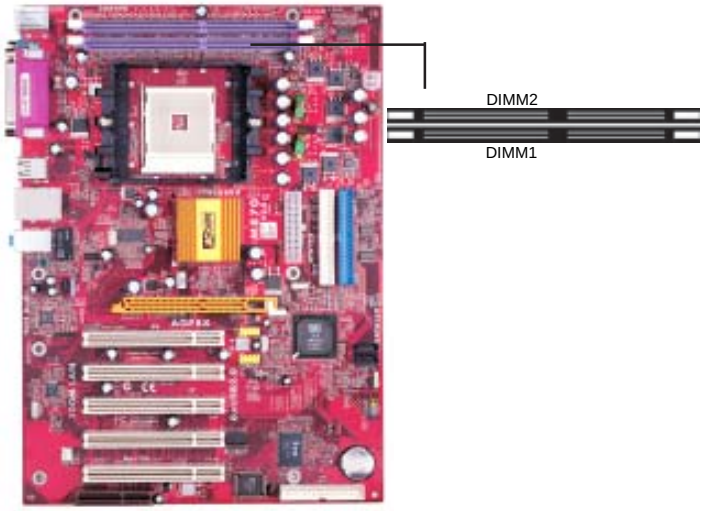
1 Unhook the locking lever of the CPU socket. Pull the locking lever away from the socket and raising it to the upright position.
2 Match the pin1 corner marked as the beveled edge on the CPU with the pin1 corner on the socket. Insert the CPU into the socket. Do not use force.
3 Push the locking lever down and hook it under the latch on the edge of socket.
4 Apply thermal grease to the top of the CPU.
5 Install the cooling fan/heatsink unit onto the CPU, and secure them all onto the socket base.
6 Plug the CPU fan power cable into the CPU fan connector (CPUFAN1) on the motherboard.



Installing Memory Modules

This motherboard accommodates two 184-pin 2.5V unbuffered Double Data Rate (DDR) SDRAM memory modules. It can support **DDR400**/DDR333/ DDR266/DDR200 memory modules. You must install at least one module in any of these two sockets. Each module can be installed with 32 MB to 1 GB of memory; total memory capacity is 2.0 GB.

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



Memory Module Installation Procedure

These modules can be installed with up to 2 GB system memory. Refer to the following to install the memory module.

1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.

Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.

JP1: Clear CMOS Jumper

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

Function	Jumper
Normal	Short Pins 1-2
Clear CMOS	Short Pins 2-3

JP3: BIOS Protect Jumper

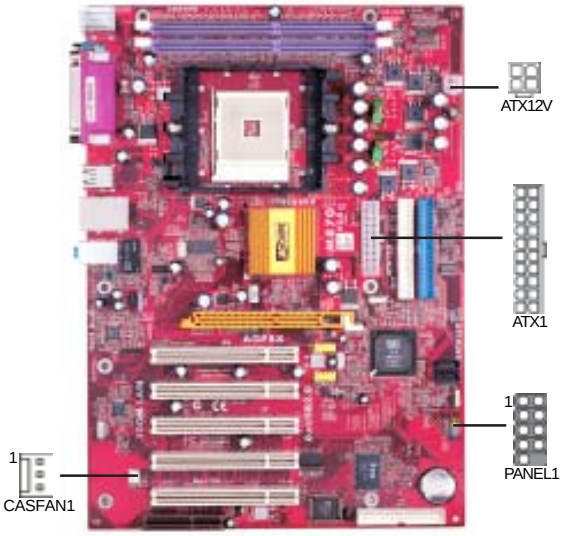
Use this jumper to enable or disable the function of BIOS protection.

Function	Jumper
Disable	Short Pins 1-2
Enable	Short Pins 2-3

Install The Motherboard

Install the motherboard in a system chassis (case). The board is an ATX size motherboard. You can install this motherboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this motherboard.

Install the motherboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.



Connect the power connector from the power supply to the **ATX1** connector on the motherboard. **ATX12V** is a +12V connecotr for CPU Vcore power.

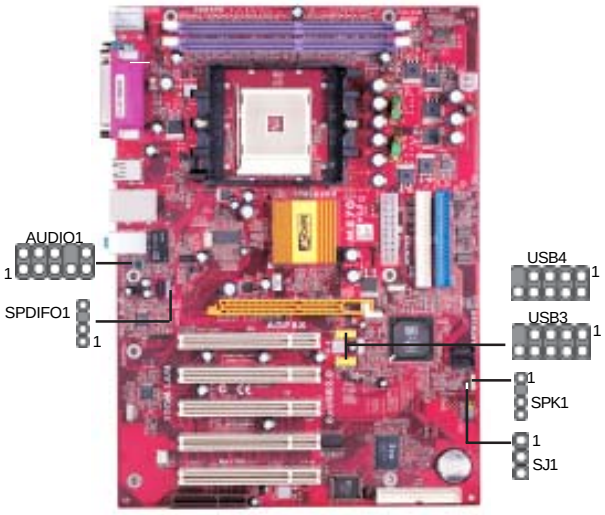
If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **CASFAN1** fan power connector on the motherboard.

Connect the case switches and indicator LEDs to the **PANEL1** header.

Pin	Signal	Pin	Signal
1	HD_LED_P(+)	2	FP PWR/SLP(+)
3	HD_LED_N(-)	4	FP PWR/SLP(-)
5	RESET_SW_N(-)	6	POWER_SW_P(+)
7	RESET_SW_P(+)	8	POWER_SW_N(-)
9	RSVD_DNU	10	KEY

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



SPK1: Speaker Header

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

Pin	Signal
1	SPKR
2	NC
3	NC
4	+5V

SJ1: Single Color LED Header (optional)

Connect the case LED cable to **SJ1**.

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

ACPI LED FUNCTION:

S0	S1	S3	S4/S5
Light	Blinking	Blinking	Dark

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	Pin	Signal
1	AUD_MIC1	2	AUD_GND
3	AUD_MIC2	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

USB3/USB4: Front panel USB Header

The motherboard has 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 headers USB3/USB4 to connect the front-mounted ports to the motherboard.

Pin	Signal	Pin	Signal
1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0(-)	4	USB_FP_P1(-)
5	USB_FP_P0(+)	6	USB_FP_P1(+)
7	GROUND	8	GROUND
9	KEY	10	USB_FP_OC0

1. Locate the USB3/USB4 header on the motherboard.
2. Plug the bracket cable onto the USB3/USB4 header.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

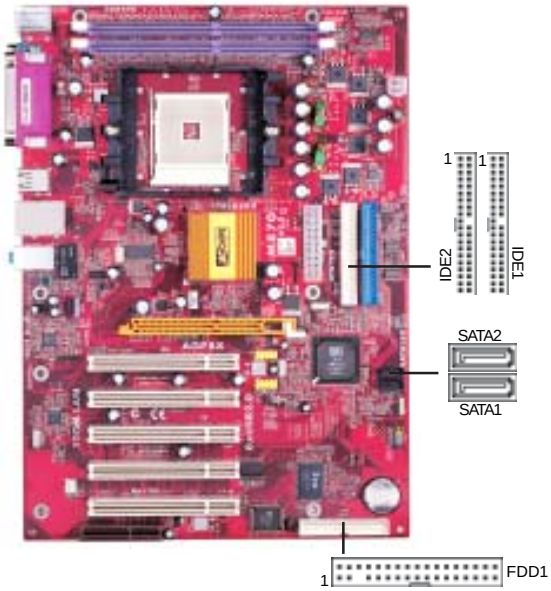
SPDIFO1: SPDIF Out Header (optional)

S/PDIF (Sony/Philips Digital Interface) is a standard audio transfer file format and allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Via a specific audio cable, you can connect the SPDIFO1 header (S/PDIF output) on the motherboard to the S/PDIF digital input on the external speakers or AC Decode devices.

Pin	Signal	Pin	Signal
1	SPDIF	2	+5VA
3	KEY	4	GND

Install Other Devices

Install and connect any other devices in the system following the steps below.



Floppy Disk Drive

The motherboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.

Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FDD1**.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave device. The Master device connects to the end of the cable.

Install the device(s) and connect power from the system power

supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the motherboard.

If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the motherboard. If you have two devices on the cable, one must be Master and one must be Slave.

Serial ATA Devices

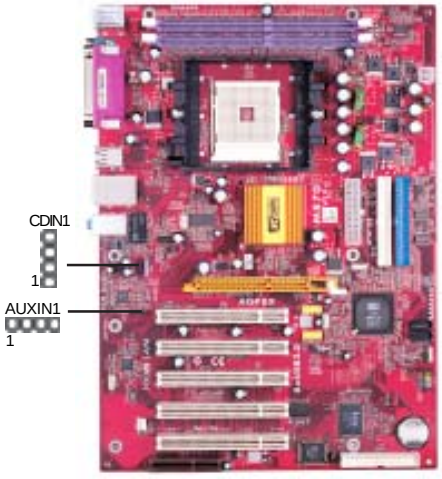
The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **150 MB/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connector on the motherboard.

On the motherboard, locate the Serial ATA connectors **SATA1-2**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

It eliminates limitations of the current Parallel ATA interface, but maintains register compatibility and software compatibility with Parallel ATA.

Analog Audio Input Header

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.



When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the motherboard, locate the 4-pin header **CDIN1**.

Here is a list of header CDIN1 pin assignments.

Pin	Signal
1	CD IN L
2	GND
3	GND
4	CD IN R

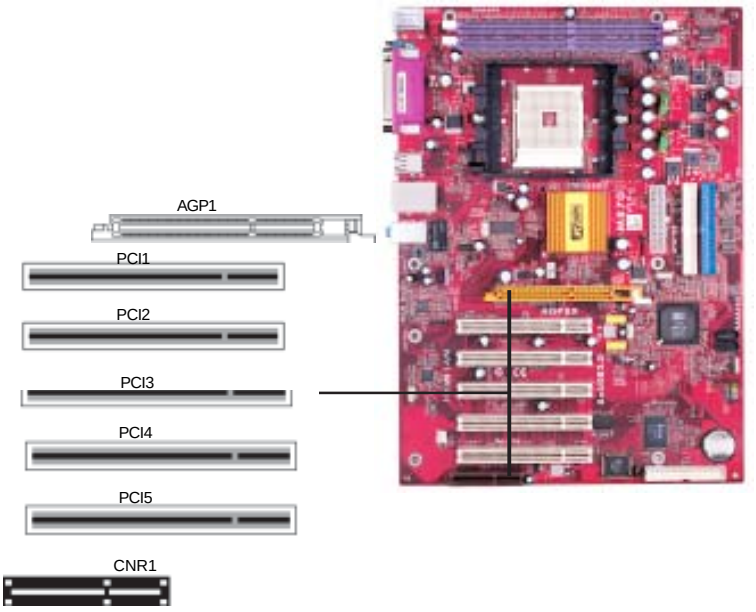
Auxiliary Audio-In Header

If you have installed a secondary CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system. On the motherboard, locate the 4-pin Aux-In header **AUXIN1**, and connect the cable to this header.

Pin	Signal
1	AUX_L
2	AUD_GND
3	AUD_GND
4	AUX_R

Expansion Slots

This motherboard has one AGP, one CNR and five 32-bit PCI slots.



Follow the steps below to install an AGP/CNR/PCI expansion card.

1. Locate the AGP, CNR or PCI slots on the motherboard.
2. Remove the blanking plate of the slot from the system chassis.
3. Install the edge connector of the expansion card into the slot. Ensure the edge connector is correctly seated in the slot.
4. Secure the metal bracket of the card to the system chassis with a screw.

8X AGP Slot

You can install a graphics adapter that supports the 8X AGP specification and has a 8X AGP edge connector in the AGP slot.

CNR Slot

You can install the CNR (Communications and Networking Riser) cards in this slot, including LAN, Modem, and Audio functions.

PCI Slots

You can install the 32-bit PCI interface expansion cards in the slots.

Chapter 3 Using BIOS

About The Setup Utility

The computer uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the 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.

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

Starting Setup

The BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration in CMOS RAM and begins the process of checking out the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

During POST, you can start the Setup program in one on two ways:

1. By pressing Del immediately after switching the system on, or
2. By pressing Del or pressing Ctrl+Alt+Esc when the following message appears briefly at the bottom of the screen during POST:

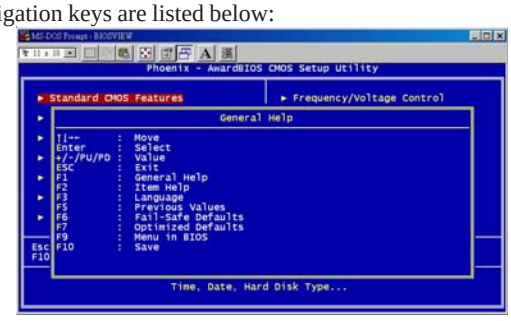
TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the RESET button on the system case. You may also restart by simultaneously pressing Ctrl+Alt+Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to:

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

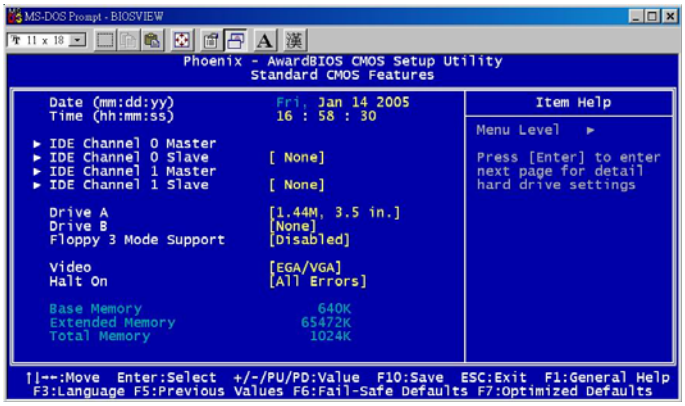
BIOS Navigation Keys

The BIOS navigation keys are listed below:



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.

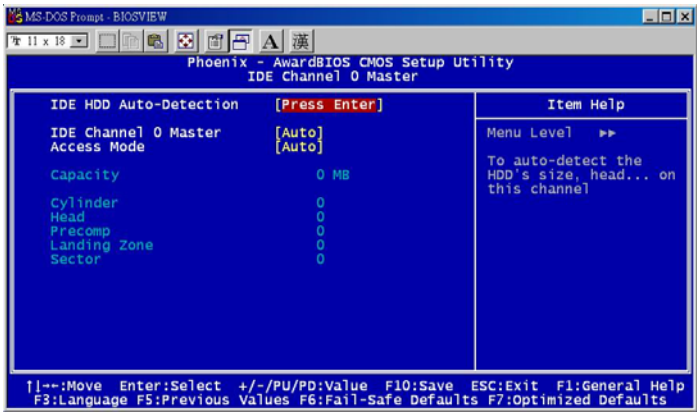


Date & Time

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:



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 Setup screen.

Drive A/Drive B (1.44M, 3.5 in.)

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)

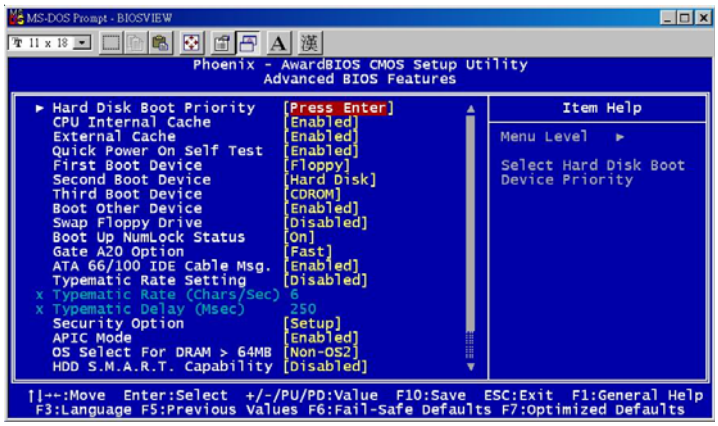
This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

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.

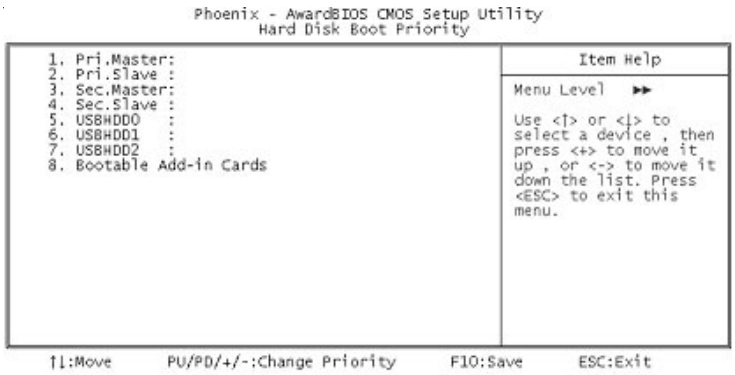
Advanced BIOS Features

This screen contains industry-standard options additional to the core PC AT BIOS.



Hard Disk Boot Priority (Press Enter)

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



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/Hard Disk/CD-ROM)

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 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.

ATA 66/100 IDE Cable Msg (Enabled)

Enables or disables the ATA 66/100 IDE Cable Msg. This message will appear during reboot when you use 40-pin cable on your 66/100 hard disks.

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.

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

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

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

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

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

Report No FDD For WIN 95 (Yes)

Set this item to the default if you are running a system with no floppy drive and using Windows 95; this ensures compatibility with the Windows 95 logo certification.

Video BIOS Shadow (Enabled)

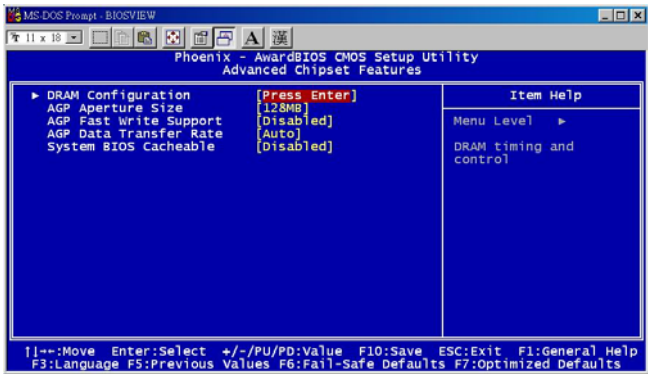
This function, when enabled allows VGA BIOS to be copied to the system DRAM for enhanced performance.

Small Logo (EPA) Show (Disabled)

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

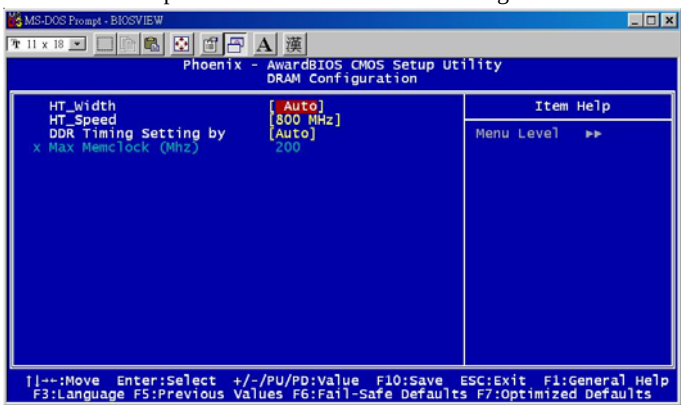
Advanced Chipset Features

The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.



DRAM Configuration

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



HT-Width (Auto)

This item shows HyperTransport™'s bus size of Local Descriptor Table (LDT). The bus size is automatically calculated by the CPU. Therefore, We strongly recommend that you do not change this setting.

HT-Speed (800 MHz)

This item shows the bus frequency of Local Descriptor Table. Its default is set as 800 MHz.

DDR Timing Setting by (Auto)

This item allows you to adjust DRAM timing automatically or manually. We recommend that you leave this item at the default value, the BIOS will automatically set the DDR timing parameters.

- **Max Memclock (Mhz) 200:** When DDR Timing Setting by is set to Manual, use this item to set the DRAM frequency.

Press <Esc> to return to the Advanced Chipset Setup screen

AGP Aperture Size (128MB)

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

AGP Fast Write Support (Disabled)

This item controls the AGP bus Fast Write capability. Fast Write allows the AGP device to act like a PCI device. This allows it to skip the main memory and directly access the data that improves the AGP read performance.

AGP Data Transfer Rate (Auto)

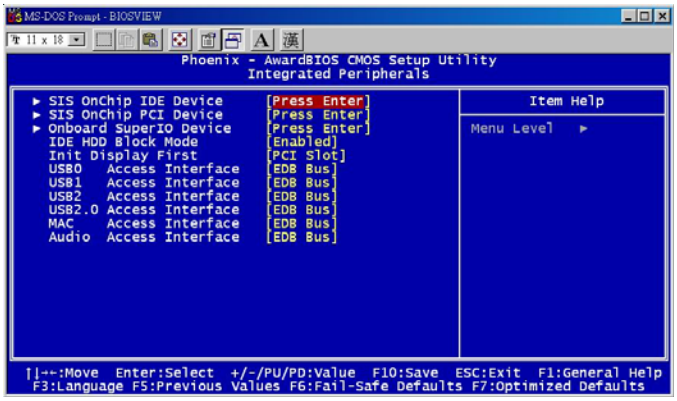
Determines the data transfer rate of AGP data at either 4X or 2X depending on your Advanced Graphics Card.

System BIOS Cacheable (Disabled)

This item is only valid when the system BIOS is shadowed. It enables or disables the caching of the system BIOS ROM at **F0000h-FFFFFh** via the L2 cache.

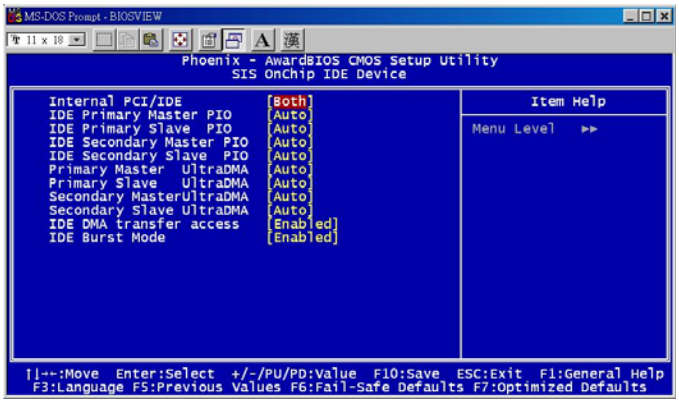
Integrated Peripherals

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



SIS OnChip IDE Device

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



Internal PCI/IDE (Both)

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

IDE Primary/Secondary Master/Slave PIO (Auto)

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

IDE Primary/Secondary Master/Slave UltraDMA (Auto)

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

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

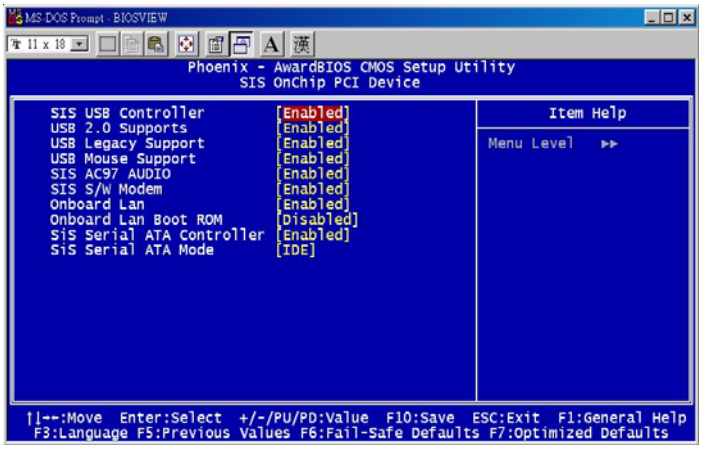
IDE Burst Mode (Enabled)

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

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

SIS OnChip PCI Device

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



SIS USB Controller (Enabled)

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

USB 2.0 Support (Enabled)

Enable this item if your system supports USB 2.0

USB Legacy Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

USB Mouse Support (Disabled)

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

SIS AC'97 AUDIO (Enabled)

This option allows you to control the onboard AC'97 audio. Disable this item if you are going to install a PCI audio add-on card.

SIS S/W Modem (Enabled)

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

Onboard LAN (Enabled)

This option allows you to control the onboard LAN.

Onboard LAN Boot ROM (Disabled)

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

SIS Serial ATA Controller (Enabled)

This option allows you to control the onboard Serial ATA controller.

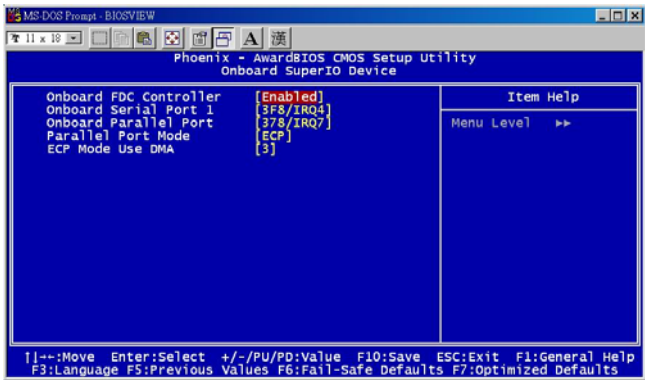
SIS Serial ATA Mode (IDE)

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

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

Onboard SuperIO Device

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



Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1 (3F8/IRQ4)

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

Onboard Parallel Port (378/IRQ7)

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

Parallel Port Mode (ECP)

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

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

ECP Mode Use DMA (3)

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

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

IDE HDD Block Mode (Enabled)

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

Init Display First (PCI Slot)

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

USB0/USB1/USB2 ACCESS INTERFACE (EDB Bus)

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

USB2.0 ACCESS INTERFACE (EDB BUS)

This option determines whether the USB2.0 access interface is the embedded bus or a PCI bus.

MAC ACCESS INTERFACE (EDB BUS)

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

Audio ACCESS INTERFACE (EDB BUS)

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

Power Management Setup

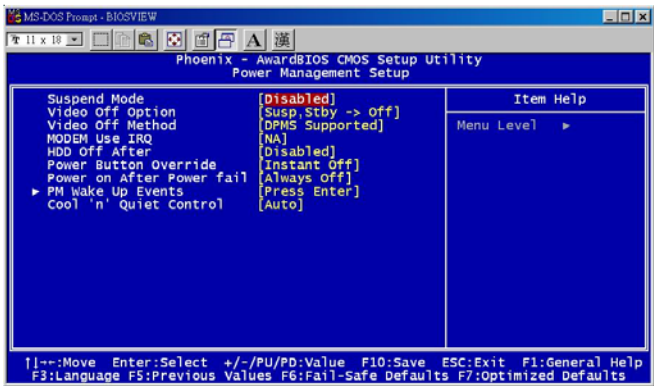
The Power Management Setup Menu option is used to change the values of the chipset registers for system power management.

Power Management Timeouts

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

Wake Up Calls

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



Suspend Mode (Disabled)

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

Video Off Option (Susp, Stby —> Off)

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

Video Off Method (DPMS Supported)

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

MODEM Use IRQ (NA)

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

HDD Off After (Disable)

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

Power Button Override (Instant Off)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resume by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have to hold the power button down for four seconds to cause a software power down.

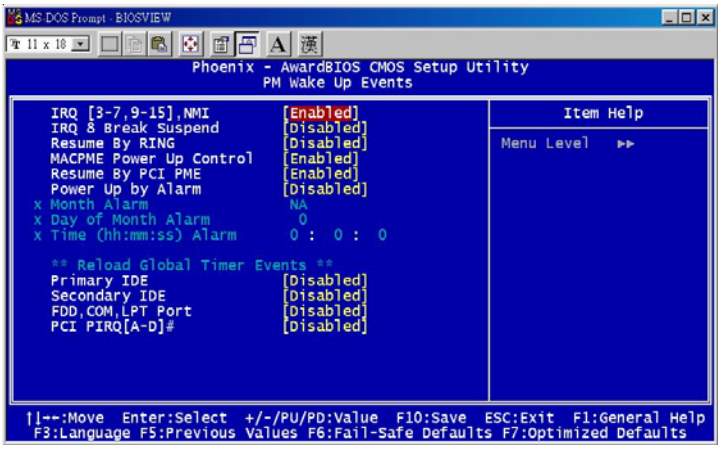
Power on After Power Fail (Always Off)

This item enables your computer to automatically restart or return to its last operating status after power returns from a power failure.

PM Wake Up Events

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

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



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

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

IRQ 8 Break Suspend(Disabled)

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

Resume by Ring (Disabled)

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

MACPME Power Up Control (Enabled)

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

Resume by PCI PME (Enabled)

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Power Up by Alarm (Disabled)

When set to Enabled, the following three fields become available: Month Alarm, Day of Month Alarm, and Time Alarm Upon arrival of the alarm time, it will instruct the system to wake up. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

Primary/Secondary IDE (Disabled)

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

FDD, COM, LPT Port (Disabled)

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

PCI PIRQ[A-D]# (Disabled)

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

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

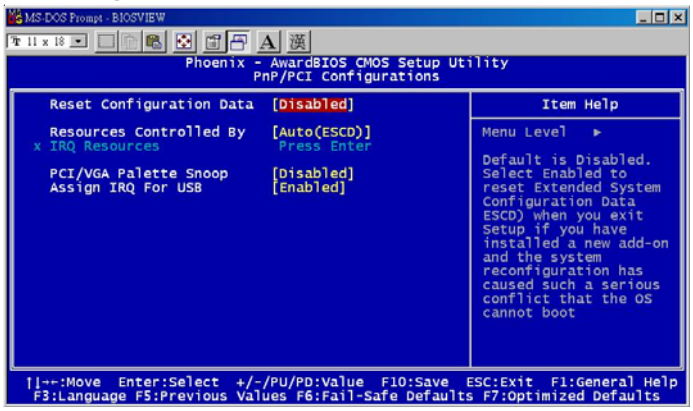
Cool 'n' Quiet Control (Auto)

This item enables you to adjust the frequency of CPU. When you set to "Auto" status, it will automatically save CPU's power and electricity.

PNP/PCI Configurations

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

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



Reset Configuration Data (Disabled)

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

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 sub-menus.

- **IRQ Resources(Press Enter):** In the IRQ Resources sub-menu, if you change any of the IRQ assignations to Legacy ISA, then that Interrupt Request Line is reserved for a legacy ISA expansion card. Press<ESC> to close the IRQ Resources sub-menu.
  In the Memory Resources sub menu, 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 sub-menu.

PCI/VGA Palette Snoop (Disabled)

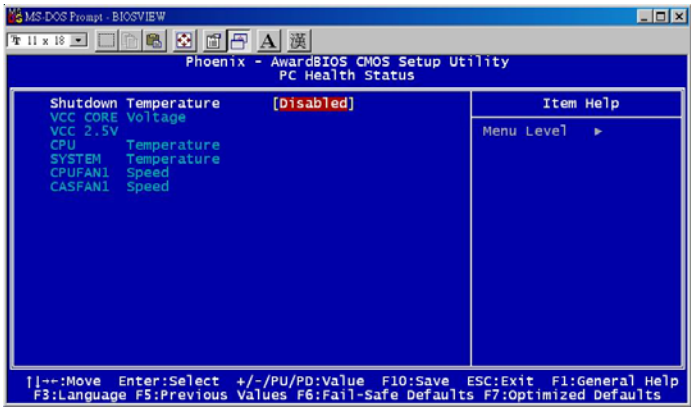
This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Assign IRQ for USB (Enabled)

Names the interrupt request (IRQ) line assigned to the USB on your system. Activity of the selected IRQ always awakens the 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

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

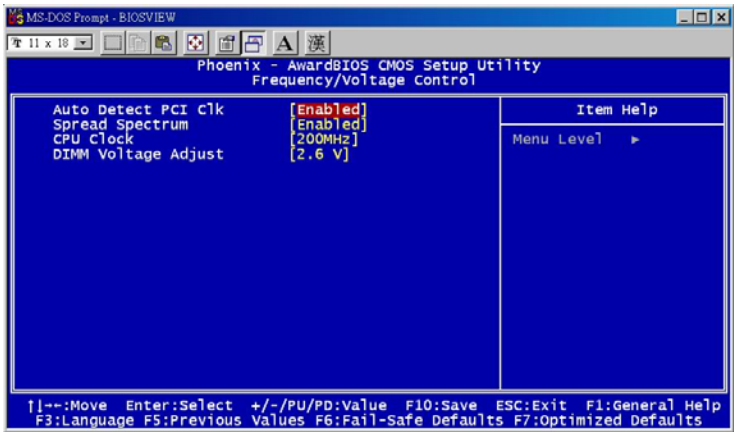
System Component Characteristics

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

- VCC CORE Voltage
- VCC 2.5V
- CPU Temperature
- SYSTEM Temperature
- CPUFAN1 Speed
- CASFAN1 Speed

Frequency/Voltage Control

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



Auto Detect PCI Clk (Enabled)

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

Spread Spectrum (Enabled)

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

CPU Clock (200 MHz)

Use the CPU Clock to set the frontside bus frequency for the installed processor (200 ~ 255 MHz).

DIMM Voltage Adjust (2.6V)

This item adjusts the voltage delivered to the DIMM memory.

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 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.

Chapter 4 Software & Applications

Introduction

This chapter describes the contents of the support CD-ROM that comes with the motherboard package.

The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support CD, simply insert the CD into your CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows 2000/XP, it will automatically install all the drivers and utilities for your motherboard; if Windows NT or manual installation, please follow the instructions described as the Installing under Windows NT or Manual Installation section.

Installing Support Software

1. Insert the support CD-ROM disc in the CD-ROM drive.
2. When you insert the CD-ROM disc in the system CD-ROM drive, the CD automatically displays an Auto Setup screen.
3. The screen displays three buttons of **Setup**, **Browse CD** and **Exit** on the right side, and three others **Setup**, **Application** and **ReadMe** at the bottom. Please see the following illustration.

The **Setup** button runs the software auto-installing program as explained in next section.

The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows 98 file browsing interface.

The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive; or click the CD-ROM driver from the Windows Explorer, and click the Setup icon.

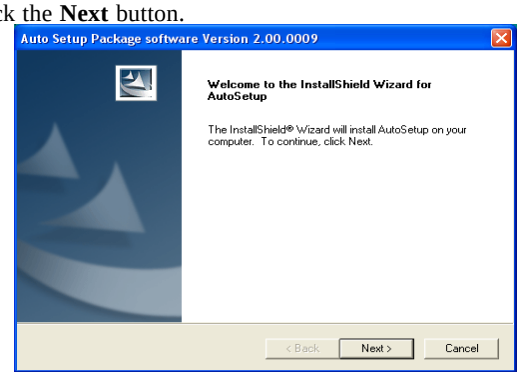
The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **ReadMe** brings you to the Install Path where you can find out path names of software driver.

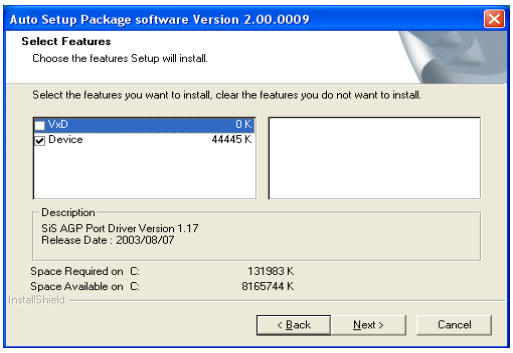
Auto-Installing under Windows 2000/XP

If you are under Windows 2000/XP, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support CD-ROM:

1 The installation program loads and displays the following screen. Click the **Next** button.



2 Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.



3 The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

Installing under Windows NT or Manual Installation

If you are under Windows NT, the auto-installing program doesn't work out; or you have to do the manual installation, please follow this procedure while the Auto Setup screen pops out after inserting the support CD-ROM:

1 Click the **ReadMe** to bring up a screen, and then click the Install Path at the bottom of the screen.
2 Find out your mainboard model name and click on it to obtain its correct driver directory.
3 Install each software in accordance with the corresponding driver path.

Bundled Software Installation

All bundled software available on the CD-ROM is for users' convenience. You can install bundled software as follows:

1 Click the **Application** button while the Auto Setup screen pops out after inserting the support CD-ROM.
2 A software menu appears. Click the software you want to install.
3 Follow onscreen instructions to install the software program step by step until finished.