





# ISO14001 CERTIFICATE

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**Environmental Management System**

has been awarded this certificate for  
compliance with the standard

**ISO14001:1996**

The Environmental Management System  
applies in the following area:

**ECS MANUFACTURING (SHENZHEN) CO., LTD.**

located at No. 20 & 26 (except 1F, 2F), Free Trade Zone,  
Shatuojiang, Shenzhen City, Guangdong Province, P. R. China.  
is engaged in manufacturing of Mother Board and Peripheral Card,  
and interrelated managerial activities.

Date of issue: 28th Sept. 2004

Date of expiry: 27th Sept. 2007

Signed by:



**SHENZHEN SOUTHERN CERTIFICATION CO., LTD.**

## Preface

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Version 1.0a

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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.

## Preface

## 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:

### Chapter 1

#### Introducing the Motherboard

Describes features of the motherboard.

Go to  page 1

### Chapter 2

#### Installing the Motherboard

Describes installation of motherboard components.

Go to  page 7

### Chapter 3

#### Using BIOS

Provides information on using the BIOS Setup Utility.

Go to  page 25

### Chapter 4

#### Using the Motherboard Software

Describes the motherboard software

Go to  page 41

## Preface

## **TABLE OF CONTENTS**

---

Preface	i
<b>Chapter 1</b>	<b>1</b>
Introducing the Motherboard	1
Introduction.....	1
Feature.....	2
Motherboard Components.....	4
<b>Chapter 2</b>	<b>7</b>
Installing the Motherboard	7
Safety Precautions.....	7
Choosing a Computer Case.....	7
Installing the Motherboard in a Case.....	7
Checking Jumper Settings.....	8
<i>Setting Jumpers.....</i>	<i>8</i>
<i>Checking Jumper Settings.....</i>	<i>9</i>
<i>Jumper Settings.....</i>	<i>9</i>
Connecting Case Components.....	10
<i>Front Panel Connector.....</i>	<i>12</i>
Installing Hardware.....	13
<i>Installing the Processor.....</i>	<i>13</i>
<i>Installing Memory Modules.....</i>	<i>15</i>
<i>Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive.....</i>	<i>17</i>
<i>Installing a Floppy Diskette Drive.....</i>	<i>18</i>
<i>Installing Add-on Cards.....</i>	<i>19</i>
<i>Connecting Optional Devices.....</i>	<i>21</i>
Connecting I/O Devices.....	23
<b>Chapter 3</b>	<b>25</b>
Using BIOS	25
About the Setup Utility.....	25
<i>The Standard Configuration.....</i>	<i>25</i>
<i>Entering the Setup Utility.....</i>	<i>25</i>
<i>Updating the BIOS.....</i>	<i>27</i>
Using BIOS.....	27
<i>Standard CMOS Features.....</i>	<i>28</i>
<i>Advanced BIOS Features.....</i>	<i>30</i>
<i>Advanced Chipset Features.....</i>	<i>33</i>

<i>Power Management Features</i> .....	35
<i>Hardware Health Features</i> .....	37
<i>BIOS Security Features</i> .....	39
<i>Load Optimal Defaults</i> .....	40
<i>Load Performance Defaults</i> .....	40
<i>Save Changes and Exit</i> .....	40
<i>Discard Changes and Exit</i> .....	40

## **Chapter 4** **41**

### **Using the Motherboard Software** **41**

About the Software CD-ROM.....	41
Auto-installing under Windows 2000/XP.....	41
<i>Running Setup</i> .....	42
Manual Installation.....	44
Utility Software Reference.....	44

### **Multi-Language Translation**

## **Chapter 1**

### ***Introducing the Motherboard***

---

#### **Introduction**

Thank you for choosing the 945P-A motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA775 socket Intel Pentium 4/Pentium D processors for high-end business or personal desktop markets.

The motherboard incorporates the 945P Northbridge (NB) and ICH7 Southbridge (SB) chipsets. The Northbridge supports a Front Side Bus (FSB) frequency of 1066/800/533 MHz using a scalable FSB Vcc\_CPU. The memory controller supports DDR2 memory DIMM frequencies of 667/533/400 MHz. It supports four DDR Sockets with up to maximum memory of 4 GB. DDR2 Maximum memory bandwidth of 10.7 GB/s in dual-channel interleaved mode assuming DDR2 667MHz. High resolution graphics via two PCI Express slots, intended for Graphics Interface, are fully compliant to the PCI Express Base Specification revision 1.0a.

The ICH7 Southbridge supports three PCI slots which are PCI 2.3 compliant. In addition, one PCI Express x1 slot is supported, fully compliant to the PCI Express Base Specification, Revision 1.0a. It implements an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports, integrates Azalia codec supporting Azalia standard that features an 8-channel High Definition Audio output. One onboard IDE connector supports 2 IDE devices in Ultra ATA100/66/33 mode. The Southbridge integrates a Serial ATA host controller that is SATA II compliant, supporting four SATA ports with maximum transfer rate up to 3.0 Gb/s each.

The 945P-A motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT1, four USB ports, one optional LAN port, and audio jacks for microphone, line-in and 8-ch line out.

## Feature

### Processor

The 945P-A uses an LGA775 type of Pentium 4/Pentium D that carries the following features:

- Accommodates Intel Pentium 4/Pentium D processors
- Supports a system bus (FSB) of 1066/800/533MHz
- Supports "Hyper-Threading" technology CPU

"Hyper-Threading" technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate "logical" processors within the same physical processor.

### Chipset

The 945P Northbridge (NB) and ICH7 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- |                  |   |
|------------------|---|
| <b>945P (NB)</b> | <ul style="list-style-type: none"> <li>• Supports 32-bit host bus addressing, allowing the CPU to access the entire 4 GB of the memory address space.</li> <li>• 2 GB/s point-to-point Direct Media Interface (DMI) to ICH7 (1 GB/s) each direction.</li> <li>• Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 1.0a.</li> <li>• Supports 256-Mb, 512-Mb and 1-Gb DDR2 technologies for x8 and x16 devices</li> <li>• Supports up to four unbuffered DIMM</li> </ul>  |
| <b>ICH7 (SB)</b> | <ul style="list-style-type: none"> <li>• Enhanced DMA Controller, interrupt controller, and timer functions</li> <li>• Compliant with PCI Express Base Specification, Revision 1.0a</li> <li>• Compliant with PCI 2.3 specification</li> <li>• Compliant with Serial ATA II specification</li> <li>• Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports</li> <li>• Integrated LAN controller</li> <li>• Compliant with AC'97/Intel High Definition Audio Codec(s) supporting 8-channel audio outputs</li> <li>• Integrated IDE controller supports Ultra ATA100/66/33</li> </ul> |

### Memory

- DDR2 667/533/400 DDR SDRAM with Dual-channel DDR2 architecture
- Accommodates four unbuffered DIMMs
- Up to 1 GB per DIMM with maximum memory size up to 4 GB

### Onboard LAN (Optional)

The onboard LAN controller provides the following features:

- Integrated 10/100/1000 transceiver
- Supports PCI v2.3, 32-bit, 33MHz
- Wake-on-LAN and remote wake-up support
- Supports fully with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Introducing the Motherboard



## Audio

- Compliant with Intel High Definition Audio, supporting 8-channel DACs with 95dB S/N ratio
- Compabilities: 192/96/48/44.1 KHz with 24/20/16 bits
- Power support: Digital: 3.3V; Analog: 3.3V/5.0V
- All analog jacks are stereo input and output re-tasking for analog plug & play
- Meets Microsoft WHQL/WLP 2.0 audio requirements
- Direct Sound 3D™ compatible
- Dolby Digital Encoder output for consumer electronic application

## Expansion Options

The motherboard comes with the following expansion options:

- Two PCI Express slots for Graphic Interface
- One PCI Express x1 slot
- Three 32-bit PCI v2.3 compliant slots
- One 40-pin IDE low profile connector that support two IDE devices
- One floppy disk drive connector
- Four 7-pin SATA connectors

The 945P-A motherboard supports UltraDMA bus mastering with transfer rates of 100/66 MB/s.

## 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 in, line-in and 8-ch High Definition Audio output

## BIOS Firmware

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

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

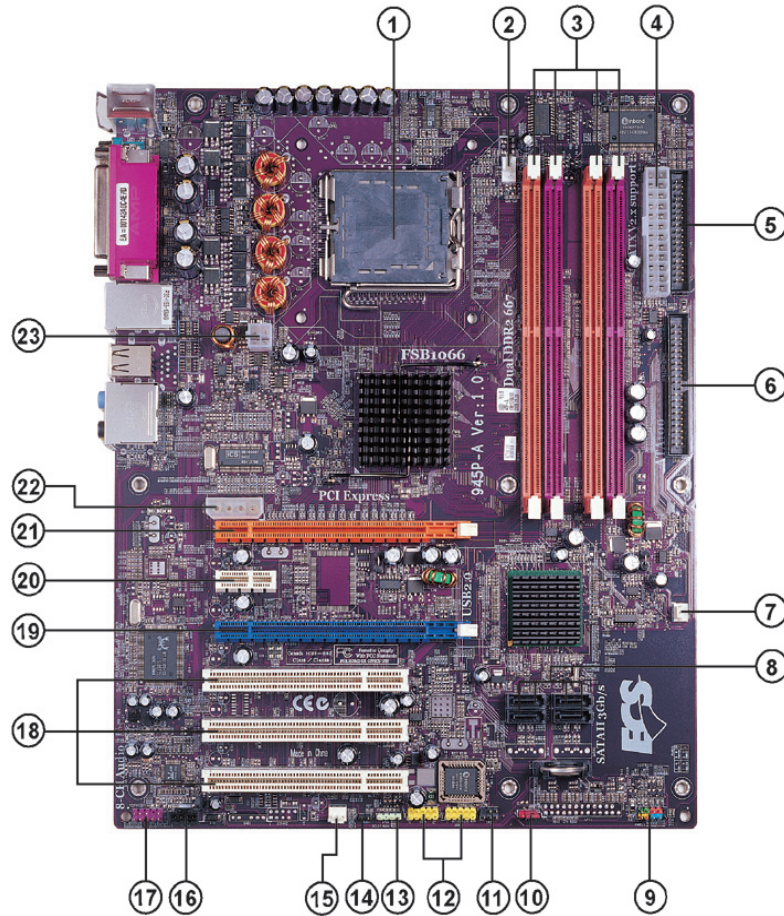
The firmware can also be used to set parameters for different processor clock speeds.



*Some hardware specifications and software items are subject to change with out prior notice.*

## Introducing the Motherboard

## Motherboard Components



**Introducing the Motherboard**

*Table of Motherboard Components*

<b>LABEL</b>	<b>COMPONENT</b>
1 CPU Socket	LGA775 socket for Pentium 4/D CPUs
2 CPUFAN1	CPU cooling fan connector
3 DIMM1~4	240-pin DDR2 SDRAM slots
4 ATX1	Standard 24-pin ATX power connector
5 FDD1	Floppy diskette drive connector
6 IDE1	Primary IDE channel
7 SYSFAN3	System cooling fan connector
8 SATA1~4	Serial ATA connectors
9 PANEL1	Panel connector for case switches and LEDs
10 JP1	Clear CMOS jumper
11 IR1	Internal infrared header
12 USB1-2	Front Panel USB headers
13 SPK1	Speaker header
14 CHS1	Chasis detect header
15 SYSFAN2	System cooling fan connector
16 CD_IN1	CD-in connector
17 AUDIO1	Front panel audio header
18 PCI1~3	32-bit add-on card slots
19 PCIEX2	PCI Express slot for graphics interface
20 PCI-E1	PCI Express x1 slot
21 PCIEX1	PCI Express slot for graphics interface
22 ATX4P1	Auxiliary power connector for graphics card
23 ATX12V1	Auxiliary 4-pin power connector

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

## Introducing the Motherboard

***Memo***

**Introducing the Motherboard**

## **Chapter 2**

### ***Installing the Motherboard***

---

#### **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

#### **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. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, 945P-A supports one or two floppy diskette drives and two enhanced IDE drives. Make sure that your case has sufficient power and space for all 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.

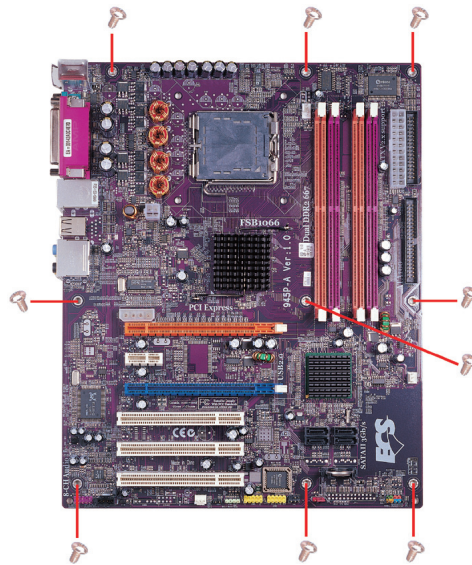
This motherboard carries a ATX form factor of 305 x 244 mm. Choose a case that accommodates this form factor.

#### **Installing the Motherboard in a Case**

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

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

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



*Do not over-tighten the screws as this can stress the motherboard.*

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



**SHORT**



**OPEN**

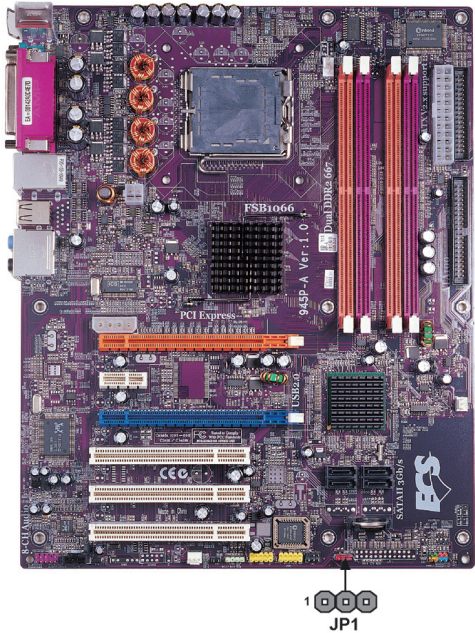
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.




## Installing the Motherboard

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: CLEAR CMOS 2-3: NORMAL  Before clearing the CMOS, make sure to turn off the system.	<div>JP1</div> <div></div> <div>1</div>



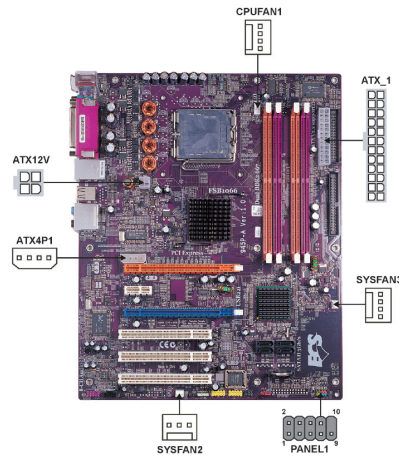
To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Optimal Defaults” and then “Save Changes and Exit”.

Installing the Motherboard

## Connecting Case Components

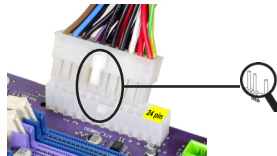
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPUFAN1**.
- 2 Connect the system cooling fan connectors to **SYSFAN2/3**.
- 3 Connect the connector for graphics interface to **ATX4P1**.
- 4 Connect the case switches and indicator LEDs to the **PANEL1**.
- 6 Connect the standard power supply connector to **ATX1**.
- 7 Connect the auxiliary case power supply connector to **ATX12V1**.



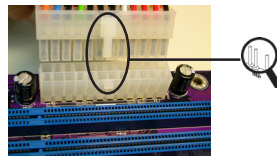
### Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity.



*20-pin power cable*

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latch of power cable falls on the left side of the ATX1 connector latch, just as the picture shows.



*24-pin power cable*

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX1 match perfectly.

## Installing the Motherboard



**CPUFAN1: CPU Cooling FAN Power Connector**

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control



Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

**SYSFAN2/3: System Cooling FAN Power Connectors**

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

**ATX12V1: ATX 12V Power Connector**

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

**ATX1: ATX 24-pin Power Connector**

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

**ATX4P1: Auxiliary Power Connector for Graphics Interface**

Pin	Signal Name
1	NC
2	GND
3	GND
4	+12V



Make sure to connect a 4-pin ATX power cable to ATX4P1; otherwise, the system will be unstable.

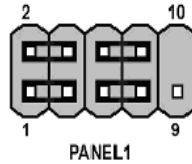
**Installing the Motherboard**

**SPK1: Internal speaker**

Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

**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+	2	FP PWR/SLP	*MSG LED+
3	HD_LED_N	Hard disk LED-	4	FP PWR/SLP	*MSG LED-
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	Key	No pin

\* MSG LED (dual color or single color)

**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 pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

**Power Switch**

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

**Installing the Motherboard**

## 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 over-clock processors or other components to run faster than their rated speed.



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

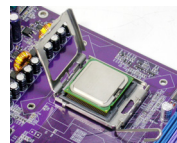
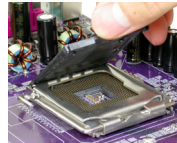
This motherboard has a LGA 775 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

## Installing the Motherboard

## CPU Installation Procedure

The following illustration shows CPU installation components.

- A. Unload the cap
  - Use thumb & forefinger to hold the lifting tab of the cap.
  - Lift the cap up and remove the cap completely from the socket.
- B. Open the load plate
  - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
  - Lift up the lever.
  - Use thumb to open the load plate. Be careful not to touch the contacts.
- C. Install the CPU on the socket
  - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.
- D. Close the load plate
  - Slightly push down the load plate onto the tongue side, and hook the lever.
  - CPU is locked completely.
- E. Apply thermal grease on top of the CPU.
- F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



*To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.*

## Installing the Motherboard

### Installing Memory Modules

This motherboard accommodates four memory modules. It can support four 240-pin 1.8V DDR2 667/533/400 DDR SDRAM. The total memory capacity is 4 GB.

#### DDR2 SDRAM memory module table

CPU FSB	Memory module	Memory Bus
533/800MHz	DDR2 400	200MHz
533/800/1066MHz	DDR2 533	266MHz
800/1066MHz	DDR2 667	333MHz

You must install at least one module in any of the four slots. Each module can be installed with 256 MB to 1 GB of memory; total memory capacity is 4 GB.

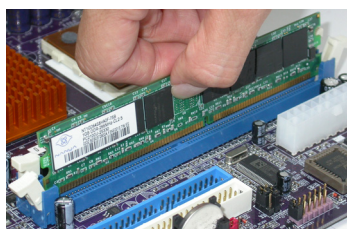


*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

### Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR2 SDRAM .
- 2 Push the latches on each side of the DIMM slot down.
- 3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
- 4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
- 5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
- 6 Install any remaining DIMM modules.



## Installing the Motherboard

**Table A: DDR2 QVL (Qualified Vender List)**

The following DDR2 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Model Name
DDR2 400	256MB	Micron	MT8HTF3264AG-40EB3 CL3 SS
		Hynix	HYMP532U646-E3 AA
		Nanya	NT256T64UH4A0F-5A CL3
	512MB	Hynix	HYMP564U648-E3 AA
		Nanya	NT512T64U88A0F-5A CL3
		Samsung	M378T3253FG0-CCC
DDR2 533	256MB	Elixir	M2U25664TUH4A0F-37B CL4
		Infineon	HYS64T32000HU-3.7-A
		Kingston	KVR533D2N4
		Samsung	M378T3253FG0-CD5 CL4
	512MB	Elixir	M2U51264TU88A0F-37B
		Kingston	KVR533D2N4
		SAMSUNG	M378T6553BGO-CD5
	1GB	Infenion	HYS64T128020HU-3.7-A
DDR2 667	256MB	NANYA	NT512T64U88A0BY-3C
	512MB	ELPIDA	EBE52UC8AAFV-DF-E

## Installing the Motherboard

## ***Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive***

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

### **About IDE Devices**

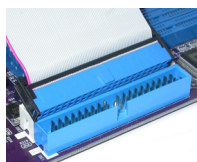
Your motherboard has one IDE channel interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



*You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

### **IDE1: IDE Connector**

This motherboard supports four high data transfer SATA ports with each runs up to 150 MB/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. 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 SATA Connectors**

Your motherboard features four SATA connectors supporting a total of four drives. SATA, or Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

### **Installing Serial ATA Hard Drives**

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.



**SATA cable (optional)**

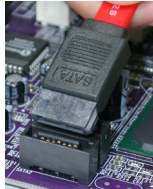


**SATA power cable (optional)**

## **Installing the Motherboard**

Refer to the illustration below for proper installation:

- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



*This motherboard does not support the “Hot-Plug” function.*

### ***Installing a Floppy Diskette Drive***

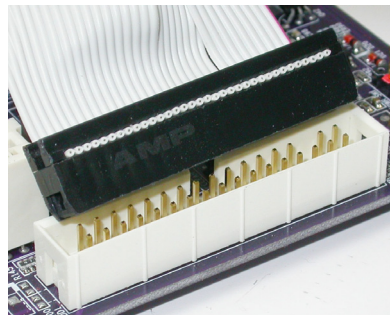
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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



*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.*

### **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.

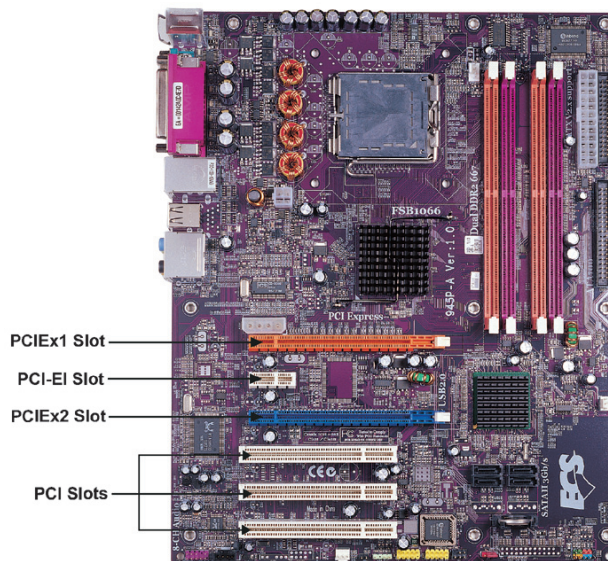


## **Installing the Motherboard**



### Installing Add-on Cards

The slots on 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 that performs tasks that are not part of the basic system.



- PCIEX1 Slot** The PCI Express slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.
- PCIEX2 Slot** The PCI Express slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.
- PCI-E1 Slot** The PCI Express x1 slots is fully compliant to the PCI Express Base Specification revision 1.0a as well.
- PCI 1~3 Slots** This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.



1. 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.

2. PCI-E1 slot will be disabled when PCIEX2 slot is installed.

## Installing the Motherboard

**Follow these instructions to install add-on cards:**

1. Open the chassis and then remove the slot bracket from the case where you will be installing the expansion cards.
2. Install your graphics card in the proper slot by pressing the card firmly into the slot.
3. Drive in the screw to secure the slot bracket of the expansion card.
4. Replace your computer's chassis cover.
5. Power on the computer, if necessary, set up BIOS utility of expansion card from BIOS.
6. Install related driver to complete the installation.



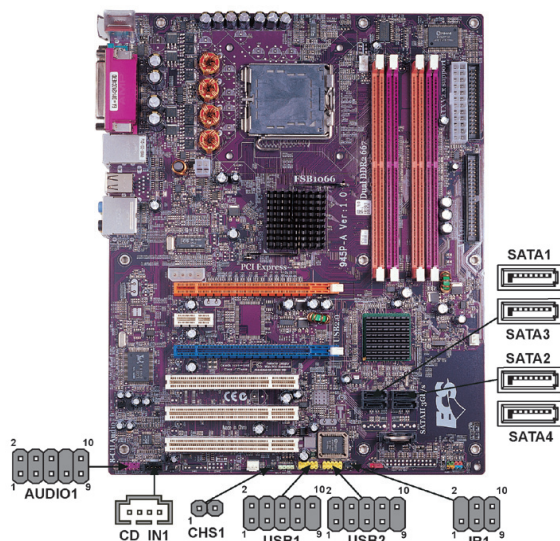
**Installing two graphics cards**

- Notes:**
1. The two PCIE x16 slots run in two modes. With only one PCI Express Graphics card, install it onto PCIE X1 slot by default. Having two PCI Express Graphics cards at hand, set them up onto PCIE X1 and PCIE X2 slots simultaneously.
  2. The Scalable D.G.E. supports a four-monitor configuration when PCIE x16 slot and PCIE x4 slot are working simultaneously.
  3. Please note that the graphics card driver supports Windows 2000/XP only.
  4. Make sure to connect a 4-pin ATX power cable to the ATX4P1; otherwise, the system will be unstable.

## Installing the Motherboard

### 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 +5V used by Analog Audio Circuits
5	AUD_F_R	Right Channel audio signal to Front Panel
6	REVD	Reserved
7	REVD	Reserved
8	Key	No Pin
9	AUD_F_L	Left Channel Audio signal to Front Panel
10	REVD	Reserved

#### CD\_IN1: CD Audio Input header

Pin	Signal Name	Function
1	CD in_L	CD In left channel
2	GND	Ground
3	GND	Ground
4	CD in_R	CD In right channel

### USB1/2: Front Panel USB header

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 to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	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	NC	Not connected

### IR1: Infrared port

The mainboard supports an Infrared (IR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

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

### SATA1/2/3/4: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), 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.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

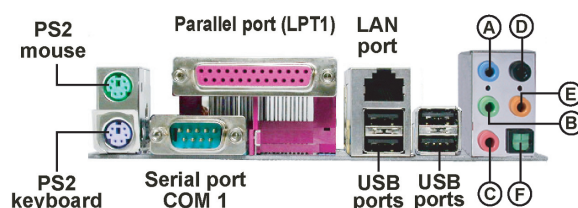
### CHS1: Chassis Intrusion Detect header

Pin 1-2	Function
Short	Case Open
Open	Case Close

## Installing the Motherboard

## Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



- PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.
- PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.
- Parallel Port (LPT1)** Use LPT1 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 COM1/3.
- 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 the audio jacks to connect audio devices. The A port is for stereo line-in signal, while the C port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A, B, D, and E port respectively. In addition, all of the 3 ports, A, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.



A: Line-in/Side Surround	D: Back Surround
B: Front Out	E: Center/Bass
C: Microphone In	F: Optical S/PDIF Out

*The above port definition of A,B,C,D, and E can be changed to audio input or audio output by changing the driver utility setting.*

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

## Installing the Motherboard

## ***Memo***

## **Installing the Motherboard**

## Chapter 3

### *Using BIOS*

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#### About the Setup Utility

The computer uses the latest American Megatrends 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

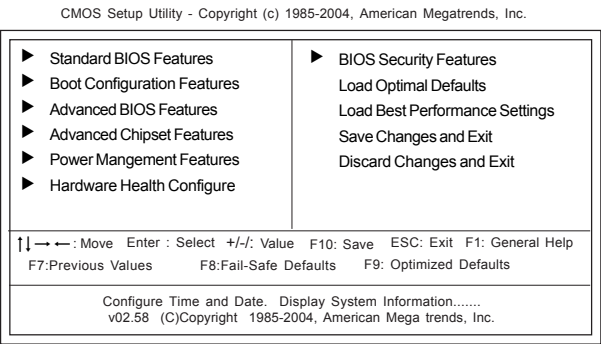
#### *Entering the Setup Utility*

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:

## Using BIOS

**Press DEL/F1 to enter SETUP**

Press the delete key or F1 to access the BIOS Setup Utility.



***BIOS Navigation Keys***

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
←↑↓→	Scrolls through the items on a menu
+/-/PU/PD	Modifies the selected field's values
F1	Displays a screen that describes all key functions
F8	Loads the Fail-Safe Defaults
F9	Loads an optimized setting for better performance
F10	Saves the current configuration and exits setup
ESC	Exits the current menu

**Using BIOS**



### ***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 the filename of the new bios and then press <Enter>. Example: AMINF340.EXE 040706.ROM
- 7 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. The computer will restart automatically.

### **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 ►.

## **Using BIOS**

Standard BIOS Features

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.

Standard BIOS Features

System Overview	Help Item
<div>AMIBIOS</div> <div>Version : 08.00.12</div> <div>Build Date : 03/23/05</div> <div>ID : PF500000</div> <div>Processor</div> <div>Type : Genuine Intel (R) CPU 3.00GHz</div> <div>Speed : 3000MHz</div> <div>Count : 1</div> <div>System Memory</div> <div>Size : 256MB</div> <div>System Time [00:04:43]</div> <div>System Date [Tue 00/08/2002]</div>	<div>Use [ENTER], [TAB] or [SHIFT-TAB] TO select a field.</div> <div>Use [+] or [-] to configure system Time.</div>

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7:Previous Values F8:Fail-Safe Defaults F9: Optimized Defaults

Processor

The item is automatically detected by the system at start up time. The Processor item shows the processor type and speed installed in your computer. This is display-only field. You cannot make changes to this field.

System Memory

The item is automatically detected by the system at start up time. The is display-only field. You cannot make changes to this field.

Time and Date

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.

Press <Esc> to return to the main menu setting page.

Boot Configuration Features

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.

Boot Configuration Features

Boot Settings Configuration	Help Item
<div>1st Boot Device [1st FLOPPY DRIVE]</div> <div>2nd Boot Device [CD/DVD:SS-ASUS CD-]</div> <div>3rd Boot Device [HDD:SM-QUANTUM FIR]</div> <div>4th Boot Device [Network: B3 D0 Yuko]</div> <div>▶ Hard Disk Drives [Press Enter]</div> <div>▶ Removable Drives [Press Enter]</div> <div>▶ CD/DVD Drives [Press Enter]</div> <div>Quick Boot [Enabled]</div> <div>Quiet Boot [Disabled]</div> <div>Bootup Num-Lock [On]</div>	<div>Specifies the boot sequence from the available devices.</div> <div>A device enclosed in parenthesis has been disabled in the corresponding type menu.</div>

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7:Previous Values F8:Fail-Safe Defaults F9: Optimized Defaults

Using BIOS

### ► Hard Disk (Press Enter)

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Hard Disk Drives

Hard Disk Drives	Help Item
1st Drive [HDD:SM-QUANTUM FIR]	Specifies the boot sequence from the available devices.

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

### ► Removable Drives (Press Enter)

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Removable Drives

Removable Drives	Help Item
1st Drive [1st FLOPPY DRIVE]	Specifies the boot sequence from the available devices.

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

### ► CD/DVD Drives (Press Enter)

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
CD/DVD Drives

CD/DVD Drives	Help Item
1st Drive [CD/DVD]	Specifies the boot sequence from the available devices.

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

## Using BIOS

**Quick Boot (Enabled)**

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

**Boot Up NumLock (On)**

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

Press <Esc> to return to the main menu setting page.

**Advanced BIOS Features**

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Advanced BIOS Features

Advanced Settings	Help Item
▶ CPU Configuration [Press Enter]	Configure CPU
▶ Floppy Configuration [Press Enter]	
▶ IDE Configuration [Press Enter]	
▶ SuperIO Configuration [Press Enter]	
▶ Voltage Adjustment [Press Enter]	

↑↓ → ← : Move   Enter : Select   +/-: Value   F10: Save   ESC: Exit   F1: General Help  
F7: Previous Values   F8: Fail-Safe Defaults   F9: Optimized Defaults

**▶ CPU Configuration (Press Enter)**

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
CPU Configuration

CPU Configuration	Help Item
Manufacturer : Intel	Sets the ratio between CPU Core Clock and the FSB Frequency. Note: If a invalid ratio has been entered to this field. BIOS will restore it to previous state.
Brand String : Genuine Intel(R) CPU 3.00GHz	
Frequency : 3.00GHz	
FSB Speed : 800MHz	
Cache L1 : 16KB	
Cache L2 : 1024KB	
Ratio Status : Unlocked (Max: 15, Min: 14)	
Ratio Actual Value: 15	
Ratio CMOS Setting [15]	
Hyper Threading Technology [Disabled]	
Max CPUID Value limit [Disabled]	
CPU TM function [TM1]	

↑↓ → ← : Move   Enter : Select   +/-: Value   F10: Save   ESC: Exit   F1: General Help  
F7: Previous Values   F8: Fail-Safe Defaults   F9: Optimized Defaults

**Manufacturer/Brand String/Frequency/FSB Speed**

These are display-only fields and display the information of current manufacturer, brand of the CPU, frequency and Front Side Bus of the CPU installed in your computer.

**Cache L1/L2**

These items show the actual CPU internal level 1/2 cache size.

**Using BIOS**

**Ratio Status/Ratio Actual Value**

These items show the Locked ratio status and the actual ratio of the CPU installed in your system.

**Ratio CMOS Setting (15)**

This item sets the ratio between CPU Core Clock and the FSB Frequency. Users please not that if a invalid ratio has been entered to this field, BIOS will restore it to previous state.

**Hyper Threading Technology (Disabled)**

This item is only available when the chipset supports Hyper-Threading and you are using a Hyper-Threading CPU.

**Max CPUID Value Limit (Disabled)**

Use this item to enable or disable the Max CPU ID value limit. When supports Prescott and LGA775 CPUs, enables this item to prevent the system from "rebooting" when trying to install Windows NT4.0.

**CPU TM function (TM1)**

This item displays CPU's temperature and enables you to set a safe temperature for CPU.

Press <Esc> to return to Advanced BIOS Features setting page.

► **Floppy Configuration (Press Enter)**

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Floppy Configuration

Floppy Configuration		Help Item
Floppy A	[1.44 MB 3 1/2"]	Select the type of floppy drive connected to the system.

↑↓←→: Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

**Floppy A (1.44 MB 3 1/2")**

Use this item to set up size and capacity of the floppy diskette drive(s) installed in the systems.

Press <Esc> to return to Advanced BIOS Features setting page.

### ► IDE Configuration (Press Enter)

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
IDE Configuration

IDE Configuration		Help Item
ATA/IDE Configuration	[Compatible]	Options Disabled Compatible Enhanced
Legacy IDE Channels	[SATA Pri, PATA Sec]	
► Primary IDE Master	[Not Detected]	
► Primary IDE Slave	[Not Detected]	
► Secondary IDE Master	[Hard Disk]	
► Secondary IDE Slave	[CD/DVD ROM]	
Hard Disk Write Protect	[Disabled]	
IDE Detect Time Out (Sec)	[35]	
ATA (PI) 80Pin Cable Detect	[Host & Device]	

↑↓ → ← : Move   Enter : Select   +/=: Value   F10: Save   ESC: Exit   F1: General Help  
F7: Previous Values   F8: Fail-Safe Defaults   F9: Optimized Defaults

#### ATA/IDE Configuration (Compatible)

The ATA/IDE option can be configured as “Disabled”, “Compatible (default)” and “Enhanced” in the BIOS configuration. Windows\* 98SE and Windows\* Me operating systems do not support Enhanced mode IDE/Serial ATA resources for more than four devices. If the ATA/IDE option is set to Enhanced mode, the operating installation will not be able to recognize the drive, and the installation will fail. Before installing 98SE or Me, the ATA/IDE configuration must be changed from Enhanced to Legacy mode.

#### IDE Chennels (SATA Pri, PATA Sec)

Use this item to set up the primary and secondary sequence of IDE channels and SATA channel. If set ATA/IDE Configuration to Compatible mode and IDE channels to SATA Pri/PATA Sec, users can only plug in SATA devices on SATA1 and SATA2; if set ATA/IDE Configuration to Compatible mode and IDE channels as SATA Sec/PATA Pri, users can only plug in SATA devices on SATA3 and SATA4 or else SATA devices will not be recognized. If set ATA/IDE Configuration to Enhanced mode, then SATA devices can be plugged into any SATA connector.

#### Primary/Secondary IDE Master/Slave(Not detected/Hard Disk/CD/DVD ROM)

Your computer has two IDE channels and each channel can be installed with one or two devices (Master and Slave). In addition, this motherboard supports four SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

If any IDE device is detected in any one of the above items, press <Enter> to reveal the following information.

#### Hard Disk Write Protect (Disabled)

Use this item to enable or disable hard disk write protection.

#### IDE Detect Time Out (35)

This item allows you to set time out for IDE detection.

#### ATA (PI) 80Pin Cable Detect (Host & Device)

This item allows you to select the mechanism for detecting 80Pin ATA(PI) Cable.

Press <Esc> to return to Advanced BIOS Features setting page.

## Using BIOS

► **SuperIO Configuration (Press Enter)**

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
SuperIO Configuration

IDE Configuration		Help Item
OnBoard Floppy Controller	[Enabled]	Allows BIOS to Enable or Disable Floppy Controller
Serial Port1 Address	[3F8/IRQ4]	
Serial Port2 Address	[2F8/IRQ3]	
Serial Port2 Mode	[NORMAL]	
Parallel Port Address	[378]	
Parallel Port Mode	[ECP]	
ECP Mode DMA Channel	[DMA3]	
Parallel Port IRQ	[IRQ7]	

↑ ↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

**Onboard Floppy Controller (Enabled)**

Use this item to enable or disable the onboard floppy disk drive interface. The bios will automatically detect the existence of floppy.

**Serial Port1/2 Address (3F8/IRQ4/2F8/IRQ3)**

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

**Serial Port2 Mode (Normal)**

If Serial Port 2 Address is not disabled, it allows you to set the Serial Port 2 Mode.

**Parallel Port Address (378)**

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

**Parallel Port Mode(ECP)**

Use this item to select the parallel port mode.

**ECP Mode DMA Channel (DMA3)**

This item assigns a DMA channel to the parallel port. The options are 0, 1, and 3.

**Parallel Port IRQ (IRQ7)**

Use this item to assign IRQ to the parallel port.

Press <Esc> to return to Advanced BIOS Features setting page.

► **Voltage Adjustment**

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

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Voltage Adjustment

Voltage Adjustment		Help Item
CPU Vcore Voltage	[Auto]	<b>Options</b>
1.8V of DDR2	[NORMAL]	Auto
VDDQ	[NORMAL]	1.6000V
		1.5875V
		1.5750V
		1.5625V
		1.5500V
		1.5375V
		1.5250V
		1.5125V
		1.5000V
		1.4875V
		1.4750V
		1.4625V
		1.4500V
		1.4375V

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

**CPU Vcore Voltage (Auto)**

This item allows you to adjust the processor's core voltage to give it a small boost.

**1.8V of DDR2 (NORMAL)**

This item allows you to adjust the memory's voltage.

**VDDQ (NORMAL)**

This item allows you to adjust the Northbridge's voltage.

Press <Esc> to return to Advanced BIOS Features setting page.

**Advanced Chipset Features**

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Advanced BIOS Features

Advanced Chipset Settings		Help Item
DRAM Frequency	[Auto]	<b>Options</b>
Configure DRAM Timing by SPD	[Enabled]	Auto
Boots Graphic Adapter Priori	[PEG/PCI]	533 MHz
Auto Detect PCI Clk	[Enabled]	667 MHz
Spread Spectrum	[Enabled]	
Onboard Device		
Legacy USB Support	[Enabled]	
Audio Controller	[Enabled]	
LAN Device	[Enabled]	
LAN Boot ROM	[Disabled]	

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

**DRAM Frequency (Auto)**

This item determines frequency of DRAM memory.

**Configure DRAM Timing by SPD (Enabled)**

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

**Using BIOS**



**Boots Graphic Adapter Priori (PEG/PCI)**

This item allows you to choose which graphics controller to use as the primary boot device.

**Auto Detect PCI Clk (Enabled)**

This item allows you to enable or disable the function of detecting the PCI clock automatically.

**Spread Spectrum (Enabled)**

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

**Legacy USB Support (Enabled)**

This item allows you to enable or disable Legacy USB support.

**AUDIO Controller (Enabled)**

Enables and disables the Audio controller.

**LAN Device (Enabled)**

Enables and disables the onboard LAN.

**LAN Boot ROM (Disabled)**

This item enables or disables the function of LAN Boot ROM.

Press <Esc> to return to the main menu setting page.

**Power Management Features**

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
Power Management Features

Suspend mode	[S1(POS)]	Help Item
Power Management/APM	[Enabled]	Select the ACPI state used for System Suspend
Repost Video on S3 Resume	[No]	
PS/2 Keyboard Wakeup	[Disabled]	
PS/2 Mouse Wakeup	[Disabled]	
Suspend Time Out	[Disabled]	
Power Button Mode	[On/Off]	
Restore on AC Power Loss	[Last State]	
Resume On Ring	[Disabled]	
Resume On PME#	[Disabled]	
USB Device Wakeup From S3	[Disabled]	
Resume On RTC Alarm	[Disabled]	

↑ ↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

**Suspend mode (S1)(POS)**

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

**Power Management/APM (Enabled)**

Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Only APM is supported.

**Repost Video on S3 Resume (No)**

If STR mode or Auto mode is selected, this item allows you to enable or disable this function.

**PS/2 Keyboard/Mouse Wakeup (Disabled)**

These items enable or disable you to allow keyboard or mouse activity to awaken the system from power saving mode.

**Using BIOS**

**Suspend Time Out (Disabled)**

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

**Power Button Mode (On/Off)**

This item lets you install a software power down controlled by the normal power button on your system.

**Restore on AC Power Loss (Last State)**

This item defines how the system will act after AC power loss during system operation. When you set to Off, it will keep the system in Off state until the power button is pressed.

**Resume On Ring (Disabled)**

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

**Resume On PME# (Enabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

**USB Device Wakeup From S3 (Disabled)**

This item allows you to enable/disable the USB device Wakeup function from S3 mode.

**Resume On RTC Alarm (Disabled)**

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

Press <Esc> to return to the main menu setting page.

## Hardware Health Features

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.

Hardware Healthy Configure		Help Item
SMART FAN Control	[Enabled]	
SMART CPU Temperature	[70]	
CPU Tolerance Temperature	[1°]	
StartUp Duty-Cycle	[128]	
SMART SYS Temperature	[45]	
SYS Tolerance Temperature	[1°]	
StartUp Duty-Cycle	[20%]	
System Temperature	:26°78°F	
CPU Temperature	:57°C/78°F	
NB Fan Speed	:4326RPM	
CPU Fan Speed	:4218RPM	
VCCP	:1.353V	
VDDQ	:1.358V	

↑ ↓ → ← : Move   Enter : Select   +/- : Value   F10: Save   ESC: Exit   F1: General Help  
F7: Previous Values   F8: Fail-Safe Defaults   F9: Optimized Defaults

### SMART FAN Control (Enabled)

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

### SMART CPU Temperature (70°C)

This item specifies the default CPU temperature. The ranges is from 40°C to 100°C.

### CPU Tolerance Temperature (1°C)

This item enables users set the value of the CPU temperature to achieve the start and stop status. The choices are 1°C, 2°C, 3°C and 4°C.

**Example:**      **SMART CPU Temperature 70°C + 1°C = Start up**  
                      **SMART CPU Temperature 70°C - 1°C = Stop**

### StartUp Duty-Cycle(128)

This is output for FAN PWM value. When the CPU temperature is lower than Target Temp-tolerance value, the value will remain as "128" for FAN speed.

### SMART SYS Temperature (45°C)

This item specifies the default CPU temperature. The ranges is from 40°C to 100°C.

### SYS Tolerance Temperature (1°C)

This item enables users set the value of the CPU temperature to achieve the start and stop status. The choices are 1°C, 2°C, 3°C and 4°C.

**Example:**      **SMART CPU Temperature 70°C + 1°C = Start up**  
                      **SMART CPU Temperature 70°C - 1°C = Stop**

### StartUp Duty-Cycle(20%)

This item allows users to manually set the StartUp Duty-Cycle of the smart fan, in order to let the system control the fan speed in an efficient way.

### System/CPU Temperature

These items display System/CPU temperatures.

### NB Fan/CPU Fan Speed

These items display Northbridge and CPU Fan speeds.

## Using BIOS

**System Component Characteristics**

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

- VCCP
- VDDQ
- Fan1 Speed
- Fan2 Speed
- VCCP
- VDDQ
- +12V
- AVCC
- +5VSB
- VBAT

### BIOS Security Features

This option displays basic information about your system.

CMOS Setup Utility - Copyright (c) 1985-2004, American Megatrends, Inc.  
BIOS Security Features

Security Settings	Help Item
Supervisor Password : Not Installed	Install or Change the password.
User Password : Not Installed	
Change Supervisor Password [Press Enter]	
Change User Password [Press Enter]	
Boot Sector Virus Protection [Disabled]	

↑ ↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General Help  
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

#### Supervisor Password/User Password [Not Installed]

This item indicates whether a supervisor password/user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

#### Change Supervisor Password/Change User Password [Press Enter]

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

#### Boot Sector Virus Protection [Disabled]

If set to Disabled, when anything attempts to access the boot sector or hard disk partition table, there will be no warning message to appear.

Press <Esc> to return to the main menu setting page.

## Using BIOS

### ***Load Optimal 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. When your hardware does not support the “Optimized Defaults”, fatal system errors or instability may occur. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.



*Users please remain the factory BIOS default setting of “Load Optimized Defaults” when install Operation System onto your system.*

### ***Load Performance Defaults***

If you select this item and press Enter a dialog box will appear. If you select [OK], and then Enter, the Setup Utility loads a set of performance default values. These default settings are quite demanding and your system might not function properly if you are using slower CPU, memory, or other low-performance components.



*Warning: To load Performance settings may make your system become unstable or unbootable. When loading the Performance Defaults fails, users can choose “either” step to return the motherboard to its defaults BIOS:*

- 1. Power on the system and press “Insert” key. The system will bypass the previous BIOS setting and automatically reload the default BIOS. (This procedure is BIOS setup only!)*
- 2. Apply to the jumper setting reference onboard and proceed with the “Clear CMOS” to recover the default BIOS setting. Please refer to Chapter 2, page 9, to complete the clear CMOS action. (This procedure requires opening the chassis!)*

### ***Save Changes and Exit***

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

### ***Discard Changes and Exit***

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 <OK> to discard changes and exit, or press <Cancel> to return to the main menu.



*If you have made settings that you do not want to save, use the “Discard Changes and Exit” item and press <OK> to discard any changes you have made.*

## **Using BIOS**

## Chapter 4

### 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. 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.



*The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center “before” installing HD audio driver bundled in the driver CD. Please log on to <http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto> for more information.*

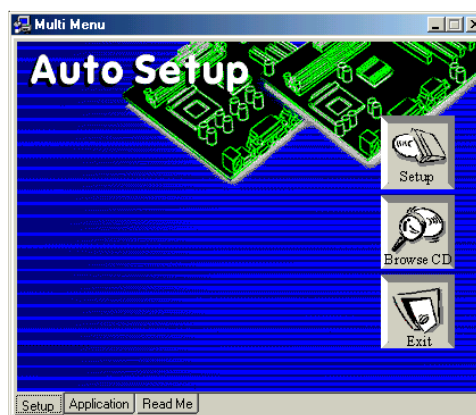
#### Auto-installing under Windows 2000/XP

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



*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 the Utility Folder Installation Notes later in this chapter.*

The support software CD-ROM disc loads automatically under Windows 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.



*If the opening screen does not appear; double-click the file “setup.exe” in the root directory.*

### Using the Motherboard Software

Setup Tab

Setup	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
Browse CD	<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. Always go to the correct folder for the kind of OS you are using.</p> <p>In 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>
Exit	The <b>EXIT</b> button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

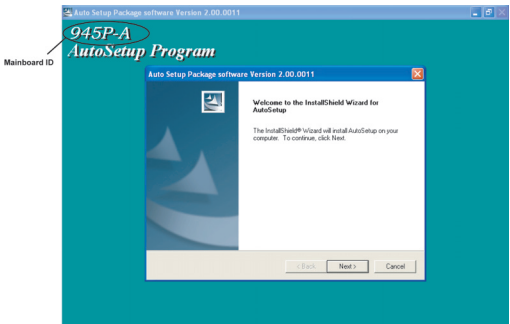
Read Me Tab

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:



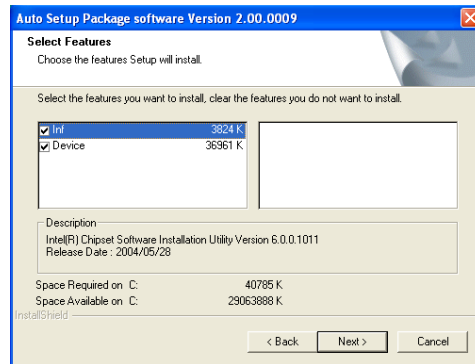
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

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

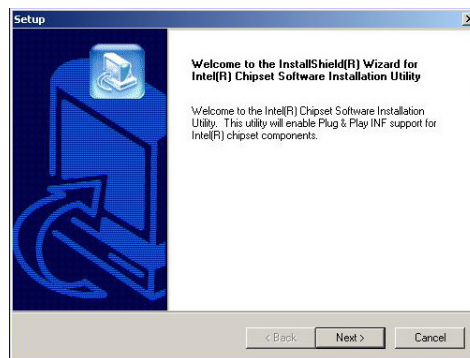
Using the Motherboard Software



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



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



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

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

## Using the Motherboard Software

## 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.

## 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.



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

### **AMI/AWARD Flash 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\2000. To install the WinFlash utility, run WINFLASH.EXE from the following directory: \UTILITY\WINFLASH 1.51

This concludes Chapter 4.

## Using the Motherboard Software

## Caractéristiques

### Processeur

La 945P-A utilise un type LGA775 de Pentium 4/Pentium D présentant les fonctionnalités suivantes:

- Peut recevoir les processeurs Intel Pentium 4/Pentium D
- Support un bus système (FSB) de 1066/800/533 MHz
- Supporte le CPU de technologie "Hyper-Threading"

La technologie "Hyper-Threading" permet au système d'exploitation de penser qu'il est connecté à deux processeurs, permettant d'exécuter deux threads en parallèle, à la fois sur des processeurs 'logiques' dans le même processeur physique.

### Chipset

Le chipset 945P Northbridge (NB) Chipset et ICH7 Southbridge (SB) se base sur une architecture innovante et évolutive avec des performances et une fiabilité éprouvées.

#### **945P (NB)**

- Prend en charge l'adressage de bus hôte 32 bits, permettant au CPU d'accéder à l'espace de 4 Go complet d'adresse mémoire.
- Interface Direct Media (DMI) point à point de 2 Go/s vers chaque direction ICH7 (1 Go/s).
- Prend en charge un PCI Express x16 pour Interface Graphique, entièrement conforme à la Spécification de Base PCI Express révision 1.0a.
- Prend en charge les technologies DDR2 256-Mb, 512-Mb et 1-Gb pour x8 et x16 périphériques
- Prend en charge jusqu'à quatre DIMM sans mémoire tampon

#### **ICH7 (SB)**

- Fonctions de Contrôleur DMA Amélioré, de contrôleur d'interruption, et de minuterie
- Conforme aux spécifications de base PCI Express, Révision 1.0a
- Conforme aux spécifications PCI 2.3.
- Conforme aux spécifications ATA II Série
- Contrôleur d'Hôte USB 2.0 intégré prenant en charge jusqu'à huit ports USB 2.0
- Contrôleur LAN intégré
- Conforme au(x) codec(s) audio de haute définition AC'97/Intel prenant en charge les sorties audio à 8 canaux
- Contrôleur IDE intégré prenant en charge Ultra ATA100/66/33

### Mémoire

- SDRAM DDR 667/533/400 DDR2 avec architecture DDR2 en double canal
- Reçoit quatre DIMM sans tampon
- Jusqu'à 1 Go par DIMM avec une taille de mémoire maximum de 4 Go

### LAN sur carte (optionnel)

Le contrôleur LAN interne offre les caractéristiques suivantes:

- Émetteur-récepteur 10/100/1000 intégré
- Prend en charge PCI v2.3, 32 bits, 33-MHz
- Prise en charge de Réveil par LAN et réveil distant
- Prise en charge totale avec IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Conforme à l'audio haute définition d'Intel, prenant en charge les DAC à 8 canaux avec rapport S/B de 95dB
- Compatibilités: 192/96/48/44.1 KHz avec 24/20/16 bits
- Support d'alimentation : Numérique : 3,3V; Analogique : 3,3V/5,0V
- Toutes les prises analogiques sont des entrées et sorties stéréo avec réattribution des tâches pour plug & play analogique
- Conforme aux exigences audio de Microsoft WHQL/WLP 2.0
- Compatible Direct Sound 3D™
- Sortie de codeur Dolby Digital pour application électronique consommateur

## Options d'extension

La carte mère comporte les options d'extension suivantes :

- Deux logements PCI Express pour interface graphique
- Un logement PCI Express x1
- Trois emplacements PCI v2.3 32bits
- Un en-tête demi-hauteur IDE de 40 broches supportant deux canaux IDE
- Une interface lecteur de disquettes
- Quatre connecteurs SATA à 7 broches

La 945P-A carte mère prenant en charge la maîtrise de bus UltraDMA avec vitesses de transfert de 100/66 Mo/s.

## E/S intégrées

La carte mère comporte un ensemble complet de connecteurs et de ports E/S :

- Deux ports PS/2 pour souris et clavier
- Un port série
- Un port parallèle
- Quatre ports USB
- Un port LAN (optionnel)
- Prises audio pour entrée microphone, entrée de ligne et Audio Haute Définition 8 ch.

## Microprogramme BIOS

La carte mère utilise AMI BIOS qui permet à l'utilisateur de configurer bon nombre de fonctions du système, dont :

- Gestion d'alimentation
- Alertes de réveil
- Paramètres de CPU
- Synchronisation de CPU et de mémoire

Le micro-programme peut également être utilisé pour définir les paramètres pour différentes vitesses d'horloge de processeur.



*Certaines spécifications matérielles et certains éléments logiciels sont susceptibles de modification sans préavis.*

## Features

### Prozessor

Der 945P-A benutzt einen Pentium 4/Pentium D des Typs LGA775 und besitzt folgende Eigenschaften:

- Nimmt Intel Pentium 4/ Pentium D Prozessoren auf
- Unterstützt einen Systembus (FSB) mit 1066/800/533 MHz.
- Unterstützt CPU mit "Hyper-Threading"-Technologie.

“Hyper-Threading”-Technologie läßt das Betriebssystem glauben, es sei an zwei Prozessoren angeschlossen, was zwei parallele Threads auf separaten ‘logischen’ Prozessoren im selben physischen Prozessor erlaubt.

### Chipsatz

Die 945P Northbridge (NB) und ICH7 Southbridge (SB) Chipsätze basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung.

- |                  |   |
|------------------|---|
| <b>945P (NB)</b> | <ul style="list-style-type: none"> <li>• Unterstützung einer 32-Bit Host-Bus-Adressierung, welche der CPU einen Zugriff zum kompletten Speicherplatz von 4 GB erlaubt.</li> <li>• 2 GB/s Punkt-zu-Punkt Direct Media Interface (DMI) zu ICH7 (1 GB/s) in jede Richtung.</li> <li>• Unterstützung von PCI Express x16 für die Grafikschnittstelle, gemäß den PCI Express-Base-Spezifikationen Revision 1.0a.</li> <li>• Unterstützung von 256-Mb, 512-Mb und 1-Gb DDR2-Technologien für x8 und x16 Zubehör.</li> <li>• Unterstützung von bis zu vier ungepufferten DIMM.</li> </ul>  |
| <b>ICH7 (SB)</b> | <ul style="list-style-type: none"> <li>• Verbesserter DMA-Kontroller, Unterbrechungskontroller und Zeitfunktionen.</li> <li>• Gemäß PCI Express-Base-Spezifikationen, Revision 1.0a.</li> <li>• Gemäß Spezifikationen von PCI 2.3.</li> <li>• Gemäß Serial ATA II Spezifikationen.</li> <li>• Integrierter USB 2.0 Host-Kontroller, welcher bis zu acht USB 2.0 Steckvorrichtungen unterstützt.</li> <li>• Integrierter LAN-Kontroller.</li> <li>• Entspricht AC'97/Intel High Definition Audio Codec(s), unterstützt 8-Kanal Audioausgabe</li> <li>• Integrierter IDE-Kontroller, welcher Ultra ATA100/66/33 unterstützt.</li> </ul> |

### Arbeitsspeicher

- DDR2 667/533/400 DDR SDRAM mit Dualkanal DDR2-Architektur
- Es können vier ungepufferte DIMMs aufgenommen werden.
- Bis zu 1 GB pro DIMM mit maximaler Speicherkapazität von bis zu 4 GB.

### Onboard LAN (Optional)

Der Onboard-LAN-Kontroller hat folgende Eigenschaften:

- Enthält 10/100/1000 Transceiver
- Unterstützung von PCI v2.3, 32-Bit, 33-MHz
- Unterstützung für Wake-on-LAN und Remote Wake-up
- Volle Unterstützung mit IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Entspricht Intel High Definition Audio, unterstützt 8-Kanal DACs mit 95dB S/N Ratio
- Kompatibilität: 192/96/48/44.1 KHz mit 24/20/16 Bits
- Stromversorgung: Digital: 3.3V; Analog: 3.3V/5.0V
- Alle analogen Buchsen mit Stereo-Input und Output-Retasking für analoges Plug & Play
- Erfüllt Audioanforderungen für Microsoft WHQL/WLP 2.0
- Kompatibel mit Direct Sound 3D™
- Dolby Digital Encoder-Output für Unterhaltungselektronik

## Erweiterungsmöglichkeiten

Das Motherboard ist mit den folgenden Erweiterungsmöglichkeiten ausgestattet:

- Zwei PCI Express-Slots für Grafik-Interface
- Ein PCI Express x1 Slot
- Drei 32-bit PCI v2.3-Steckplätze
- Einen 40-Pin IDE low profile-Stecker, die zwei IDE-Kanäle unterstützen
- Ein Diskettenlaufwerkanschluss
- Vier 7-Pin SATA Anschlüsse

Die 945P-A-Motherboard unterstützt UltraDMA Bus Mastering mit einer Übertragungsrate von 100/66 MB/Sek.

## Integrierte I/O-Schnittstellen

Das Motherboard verfügt über einen kompletten Satz von I/O-Schnittstellen und Anschlüssen:

- Zwei PS/2-Anschlüsse für Maus und Tastatur
- Eine serielle Schnittstelle
- Eine parallele Schnittstelle
- Vier USB Schnittstelle
- Ein LAN-Anschluss (optional)
- Audiostecker für Mikrofoneingang, line-in und hoch definiertem Ton mit 8 Kanälen

## BIOS-Firmware

Das Motherboard verwendet AMI BIOS, das es Benutzern gestattet, viele Systemfunktionen inkl. der Folgenden zu konfigurieren:

- Energieverwaltung
- Aufweckfunktionen
- CPU-Parameter
- CPU- und Arbeitsspeicherfrequenz

Die Firmware kann auch zur Einstellung von Parametern für verschiedene Prozessortaktgeschwindigkeiten verwendet werden.



*Manche Hardwarespezifikationen und Softwareelemente können ohne Ankündigung geändert werden.*

## Caratteristiche

### Processore

Il 945P-A sfrutta un Pentium 4/Pentium D di tipo LGA775 che dispone delle seguenti caratteristiche:

- Compatibile con processori Intel Pentium 4/Pentium D
- Supporta un bus di sistema (FSB) fino a 1066/800/533 Mhz
- Supporta CPU con tecnologia "Hyper Threading"

La tecnologia "Hyper-Threading" induce il sistema operativo a pensare di essere collegato a due processori, questo permette di eseguire due thread in parallelo, ambedue su processori "logicamente" separati all'interno dello stesso processore.

### Chipset

I chipset Intel 945P Northbridge (NB) e ICH7 Southbridge (SB) sono basati su una architettura innovativa e scalabile dalle prestazioni e affidabilità garantite.

#### 945P (NB)

- Supporta un indirizzamento host bus da 32 bit, consentendo alla CPU di accedere a tutti i 4 GB della memoria di sistema.
- Interfaccia DMI (Direct Media Interface) point-to-point da 2 GB/s in ciascuna direzione (1 GB/s) ICH7.
- Supporta un PCI Express x16 per interfaccia grafica, completamente compatibile con le specifiche di revisione 1.0a di PCI Express Base.
- Supporta tecnologie DDR2 da 256-Mb, 512-Mb e 1-Gb per dispositivi x8 e x16
- Supporta sino a quattro DIMM unbuffered

#### ICH7 (SB)

- Controller DMA migliorato, controller interrupt e funzioni di timer
- Compatibile con le Specifiche di base del PCI Express, Revision 1.0a
- Conforme alle specifiche PCI 2.3.
- Conforme alle specifiche Serial ATA II
- Host Controller USB 2.0 integrato in grado di supportare sino a 8 porte USB 2.0
- Controller LAN integrato
- Conforme a specifiche AC'97/Intel High Definition Audio con supporto di uscite audio a 8 canali
- Integrato con controller IDE supporta Ultra ATA100/66/33

### Memoria

- Supporto di SDRAM DDR 667/533/400 DDR2 con architettura DDR2 Dual Channel
- Alloggia 4 DIMM unbuffered
- Dimensione massima della DIMM pari ad 1 GB per un ammontare massimo di 4 GB di memoria

### LAN integrata (opzionale)

La funzionalità LAN integrata sulla scheda offre le seguenti caratteristiche:

- Transceiver 10/100/1000 integrato
- Supporta PCI v2.3, 32-bit, 33-MHz
- Supporto di funzionalità Wake-on-LAN e riattivazione remota
- Completamente conforme con l'IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Conforme con Intel High Definition Audio e supporto di DAC a 8 canali con rapporto S/N di 95 dB
- Compatibili: 192/96/48/44.1 KHz a 24/20/16 bit
- Supporto alimentazione: Digitale: 3,3V; Analogico: 3,3 V / 5,0 V
- Tutti i jack analogici offrono ingresso e uscita stereo con riassegnazione a plug & play analogico
- Conforme ai requisiti per audio di WHQL e WLP 2 di Microsoft
- Compatibile con Direct Sound 3D™
- Uscita Dolby Digital Encoder per apparecchiature elettroniche di largo consumo

## Opzioni di espansione

La scheda madre è dotata delle seguenti opzioni di espansione

- Due slot PCI Express per interfaccia grafica
- Uno slot PCI Express x1
- Tre slot PCI v2.3 a 32 bit
- Una connettori IDE a 40 pin che supportano due canali IDE
- Un'interfaccia per unità disco floppy
- Quattro connettori SATA a 7 pin.

La scheda madre 945P-A supporta bus master UltraDMA con tasso di trasferimento di 100/66 MB/s.

## I/O integrati

La scheda madre è dotata di un set completo di connettori e porte I/O:

- Due porte PS/2 per mouse e tastiera
- Una porta seriale
- Una porta parallela
- Quattro porte USB
- Una porta LAN (opzionale)
- Jack audio per microfono, line-in e 8 canali audio ad alta definizione.

## Firmware BIOS

Questa scheda madre adotta un BIOS AMI che permette agli utenti di configurare le caratteristiche principali del sistema, inclusi:

- Gestione dell'alimentazione
- Allarmi di attivazione
- Parametri CPU
- Sincronizzazione di CPU e memoria

Il firmware può anche essere usato per impostare i parametri per diverse velocità di clock.



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



## Características

### Procesador

La 945P-A usa un tipo LGA775 de Pentium 4/Pentium D que lleva las sigtes. características::

- Acomoda procesadores Intel Pentium 4/Pentium D
- Soporta un sistema de bus (FSB) de 1066/800/533 MHz
- Soporta CPU de tecnología “Hyper-Threading”

La tecnología “Hyper-Threading” habilita el sistema operativo para que piense como si estuviera conectado a dos procesadores, que permite dos hilos a correr en paralelo, ambos en procesadores “lógicos” dentro del mismo procesador físico.

### Chipset

Los chipsets Northbridge 945P (NB) y Southbridge ICH7 (SB) están basados en una arquitectura innovadora y escalable con fiabilidad y rendimiento comprobados.

#### **945P (NB)**

- Soporta la dirección de bus anfitrión 32-bit, que permite la CPU acceder a todos los 4 GB del espacio de dirección de memoria.
- Interfaz Direct Media (DMI) punto a punto de 2 GB/s a ICH7 (1 GB/s) cada dirección.
- Soporta un PCI Express x16 para la Interfaz de Gráficas, completamente conforme a la Especificación Base PCI Express revisión 1.0a.
- Soporta las tecnologías 256-Mb, 512-Mb y 1-Gb DDR2 para los dispositivos x8 y x16.
- Soporta hasta cuatro DIMM sin buffer.

#### **ICH7 (SB)**

- Controlador DMA reforzado, controlador de interrupción y funciones de cornometraje.
- Conforme con la Especificación Base PCI Express, Revisión 1.0a.
- Conforme con la espec. PCI 2.3.
- Conforme con la espec. Serial ATA II
- Controlador Anfitrión USB 2.0 Integrado soporta hasta ocho puertos USB 2.0.
- Controlador LAN integrado .
- Conformidad con el Codec de Audio de Alta Definición Intel/AC'97 que soporta salidas de audio de 8 canales
- Controlador IDE integrado soporta Ultra ATA100/66/33.

### Memoria

- DDR SDRAM DDR2 667/533/400 con arquitectura DDR de canal dual
- Acomoda cuatro DIMMS sin buffer
- Hasta 1 GB por DIMM con el tamaño de memoria máximo hasta 4 GB

### LAN en placa (opcional)

El controlador LAN abordo provee las sigtes. características:

- Transceptor 10/100/1000 integrado
- Soporta PCI v2.3, 32-bit, 33-MHz
- Soporte de Despertar-en-LAN y Despertar remoto
- Soporte completo con el IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Conforme con el Audio de Alta Definición de Intel, que soporta DACs de 8 canales con proporción 95dB S/N
- Compatibilidades: 192/96/48/44.1 KHz con 24/20/16 bits
- Soporte de suministro: Digital: 3.3V; Analógico: 3.3V/5.0V
- Todas las clavijas analógicas son de retoma de entrada y salida de estéreo para el plug & play analógico
- Obedece a los requisitos de audio de Microsoft WHQL/WLP 2.0.
- Compatible con Direct Sound 3D™
- Salida de Decondificador Dolby Digital para la aplicación de electrónicos de consumidores

## Opciones de expansión

La placa base viene con las opciones siguientes de expansión:

- Dos ranuras PCI Express para la Interfaz de Gráficas
- Una ranura PCI Express x1
- Dos ranuras conforme con 32-bit PCI v2.3
- Una cabezal de perfil bajo 40-pin IDE soporta dos canales IDE
- Una interfaz para unidad de disquete
- Cuatro conectores 7-pin SATA

La placa principal 945P-A soporta el mastering de bus UltraDMA con índices de transferencia de 100/66 MB/s.

## I/O integrado

La placa base tiene un conjunto completo de puertos I/O y conectores:

- Dos puertos PS/2 para ratón y de teclado
- Un puerto serie
- Un puerto paralelo
- Cuatro puertos USB
- Un puerto LAN (opcional)
- Clavijas de sonido para entrada de microfono, entrada de linea y Sonido de Alta Definicion de 8 canales.

## Firmware de BIOS

La placa base utiliza AMI BIOS que permite a los usuarios configurar muchas funciones de sistema, incluyendo las siguientes:

- Administración de energía
- Alarmas de encendido
- Parámetros CPU
- Temporización de memoria y CPU

El firmware también puede utilizarse para ajustar los parámetros para diversas velocidades del reloj del procesador.



*Algunas especificaciones de hardware y elementos de software están sujetos a cambios sin previo aviso.*

## Características

### Processador

O 945P-A usa um tipo LGA775 de Pentium 4/Pentium D que possui as seguintes características:

- Acomoda processadores Intel Pentium 4/Pentium D
- Suporta um bus sistema (FSB) de 1066/800/533 MHz
- Suporta CPU de tecnologia “Hyper-Threading”

A tecnologia “Hyper-Threading” permite que o sistema operativo “pense” que está ligado a dois processadores, permitindo que sejam executados dois threads em paralelo, ambos em processadores “lógicos” separados dentro do mesmo processador físico.

### Chipset

Os chipsets da 945P Northbridge (NB) e ICH7 Southbridge (SB) são baseados em uma arquitetura inovativa e escalável com performance e confiabilidade comprovada.

#### 945P (NB)

- Suporta um endereçamento no host bus de 32-bit, permitindo que o CPU acesse completamente aos 4 GB de espaço de endereçamento da memória.
- Interface Media Directo (DMI) ponto-para-ponto com 2 GB/seg. para ICH7 (1 GB/seg. ) cada direcção.
- Suporta um PCI Express x16 Interface de Gráficos, que cumpre inteiramente com a revisão de Especificação de Base 1.0a. do PCI Express.
- Suporta 256-Mb, 512-Mb e tecnologias 1-Gb DDR2 para aparelhos x8 e x16
- Suporta até quatro DIMMs sem buffers

#### ICH7 (SB)

- Controlador DMA Melhorado, controlador de interruptor, e funções de temporizador
- Cumpre com a Especificação de Base do PCI Express, Revisão 1.0a
- Em conformidade com a especificação PCI 2.3
- Compatível com Série ATA II
- Controlador Host 2.0 USB integrado suportando até oito portas USB 2.0
- Controlador LAN integrado
- Compatível com a(s) Codec Áudio Alta Definição AC'97/Intel suportando saídas áudio com 8 canais
- Controlador IDE integrado suporta Ultra ATA100/66/33

### Memória

- DDR2 667/533/400 DDR SDRAM com arquitectura DDR2 bicanal
- Acomoda quatro DIMMs sem buffers
- Até 1 GB por DIMM com tamanho de memória máxima de até 4 GB

### Onboard LAN (opcional)

O controlador LAN onboard contém as seguintes características:

- Transreceptor integrado 10/100/1000
- Suporta PCI v2.3, 32-bit, 33-MHz
- Suporte Wake-on-LAN e wake-up remoto
- Suporta inteiramente com IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Áudio

- Compatível com Alta Definição Áudio da Intel, suportando DACs com 8 canais com rácio 95dB S/N
- Compatibilidades: 192/96/48/44.1 KHz com 24/20/16 bits
- Suporte de alimentação: Digital: 3.3V; Analógico: 3.3V/5.0V
- Todas as fichas analógicas são entradas estéreo e redistribuição de saídas para ligar & reproduzir analógico
- Cumpre com os requisitos áudio WHQL/WLP 2.0 da Microsoft.
- Compatível com Direct Sound 3D™
- Saída Descodificador Digital Dolby para aplicação electrónica de consumo

## Opções de Expansão

A motherboard é fornecida com as seguintes opções de expansão:

- Duas ranhuras PCI Express slots para Interface de Gráficos
- One ranhura x1 PCI Express
- Três ranhuras compatíveis com PCI v2.3 de 32 bits
- Uma cabeçalhos de baixo perfil IDE 40 pinos, que suportam dois dispositivos IDE
- Uma interface para unidade de disquete
- Quatro conectores SATA de 7 pinos

A motherboard 945P-A suporta um domínio bus UltraDMA bus com taxas de Transferência de 100/66 MB/s.

## I/O Integrado

A motherboard possui um conjunto completo de portas I/O e conectores:

- Duas portas PS/2 para o rato e o teclado
- Uma porta de série
- Uma porta paralela
- Quatro portas USB
- Uma porta LAN (opcional)
- Fichas áudio para microfone, alinhadas e com Áudio de Elevada Definição 8-ch

## Firmware do BIOS

A motherboard usa o AMI BIOS que permite aos usuários configurar vários recursos do sistema, como:

- Gerenciamento de energia
- Alarmes de reativação
- Parâmetros da CPU
- Sincronização da CPU e memória

O firmware também pode ser usado para definir os parâmetros de diferentes velocidades de clock do processador.



*Alguns itens de software e especificação de hardware estão sujeitos a alterações sem prévio aviso.*

## 機能

### プロセッサ

945P-AはLGA775タイプのPentium 4/Pentium Dに対応したもので、その特徴は次の通り:

- Intel Pentium 4/Pentium D プロセッサが搭載可能
- 1066/800/533MHzのシステムバス(FSB)をサポート
- “ハイパースレッド技術対応のCPUを取り付け可能

ハイパースレッド (HT) 技術というのは、オペレーションシステムに2つのプロセッサが存在すると認識させることで、実際には2つのスレッドを1つのプロセッサで同時に執行させ、平行利用を可能とする技術です。

### チップセット

945P Northbridge (NB)とICH7 Southbridge (SB)チップセットは、実証された信頼性と性能を持つ革新的で拡張性のあるアーキテクチャに基づいています。

- |                  |   |
|------------------|---|
| <b>945P (NB)</b> | <ul style="list-style-type: none"> <li>• 32ビットホストバスアドレッシング機能対応、これでCPUが4 GBのメモリアドレス空間すべてをアクセス可能</li> <li>• 2 GB/秒 point-to-point Direct Media Interface (DMI) で ICH7とのデータやり取りを1 GB/秒の転送率で実現</li> <li>• グラフィックスインターフェース用PCI Express x16 スロットを提供、これでPCI Express Base Specification revision 1.0aに完全対応</li> <li>• 8倍速または16倍速のデバイスの256-Mbや512-Mb、1-Gb のDDR2技術に対応</li> <li>• 最大4つの非バッファードDIMMをサポート</li> </ul>                 |
| <b>ICH7(SB)</b>  | <ul style="list-style-type: none"> <li>• 強化型DMAコントローラと、割り込みコントローラ、タイマー機能を提供</li> <li>• PCI Express Base Specification 1.0a版に完全対応</li> <li>• PCI 2.3仕様に準拠しています</li> <li>• シリアルATA II 仕様に準拠し</li> <li>• 統合型USB 2.0ホストコントローラで、最大8つまでのUSB 2.0 ポートに対応可能</li> <li>• 統合型LANコントローラ</li> <li>• AC'97/Intel High Definition Audio Codec(s)規格に対応し、8チャンネルのオーディオ出力を可能に。</li> <li>• 統合型IDEコントローラで、Ultra ATA100/66/33サポート可能</li> </ul> |

### メモリ

- DDR2 667/533/400 DDR SDRAM に対応し、デュアルチャネル DDR2 構成を実現
- 4つの非バッファードDIMMを搭載
- 各DIMMスロットに1 GBまで装着可能で、合計4GBまでをサポート

### オンボードLAN (オプション)

オンボードLANコントローラで次の機能を実現:

- 10/100/1000 トランシーバーを搭載済み
- PCI v2.3, 32-bit, 33-MHzへの対応
- Wake-on-LANと遠隔 wake-upとの機能をサポート
- IEEE 802.3、IEEE 802.3u、IEEE 802.3abへの全面対応

## オーディオ

- Intel High Definition Audio規格に準拠することで、95dB S/N率の8チャンネル DACをサポート
- 互換性: 24/20/16 ビットでの192/96/48/44.1 KHz
- 電源サポート: デジタルの場合は 3.3V、アナログの場合は3.3V/5.0V
- すべてのアナログ端子は、ステレオ入出力re-tasking機能によるアナログ plug & playが可能
- Microsoft WHQL/WLP 2.0 オーディオ規格に準拠
- Direct Sound 3D™ に対応
- 電化製品向けのDolby Digital Encoder出力機能を搭載

## 拡張オプション

本マザーボードでは、次の拡張機能が利用できます。

- グラフィックインターフェース用のPCI Express スロットが2つ
- PCI Express x1 スロットが1つ
- 32ビットPCI v2.3 互換性スロットが3つ
- 40ピンIDEロープロファイルヘッダー(2つのIDEチャンネルをサポート)が1つ
- フロッピーディスク ドライブ インターフェイス が1つ
- 7ピンSATAコネクタ が4つ

このマザーボードは、100/66 MB/秒の転送速度でのUltra DMA/バスマスタリングをサポートします。

## 統合I/O

マザーボードには、次のI/Oポートやコネクタを揃えています。

- マウスとキーボード用のPS/2ポート が2つ
- シリアルポート が1つ
- パラレルポート が1つ
- USBポート が4つ
- LANポート が1つ(オプション)
- さらに、マイクロホン入力と、ライン入力と、8チャンネルHigh Definition Audio出力とを搭載。

## BIOSファームウェア

本マザーボードはAMI BIOSを採用し、次の機能を含めた多様なシステム構成を行えます。

- 電源管理
- ウェークアップアラーム
- CPUパラメータ
- CPUおよびメモリのタイミング

さらに、所定のパラメータを設定することによって、プロセッサのクロック速度を変更することもできます。



一部のハードウェア仕様とソフトウェアアイテムは、予告なしに変更することがあります。

## 특징

### 프로세서

945P-A는 다음과 같은 특징을 지닌 팬티엄 4/팬티엄 D의 GA775 타입을 사용한다:

- 인텔 팬티엄 4/팬티엄 D 프로세서 사용
- 1066/800/533 MHz 시스템 버스(FSB) 지원
- "Hyper-Threading" 기술 CPU 지원

"Hyper-Threading" 기술은 운영체제를 두 개의 프로세서에 연결한 것처럼 두 개의 트래드를 패러렐로 실행하여 같은 물리적 프로세서 안에서 각기 다른 논리적 프로세서를 실행할 수 있게 한다.

### 칩셋

945P Northbridge (NB)와 ICH7 Southbridge (SB) 칩셋은 혁신적이고 범용성을 지닌 아키텍처를 바탕으로 인정한 신뢰성과 성능을 지닌다.

#### 945P (NB)

- 32비트 호스트 버스 어드레싱 지원으로, CPU가 총 4GB 메모리 어드레스 공간에 액세스할 수 있다.
- ICH7 (1 GB/s)에 각 방향으로 2 GB/s point-to-point Direct Media Interface (DMI)
- 그래픽 인터페이스를 위해 1개의 PCI Express x16 지원, PCI Express Base 1.0a 사양 완전 부합.
- x8 및 x16 장치를 위해 256-Mb, 512-Mb, 1-Gb DDR2 기술 지원.
- 최고 4개의 unbuffered DIMM 지원

#### ICH7 (SB)

- 보강 DMA 컨트롤러, 인터럽트 컨트롤러, 및 타이머 기능
- PCI Express Base 1.0a 사양 부합
- PCI 2.3 사양 호환.
- 시리얼 ATA II 사양 호환
- 통합 LAN 컨트롤러
- AC'97 부합/8 채널 오디오 출력을 지원하는 인텔 HD 오디오 코덱
- 오디오 출력에 8개 채널을 지원하는 Azalia 사양 부합
- 통합 IDE 컨트롤러로 Ultra ATA100/66/33 지원

### 메모리

- 듀얼 채널 DDR2 아키텍처를 지닌 DDR2 667/533/400 DDR SDRAM
- 4개의 unbuffered DIMM 사용
- DIMM 당 최대 1 GB, 최대 메모리 4 GB

### 보드 내장 LAN (선택 사항)

보드 내장 LAN 컨트롤러는 다음과 같은 특징을 제공한다:

- 통합 10/100/1000 트랜시버
- PCI v2.3, 32-bit, 33-MHz 지원
- Wake-on-LAN 및 원격 wake-up 지원
- IEEE 802.3, IEEE 802.3u, IEEE 802.3ab 전적으로 지원

## 오디오

- 95dB S/N 비율로 8 채널 DAC를 지원하는 HD 오디오 부합
- 호환성: 24/20/16 비트의 192/96/48/44.1 KHz
- 전원 지원: 디지털: 3.3V; 아날로그: 3.3V/5.0V
- 모든 아날로그 잭은 스테레오 입력 및 출력, 아날로그 플러그 앤 플레이를 위한 re-tasking.
- 마이크로소프트 WHQL/WLP 2.0 오디오 요구에 부합
- Direct Sound 3D™ 호환
- 소비자 전기 어플리케이션을 위한 돌비 디지털 인코더 출력

## 확장 옵션

이 메인보드는 다음과 같은 확장 옵션이 있다

- 그래픽 인터페이스 용 PCI Express 슬롯 2 개
- PCI Express 1 개 x 슬롯 1 개
- 32 비트 PCI v2.3 호환 슬롯 3 개
- 2 개의 IDE 채널을 지원하는 40핀 IDE 로우 프로파일 헤더 1 개
- 플로피 디스크 드라이브 인터페이스 1 개
- 7 핀 SATA 커넥터 4개

945P-A 마더보드는 전송 속도 100/66 MB/s의 UltraDMA 버스 마스터링을 지원한다.

## 통합 I/O

이 메인보드에는 풀 세트의 I/O 포트와 커넥터가 있다

- 마우스와 키보드용 PS/2 포트 2 개
- 시리얼 포트 1개
- 패러럴 포트 1 개
- USB 포트 4 개
- LAN 포트 1 개 (선택 사항)
- 마이크 폰 입력, 라인 입력 및 8 채널 고 재생음 오디오를 위한 오디오 잭

## BIOS 펌웨어

본 메인보드는 AMI BIOS 를 사용하여 사용자는 다음과 같은 시스템 기능을 구성할 수 있다

- 전원 관리
- Wake-up 알람
- CPU 과라미터
- CPU 및 메모리 타이밍

펌웨어는 다른 프로세서의 클럭 속도를 설정하는 데도 사용될 수 있다



하드웨어 사양 및 소프트웨어 아이템은 사전 통보없이 변경될 수 있습니다



## 功能

### 處理器

945P-A 採用LGA775型的Pentium 4/Pentium D，具有如下特徵：

- 可搭配Intel Pentium 4/Pentium D 處理器；
- 支援高達 1066/800/533MHz之系統匯流排(FSB)；
- 支援使用超執行緒(Hyper-Threading)技術之CPU。

利用“超執行緒(HT)”技術，可使作業系統在相當於裝上了兩具處理器的狀態下運作：利用一個“實體”處理器模擬出兩個獨立的“邏輯”處理器，同時執行兩個工作緒。

### 晶片組

945P北橋(NB)及ICH7南橋(SB)晶片組在研發設計上採用了創新且具擴充性之架構，具備優良的可靠性及性能。

#### 945P (NB)

- 支援32位元主事匯流排定址，藉此CPU 存取整個4 GB的記憶位址空間；
- 提供對ICH7的2 GB/秒點對點Direct Media Interface (DMI)，雙向1 GB/秒；
- 具有一個繪圖卡用之PCI Express x16 介面，完全符合PCI Express Base Specification 1.0a版；
- 支援8倍速及16倍速之256-Mb、512-Mb、及1-Gb DDR2技術；
- 支援高達4個非緩衝式DIMM。

#### ICH7 (SB)

- 增強型DMA控制器、中斷控制器、及計時功能；
- 符合PCI Express Base Specification 1.0a版；
- 符合PCI 2.3規格；
- 符合序列ATA II 規格；
- 內建式USB 2.0主控，可支援8個USB 2.0埠；
- 內建式區域網路控制器；
- 相容於支援8聲道音訊輸出功能之高傳真音效編碼解碼器(High Definition Audio Codec)規格；
- 整合式IDE控制器，支援Ultra ATA100/66/33。

### 記憶體

- 支援DDR2 667/533/400 DDR SDRAM，提供雙通道DDR2 架構；
- 可安裝4個非緩衝式DIMM；
- 各DIMM可安裝1GB記憶體，共可支援高達4GB的記憶體容量。

### 內建區域網路（選購）

機載區域網路控制器具有如下功能：

- 整合有10/100/1000 收發器；
- 支援PCI v2.3, 32位元, 33MHz；
- 支援區域網路喚醒功能及遠距喚醒功能；
- 支援IEEE 802.3, IEEE 802.3u, IEEE 802.3ab。

## 音效

- 相容於Intel High Definition Audio規格，可支援95dB S/N 比的 8聲道 DAC；
- 相容性：24/20/16位元下之192/96/48/44.1 KHz；
- 電源支援：3.3V(數位時)，3.3V/5.0V(類比時)；
- 所有類比插頭均具類比隨插即用的立體環場音訊輸入及輸出的重組態(re-tasking)功能；
- 符合Microsoft WHQL/WLP 2.0 音訊規格；
- Direct Sound 3D™ 相容；
- 支援家用電子產品之杜比數位編碼核心輸出功能。

## 擴充選項

本主機板包括下列擴充選項：

- 2個繪圖介面用之PCI Express插槽；
- 1個PCI Express x1 插槽；
- 3個32位元PCIv2.3插槽；
- 1個40針IDE接頭(支援2個IDE裝置)；
- 1 個軟碟機介面；
- 4個7針SATA插頭。

本主機板支援傳輸率100/66 MB/秒下的Ultra DMA 匯流排主控功能。

## 整合 I/O

主機板具有一組齊全的 I/O 連接埠及連接頭：

- 2 個 PS/2 埠，供滑鼠與鍵盤使用；
- 1 個串列埠；
- 1 個平行埠；
- 4 個USB埠；
- 1 個區域網路埠(選購)；
- 具有麥克風輸入端子、線性輸入端子、及 8聲道高傳真音效(High Definition Audio)輸出端子。

## BIOS 韌體

本主機板使用AMI BIOS，使用者可以組態設定許多系統功能，包括如下：

- 電源管理；
- 喚醒警鈴；
- CPU參數；
- CPU及記憶體の時脈定時。

此外，也可藉由參數的設定，調整處理器的時脈速度。



部份硬體規格和軟體內容可能會在未經通知的情況下更動，敬請見諒。

## 功能

### 处理器

945P-A 使用 LGA775 型 Pentium 4/Pentium D CPU，具备以下特点：

- 支持 Intel Pentium 4/Pentium D 处理器
- 支持 1066/800/533 MHz 系统总线 (FSB)
- 支持“多线程”技术 CPU

“多线程”技术可以让操作系统认为自己连接了两个处理器，允许两个线程并行运行，每个线程位于同一处理器中的单独“逻辑”处理器中。

### 芯片组

945P 北桥 (NB) 和 ICH7 南桥 (SB) 芯片组是基于一种新型的、可扩展的架构，能够提供已经证明的可靠性和高性能。

#### 945P (NB)

- 支持 32 位主机总线寻址，允许 CPU 访问 4 GB 的完整内存地址空间。
- 每个方向 2 GB/s 点到点直接媒体接口 (DMI) 到 ICH7 (1 GB/s)。
- 支持 1 个 PCI Express x16 用于图形接口，完全符合 PCI Express Base 规格 1.0a。
- 支持用于 x8 和 x16 设备的 256-Mb、512-Mb 和 1-Gb DDR2 技术
- 最多支持 4 个非缓冲 DIMM

#### ICH7 (SB)

- 增强 DMA 控制器、中断控制器和定时器功能
- 符合 PCI Express Base 规格 1.0a
- 符合 PCI 2.3 规格
- 符合串行 ATA II 规格
- 集成 USB 2.0 主控器，最多支持 8 个 USB 2.0 端口
- 集成 LAN 控制器
- 符合支持 8 路音频输出的 AC'97/Intel 高精度音频编解码器规格
- 集成 IDE 控制器，支持 Ultra ATA100/66/33

## 内存

- DDR2 667/533/400 DDR SDRAM，双通道 DDR2 架构
- 支持 4 个非缓冲 DIMM
- 每个插槽支持 1 GB，总共最大可支持 4 GB

### Onboard LAN (可选)

板上集成的 LAN 控制器提供以下功能：

- 集成 10/100/1000 收发器
- 支持 PCI v2.3，32-位，33-MHz
- 支持 LAN 和远程唤醒
- 完全支持 IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## 音频

- 符合高精度音频规格，支持 8 通道 DAC，95dB 信噪比
- 兼容性：192/96/48/44.1 KHz，24/20/16 位
- 支持 8 个智能插孔 I/O 端口
- 电源支持：数字：3.3V；模拟：3.3V/5.0V
- 所有模拟插孔为立体声输入和输出并重新指定为模拟即插即用
- 符合 Microsoft WHQL/WLP 2.0 音频要求
- 符合 Direct Sound 3D™ 规格
- 用于消费类电子应用的杜比数字编码器

## 扩展选项

此主板提供如下扩展选项：

- 2 个用于图形接口的 PCI Express 插槽
- 1 个 PCI Express x1 插槽
- 3 个 32 位 PCI 扩展插槽
- 1 个 40-pin IDE 紧凑型接口，支持 2 个 IDE 通道
- 1 个软驱接口
- 4 个 7-pin SATA 接口

主板 945P-A 支持 Ultra DMA 总线控制，传输速率可达 100/66 MB/sec。

## 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）
- 用于麦克风、线入和 8 声道高清晰度音频的音频插孔

## BIOS

此主板使用 AMI BIOS，可以让用户自己配置以下系统功能：

- 电源管理
- 唤醒报警
- CPU 参数
- CPU 和记忆定时

还可用于设置不同处理器时钟速度的参数。



某些硬件规格和软件项目若有更改恕不另行通知。

# Характеристики

## Процессор

Плата 945P-A построена на базе процессора Pentium 4/Pentium D LGA775 и обладает следующими характеристиками:

- Размещает процессоры Intel Pentium 4/Pentium D
- Поддерживает системные шины (FSB) с частотой 1066/800/533MHz
- Поддерживает технологию CPU "Hyper-Threading"

Технология "Hyper-Threading" «убеждает» операционную систему в том, что в машине имеется два процессора; это позволяет параллельно обслуживать два процесса, причем каждый из процессов обслуживается отдельным «логическим» процессором в пределах одного физического процессора.

## Чипсет

Чипсеты 945P «Северный мост» (Northbridge, NB) и ICH7 «Южный мост» (Southbridge, SB) построены с использованием инновационной масштабируемой архитектуры, обеспечивающей высокую надежность и производительность.

### 945P (NB)

- Поддерживает 32-битную адресацию хоста, обеспечивая для CPU адресацию памяти объемом 4ГБ .
- Интерфейс передачи данных Direct Media point-to-point со скоростью 2 ГБ/с (DMI) к ICH7 (1 ГБ/с) в каждом направлении.
- Имеет один разъем для подключения карты графики PCI Express x16; обеспечивает полную совместимость с PCI Express Base, rev. 1.0a.
- Поддерживает технологии 256-Mb, 512-Mb и 1-Гб DDR2 для устройств x8 и x16
- Поддерживает до четырех слотов небуферизованной памяти DIMM

### ICH7 (SB)

- Расширенные функции контроллера DMA, контроллера прерываний, внутреннего таймера
- Совместимость с PCI Express Base, Rev. 1.0a
- Совместимость с PCI 2.3
- Совместимость с Serial ATA II
- Встроенный контроллер хоста USB 2.0 с поддержкой до восьми портов USB 2.0
- Встроенный контроллер LAN
- Совместимость с аудио КОДЕК AC'97/Intel High Definition и поддержка 8-канального аудио-выхода
- Встроенный контроллер IDE с поддержкой Ultra ATA100/66/33

## Память

- DDR2 667/533/400 DDR SDRAM с двухканальной архитектурой DDR2
- Обслуживает 4 модуля небуферизованной памяти DIMM
- Обслуживает до 1 Гб на модуль DIMM (максимально до 4 Гб памяти)

## Встроенный сетевой адаптер LAN (опционально)

Встроенный сетевой адаптер LAN обладает следующими характеристиками:

- Интегрированный трансивер 10/100/1000
- Поддержка PCI v2.3, 32-бит, 33-МГц
- Функция Wake-on-LAN и удаленного пробуждения
- Полная совместимость с технологией IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Аудио

- Совместимость с аудио-технологией Intel High Definition, поддержка 8-канального DAC с соотношением сигнал/шум 95дБ
- Совместимость с 192/96/48/44.1 КГц для 24/20/16 бит
- Электропитание: цифровое: 3.3V; аналоговое: 3.3V/5.0V
- Все аналоговые гнезда аудио имеют стереовход и выхода и пригодны для аналогового plug & play
- Соответствует нормам звуковых карт Microsoft WHQL/WLP 2.0
- Совместимость с Direct Sound 3D™
- Декодер цифрового выхода Dolby совместим с домашней электроникой

## Возможности расширения

Существуют следующие опции расширения данной материнской платы:

- Два слота PCI Express для графического интерфейса
- Один слот PCI Express x1
- Три 32-битных слота PCI v2.3
- Один низкопрофильный 40-штырьковый слот IDE, обеспечивающий поддержку двух устройств IDE
- Один разъем для накопителя на гибких дисках
- Четыре 7-штырьковых разъема SATA

Плата 945P-A поддерживает технологию захвата управления шиной UltraDMA bus mastering со скоростью передачи данных 100/66 МБ/сек.

## Интегрированный вход/выход

Плата снабжена полным набором портов входа/выхода и разъемов:

- Два порта PS/2 для подключения мыши и клавиатуры
- Один серийный порт
- Один параллельный порт
- Четыре порта USB
- Один порт LAN (опционально)
- Гнездо для подключения микрофона, гнездо аудио-входа и 8-канального аудиовыхода

## BIOS

Плата работает под AMI BIOS, который позволяет пользователю конфигурировать различные характеристики системы:

- Управление питанием
- Сигналы пробуждения системы
- Параметры CPU
- Время доступа для CPU и памяти

BIOS допускает также установку параметров для различных частот процессора.



*Некоторые параметры платы и характеристики ее программного обеспечения могут быть изменены без предварительного уведомления.*

## Cechy

### Procesor

Płyta główna 945P-A zaopatrzona jest w procesor Pentium 4/Pentium D typu LGA775 i charakteryzuje się następującymi cechami:

- Obsługuje procesory Pentium 4/Pentium D firmy Intel
- Obsługuje szynę systemową (FSB) 1066/800/533MHz
- Zabezpiecza technologią CPU "Hyper-Threading"

Technologia "Hyper-Threading" powoduje, że system "myśli", że posiada dwa procesory i wykonuje równolegle dwa procesy; za wykonanie każdego procesu odpowiedzialny jest jeden z dwóch "logicznych" procesorów w ramach jednego fizycznego procesora

### Chipset

Mostek północny (NB) 945P i mostek południowy (SB) ICH7 chipsetu oparty jest na nowatorskiej i skalowalnej architekturze o sprawdzonej niezawodności i funkcjonalności.

#### **945P (NB)**

- Obsługuje 32-bitowe adresowanie hosta pozwalając procesorowi zaadresować 4 GB pamięci
- Interfejs bezpośredniego połączenia (DMI) typu point-to-point 2 GB/s do ICH7 (1 GB/s) w każdym kierunku
- Obsługuje jedno złącze grafiki PCI Express x16; całkowicie zgodne z technologią PCI Express Base, w wersji 1.0a.
- Obsługuje pamięci 256-Mb, 512-Mb i 1-Gb w technologii DDR2 w urządzeniach x8 i x16
- Obsługuje do czterech niebuforowanych pamięci DIMM

#### **ICH7 (SB)**

- Rozszerzony kontroler DMA, kontroler przerywań i funkcje zegara
- Zgodny z technologią PCI Express Base, Rev. 1.0a
- Zgodny z PCI w wersji 2.3
- Zgodny ze standardem Serial ATA II
- Wbudowany kontroler hosta USB 2.0 obsługuje do ośmiu portów USB
- Wbudowany kontroler LAN
- Zgodny z protokołem AC'97/Intel High Definition Audio Codec(s), obsługuje 8 kanałowe wyjście audio
- Wbudowany kontroler IDE obsługujący Ultra ATA100/66/33

### Pamięć

- DDR2 667/533/400 DDR SDRAM z architekturą dwukanałową DDR2
- Zaopatrzony w cztery gniazda niebuforowanej pamięci typu DIMM
- Obsługuje pamięć DIMM do pojemności 1 GB każda; maksymalna możliwa pojemność pamięci do 4 GB

### Zintegrowana obsługa sieci LAN (opcjonalnie)

Zintegrowana obsługa sieci LAN posiada następujące właściwości:

- Zintegrowany terminal nadawczo-odbiorczy 10/100/1000
- Obsługuje 32 bitowe PCI w wersji 2.3 o częstotliwościach 33-MHz
- Obsługuje Wake-on-LAN i zdalne wake-up
- Obsługuje pełni standard IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Zgodny z protokołem Intel High Definition Audio, obsługuje 8 kanałowe DAC ze stosunkiem sygnał/szum równym 95dB
- Zgodność: 192/96/48/44.1 KHz z 24/20/16 bitami
- Zapewnia zasilanie: 3,3 V cyfrowe; 3.3 V/5.0 V analogowe
- Wszystkie analogowe gniazda wejściowe i wyjściowe typu jack są stereofoniczne i przystosowane do analogowego plug & play
- Spełnia wymagania audio według standardu Microsoft WHQL/WLP w wersji 2.0
- Zgodny z Direct Sound 3D™
- Dekoder cyfrowego wyjścia Dolby pozwalający na współpracę z domową elektroniką

## Możliwości rozbudowy

Płyta główna wyposażona jest w następujące gniazda:

- Dwa gniazda PCI Express dla kart graficznych
- Jedno gniazdo PCI Express x1
- Trzy 32-bitowych gniazda zgodnych z PCI w wersji 2.3
- Jedno 40-nóżkowe złącze niskoprofilowe obsługujące dwa urządzenia IDE
- Jedno złącze obsługujące stacje dyskiek
- Cztery 7-nóżkowe złącza SATA

Płyta główna 945P-A obsługuje szynę UltraDMA z szybkością transferu 100/66 MB/s.

## Zintegrowane We/Wy

Płyta główna wyposażona jest w pełny zestaw gniazd i złączy We/Wy:

- Dwa gniazda PS/2 dla myszy i klawiatury
- Jedno gniazdo szeregowo
- Jedno gniazdo równoległe
- Cztery gniazda USB
- Jedno gniazdo LAN (opcjonalnie)
- Wejście mikrofonowe, wejście audio i 8-kanałowe wyjście High Definition Audio

## Firmowy BIOS

Płyta główna wyposażona jest w BIOS firmy AMI, który pozwala użytkownikowi konfigurować wiele cech systemu włączając w to następujące właściwości:

- Zarządzanie poborem mocy
- Alarmy typu Wake-up
- Parametry pracy procesora
- Ustalenia szybkości pracy procesora i pamięci

BIOS może być używany do ustalania parametrów wpływających na szybkości pracy zegara procesora.



*Niektóre parametry dotyczące płyty i jej oprogramowania mogą ulec zmianie bez uprzedniego powiadomienia.*



# Vlastnosti

## Procesor

Základní deska 945P-A je určena pro procesory Pentium 4/PentiumD LGA775 a může nabídnout následující vlastnosti:

- Určeno pro procesory Intel Pentium 4/Pentium D
- Podporuje taktování systémové sběrnice (FSB) na frekvenci 1066/800/533 MHz
- Podporuje technologii CPU „Hyper-Threading“

Technologie „Hyper-Threading“ umožňuje operačnímu systému pracovat tak, jako by byl připojen ke dvěma procesorům, protože je možné pracovat se dvěma toky programového kódu (vlákny) paralelně najednou, přičemž jsou k dispozici samostatné „logické“ procesory umístěné v rámci jednoho fyzického procesoru.

## Čipová sada

Čipy northbridge (NB) 945P a southbridge (SB) ICH7 jsou založeny na inovativní a škálovatelné architektuře s ověřenou spolehlivostí a výkonností.

### 945P (NB)

- Podporuje 32bitové adresování, umožňující CPU přistupovat k celému adresovému prostoru paměti 4 GB.
- 2 GB/s přímé rozhraní DMI (Direct Media Interface) pro ICH7 (1 GB/s) v obou směrech.
- Podpora jednoho rozhraní PCI Express x16 pro grafiku, zcela splňující základní požadavky standardu PCI Express, revize 1.0a.
- Podpora 256 MB, 512 MB a 1 Gb DDR2 technologií pro zařízení x8 a x16
- Podpora až čtyř DIMM modulů bez vyrovnávací paměti

### ICH7 (SB)

- Vylepšený řadič DMA, řadič přerušení a funkcí časovače
- Splňuje základní požadavky standardu PCI Express, revize 1.0a
- Splňuje požadavky standardu PCI 2.3
- Splňuje požadavky standardu Serial ATA II
- Integrované hostitelské řadiče USB 2.0 podporující až osm portů
- Integrovaný řadič LAN
- Splňuje požadavky standardu Hi-Fi audiokodeku AC'97/Intel s podporou 8kánlových zvukových výstupů
- Integrovaný řadič IDE podporující Ultra ATA100/66/33

## Paměť

- Paměti DDR2 667/533/400 DDR SDRAM s dvoukanálovou architekturou DDR2
- Instalovat je možné až čtyři DIMM moduly bez vyrovnávací paměti
- Až 1 GB paměti na jeden modul DIMM s maximální velikostí paměti do 4 GB

## Vestavění síťové rozhraní LAN (volitelně)

Vestavěné síťové rozhraní LAN nabízí následující možnosti:

- Integrovaný transceiver 10/100/1000
- Podpora rozhraní PCI v2.3, 32bitové, 33MHz
- Podpora funkce Wake-on-LAN (WOL) a vzdálené aktivace

Multi-Language Translation

- Plná podpora rozhraní IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Zvuk

- Splňuje požadavky standardu Hi-Fi audiokodeku Intel, s podporou 8kanálového D/A převodníku s odstupem šumu od zvuku 95 dB
- Kompatibilita: 192/96/48/44,1 kHz s 24/20/16bitovým vzorkováním
- Napájení: Digitální: 3,3 V; Analogové: 3,3 V / 5,0 V
- Všechny analogové vstupní a výstupní konektory jsou stereo, plug & play
- Splňuje požadavky standardu Microsoft WHQL/WLP 2.0
- Kompatibilita s Direct Sound 3D™
- Výstup enkodéru Dolby Digital pro použití ve spojení se spotřební elektronikou

## Možnosti rozšíření

Základní deska je dodávána s následujícími možnostmi rozšíření

- Dvě patice PCI Express pro grafickou kartu
- Jedna patice PCI Express x1
- Tři 32bitové patice PCI v2.3
- Jeden nízkoprofilový 40kolíkový konektor IDE podporující připojení dvou zařízení standardu IDE
- Jedno rozhraní pro disketovou mechaniku
- Čtyři 7kolíkové konektory SATA

Základní deska 945P-A podporuje sběrnici Ultra DMA s přenosovými rychlostmi 100/66 MB/s.

## Integrovaný vstup/výstup

Základní deska je vybavena kompletní sadou vstupních portů a konektorů I/O:

- Dva porty PS/2 pro myš a klávesnici
- Jeden sériový port
- Jeden paralelní port
- Čtyři porty USB
- Jeden port LAN (volitelně)
- Zvukové konektory pro mikrofon, zvukový vstup a 8kanálový Hi-Fi zvukový výstup

## Firmware BIOS

Základní deska využívá BIOS formy AMI, který uživateli umožňuje nakonfigurovat mnoho systémových parametrů, včetně následujících:

- Řízení spotřeby
- Alarmy při spouštění systému
- Parametry CPU
- Časování CPU a paměti

Firmware může být rovněž použit k nastavení parametrů pro různé taktovací frekvence procesoru.



*Některé technické parametry hardware a software se mohou měnit bez předchozího upozornění.*

# Caracteristici

## Procesorul

945P-A utilizează Pentium 4/Pentium D de tipul LGA775, având următoarele caracteristici:

- Funcționează cu procesoare Intel Pentium 4/Pentium D
- Funcționează cu bus sistem (FSB) de 1066/800/533 MHz
- Este compatibilă cu unități centrale dotate cu tehnologia „Hyper-Threading”

Tehnologia „Hyper-Threading” permite sistemului de operare să funcționeze ca și cum ar exista două procesoare, putând fi rulate în paralel două fire, fiecare pe câte un procesor „logic” separat, aflate pe același procesor fizic.

## Setul de chipuri

Seturile de chipuri 945P Northbridge (NB) și ICH7 Southbridge (SB) se bazează pe o arhitectură inovatoare și scalabilă, care s-a impus deja prin fiabilitate și performanță.

### 945P (NB)

- Sprijină adresarea host bus (bus gazdă) de 32 biți, permițând unității centrale să acceseze întreaga cantitate de memorie de 4 GB.
- Interfață Direct Media (DMI) punct la punct pe 2 GB/s pentru ICH7 (1 GB/s) în ambele direcții.
- Sprijină PCI Express de 16x pentru interfața grafică, este pe deplin compatibil cu versiunea 1.0a a specificației de bază PCI Express.
- Este compatibil cu tehnologiile de 256-Mb, 512-Mb și 1-Gb DDR2, pentru unități de viteză 8x sau 16x
- Suportă cel mult patru unități de memorie DIMM fără zonă tampon

### ICH7 (SB)

- Controler DMA îmbunătățit, controler de întreruperi și funcții de temporizare
- Compatibil cu specificația de bază PCI Express, versiunea 1.0a
- Compatibil cu specificația PCI 2.3
- Compatibil cu specificație Serial ATA II
- Controler gazdă USB 2.0 integrat, care suportă cel mult opt porturi USB 2.0
- Controler LAN integrat
- Compatibilitate cu specificațiile AC'97/Intel High Definition Audio Codec, suportând ieșiri audio pe 8 canale
- Controler IDE integrat, suportând Ultra ATA100/66/33

## Memoria

- Module DDR SDRAM DDR2 667/533/400 cu arhitectură DDR2 cu canal dual
- Poate funcționa cu patru module DIMM fără zonă tampon
- Poate funcționa cu module DIMM de cel mult 1 GB, iar cantitatea maximă de memorie este de 4 GB

## Onboard LAN (opțional)

Onboard LAN are următoarele caracteristici:

- Unitate de emisie/recepție 10/100/1000 integrat
- Suportă PCI, versiunea 2.3, de 32 biți, la 33 MHz
- Suport pentru funcțiile Wake-on-LAN și trezire la distanță
- compatibil pe deplin cu standardul IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Audio

- Compatibilitate cu specificația Intel High Definition Audio, suportând DAC pe 8 canale cu raport sunet/paraziți de 95 dB
- Compatibil cu: 192/96/48/44,1 kHz, la 24/20/16 biți
- Sursă de alimentare: digitală: 3,3 V; analoagă: 3,3 V / 5,0 V
- Toate mufele analoge sunt cu redistribuire intrare și ieșire stereo pentru configurare automată analoagă
- Corespunde cerințelor audio Microsoft WHQL/WLP 2.0
- Compatibil cu Direct Sound 3D™
- Ieșire codificator Dolby Digital pentru aparate electronice de larg consum

## Opțiuni de extindere

Placa de bază este dotată următoarele posibilități de extindere:

- Două sloturi PCI Express pentru interfața grafică
- Un slot PCI Express x1
- Trei sloturi de 32 biți compatibile PCI, versiunea 2.3
- O interfață IDE 40 cu profil plat care poate deservi două unități IDE
- O interfață pentru unitate floppy
- Patru conectori SATA 7

Placa de bază 945P-A suportă bus mastering UltraDMA cu viteze de transfer de 100/66 MB/s

## I/O integrată

Placa de bază este dotată cu un set complet de porturi și conectori I/O:

- Două porturi PS/2, pentru mouse și tastatură
- Un port serial
- Un port paralel
- Patru porturi USB
- Un port LAN (opțional)
- Mufe audio pentru microfon, intrare audio și pentru 8 canale audio de ieșire de înaltă fidelitate

## Firmware BIOS

Placa de bază utilizează AMI BIOS, care permite utilizatorului să configureze mai mulți parametri ai sistemului, cum ar fi:

- Gestionarea energiei
- Alarmer de trezire
- Parametri CPU
- Temporizare CPU și memorie

Acest firmware poate fi utilizat și pentru a seta parametrii diferitelor frecvențe de comandă ale procesorului.



*Anumite specificații hardware și elemente de software pot fi modificate fără înștiințare prealabilă.*

## Спецификация

### Процесор

Дънната платка 945P-А поддържа Pentium 4/Pentium D тип LGA775 със следните спецификации:

- поддръжка на процесори Intel Pentium 4/Pentium D
- поддръжка на системна шина със скорост 1066/800/533MHz
- поддръжка на процесори с технология "Hyper-Threading"

Технологията "Hyper-Threading" позволява да се "излъже" операционната система, че работи на два процесора, което дава възможност за паралелното изпълнение на две задачи на два отделни "логически" процесора в един и същ физически процесор.

### Чипсет

Чипсетът със северен мост 945P (NB) и южен мост ICH7 (SB) е изграден на базата на оригинална архитектура с възможност за надстройка с доказана надеждност и производителност.

#### **945P (NB)**

- 32-bit адресация на шината, което позволява на процесора достъп към пълното адресно пространство на паметта 4GB.
- Директен медия интерфейс (DMI) 2 GB/s point-to-point към ICH7, (1 GB/s във всяка посока).
- поддръжка на шина PCI Express x16 за графичен интерфейс, напълно съвместима с шината PCI Express Base ревизия 1.0a.
- поддръжка на технологии 256-Mb, 512-Mb и 1-Gb DDR2 за x8 и x16 устройства
- поддръжка на до четири небуферирани DIMM слота.

#### **ICH7 (SB)**

- подобрен DMA Контролер, контролер на прекъсванията и часовник
- поддръжка на шината PCI Express Base, ревизия 1.0a
- поддръжка на шината PCI 2.3
- съвместимост със спецификацията Serial ATA II
- интегриран контролер USB 2.0 с поддръжка на до осем порта USB 2.0
- интегриран мрежов контролер
- Съвместимост с AC'97/Intel High Definition Audio Codec(s) с поддръжка на 8-канални аудио изходи
- интегриран контролер IDE с поддръжка на Ultra ATA100/66/33

### Памет

- Дву-канална архитектура на паметта DDR2 667/533/400 DDR SDRAM
- поддръжка на до четири небуферирани DIMM слота
- до 1 GB памет на 1 DIMM канал с максимален капацитет 4 GB

### Интегриран мрежов контролер (опция)

Спецификация на интегрирания мрежов контролер:

- Интегриран 10/100/1000 контролер
- Поддръжка на PCI v2.3, 32-bit, 33-MHz
- Поддръжка на функции Wake-on-LAN и remote wake-up
- Пълна поддръжка на IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

## Аудио

- Съвместимост с Intel High Definition Audio, с поддръжка на 8-канални цифрово-аналогови преобразователи със съотношение звук/шум 95dB
- Съвместимост с: 192/96/48/44.1 KHz на 24/20/16 bits
- Захранване: Цифрово: 3.3V; Аналогово: 3.3V/5.0V
- Всички аналогови гнезда са стерео, с възможност за аналогов режим plug & play
- Съвместим със спецификацията Microsoft WHQL/WLP 2.0
- съвместимост с Direct Sound 3D™
- Изход с вграден Dolby Digital Encoder

## Възможности за разширяване

Дънната платка има следните разширителни възможности:

- Два слота PCI Express за графичен интерфейс
- Един слот PCI Express x1
- три слота 32-bit PCI v2.3
- един нископрофилен 40-pin IDE колектор с поддръжка на две IDE устройства
- един конектор за флопидисково устройство
- четири 7-pin SATA конектора

Дънната платка 945P-A поддържа шина UltraDMA 100/66 MB/s

## Интегриран Вход/Изход контролер

Дънната платка има пълен набор от I/O портове и конектори:

- два PS/2 порта за мишка и клавиатура
- един сериен порт
- един паралелен порт
- четири USB порта
- един LAN порт (опция)
- аудио жак за микрофон (вход), линеен вход, линеен изход и изход за 8-канално High Definition аудио

## BIOS Firmware

Дънната платка използва AMI BIOS с възможност за различни системни настройки, включително

- управление на захранването
- Wake-up аларми
- параметри на процесора
- синхронизиране на процесора и паметта

настройка на скоростта на часовника на процесора



*Хардуерните и софтуерни спецификации и параметри могат да бъдат изменени без предупреждение.*

## Jellemző

### Processzor

A 945P-A LGA775 típusú Pentium 4/Pentium D számára készült, és a következő jellemzőkkel bír:

- Intel Pentium 4/Pentium D processzorokkal működik
- 1066/800/533 MHz sebességű rendszerbuszt (FSB) támogat
- Támogatja a „Hyper-Threading” technológiát használó központi egységeket

A „Hyper-Threading” technológia által az operációs rendszer úgy működik, mintha két processzorral rendelkezne, ami két szál párhuzamos futását teszi lehetővé két független, ugyanazon fizikai processzoron található „logikai” processzoron.

### Lapkakészlet

A 945P Northbridge (NB) és ICH7 Southbridge (SB) lapkakészletek egy új és méretezhető, nagy megbízhatóságú és teljesítőképességű architektúrára épülnek.

#### **945P (NB)**

- 32 bites host bus addressing-et (gazdabusz címzést) tesz lehetővé, ami által a központi egység a teljes 4 GB-os címzési tárhelyhez hozzáfér.
- 2 GB/s pontról-pontra adatátvitelű Direct Media interfész (DMI) az ICH7 (1 GB/s) számára mindkét irányban.
- Egy 16-szoros Express PCI-vel rendelkezik a grafikus interfész számára, amely teljesen kompatibilis a PCI Express alapspecifikáció 1.0a változatával.
- 256 Mb-os, 512 Mb-os és 1 Gb-os DDR2 technológiát támogat 8- és 16-szoros eszközök esetében
- Akár négy puffervermentes DIMM egységgel képes működni

#### **ICH7 (SB)**

- Fejlett DMA vezérlő, megszakításvezérlő és időzítő funkciók
- Kompatibilis a PCI Express alapspecifikáció 1.0a változatával
- Kompatibilis a PCI 2.3-as specifikációjával
- Kompatibilis a soros ATA II specifikációval
- Beépített USB 2.0 gazda vezérlő, legtöbb nyolc USB 2.0 portot támogat
- Beépített LAN vezérlő
- Kompatibilis az AC'97/Intel High Definition Audio Codec előírásokkal, 8 csatornás audio kimenetet támogatva
- Beépített IDE vezérlő, amely az Ultra ATA100/66/33 technológiát támogatja

### Memória

- DDR2 667/533/400 DDR SDRAM modulok kétcsatornás DDR2 kiépítésben
- Négy puffervermentes DIMM egységgel működik
- Maximum 1 GB-os DIMM egységeket támogat, maximális memória 4 GB

### Alaplapon levő LAN (választható)

Az alaplapon levő LAN jellemzői:

- Integrált 10/100/1000 adó-vevő
- Támogatja a 32 bites, 33 MHz-es PCI 2.3-as változatát
- A Wake-on-LAN és a távoli ébresztés funkciók támogatása
- Teljesen kompatibilis az IEEE 802.3, IEEE 802.3u, IEEE 802.3ab szabvánnyal

## Audio

- Kompatibilis az Intel High Definition Audio előírásokkal, 8 csatornás DAC támogatásával, 95 dB jel-zaj aránnyal
- Kompatibilitás: 192/96/48/44,1 KHz, 24/20/16 biten
- Tápforrás: digitális: 3,3 V; analóg: 3,3 V / 5,0V
- Az összes analóg csatlakozó sztereó bemenetű és kimenetű analóg azonnali felismerés támogatására
- Megfelel a Microsoft WHQL/WLP 2.0 audio követelményeinek
- Kompatibilis a Direct Sound 3D™ technológiával
- Dolby Digital kódoló kimenet fogyasztói elektronikai cikkekhez

## Bővítési lehetőségek

Az alaplap a következő bővítési lehetőségekkel rendelkezik:

- Két PCI Express foglalat a grafikus interfész számára
- Egy 1-szeres PCI Express foglalat
- Három 32 bites, a PCI 2.3-as változatával kompatibilis foglalat
- Egy 40 tűs lapos IDE foglalat, amely két IDE eszközt képes kiszolgálni
- Egy hajlékonylemez meghajtó interfész
- Négy 7 tűs SATA csatlakozó

A 945P-A alaplap támogatja az UltraDMA bus mastering megoldást, 100/66 MB/s sebességen

## Beépített I/O

Az alaplapot az I/O portok és csatlakozók teljes készletével szerelték fel:

- Két PS/2 port az egér és a billentyűzet számára
- Egy soros port
- Egy párhuzamos port
- Négy USB port
- Egy LAN port (választható)
- Csatlakozók mikrofon bemenethez, audio bemenethez és 8 csatornás, nagy hűségű audio kimenethez

## BIOS Firmware

Az alaplapon levő AMI BIOS segítségével a felhasználó a rendszer sok paraméterét állíthatja be, például:

- Energiagazdálkodás
- Ébresztési riasztások
- CPU paraméterek
- CPU és memória időzítés

A firmware segítségével a processzor órajel-frekvenciáinak paramétereit is beállíthatják.



*Bizonyos hardverjellemzők és szoftverelemek előzetes bejelentés nélkül módosulhatnak.*