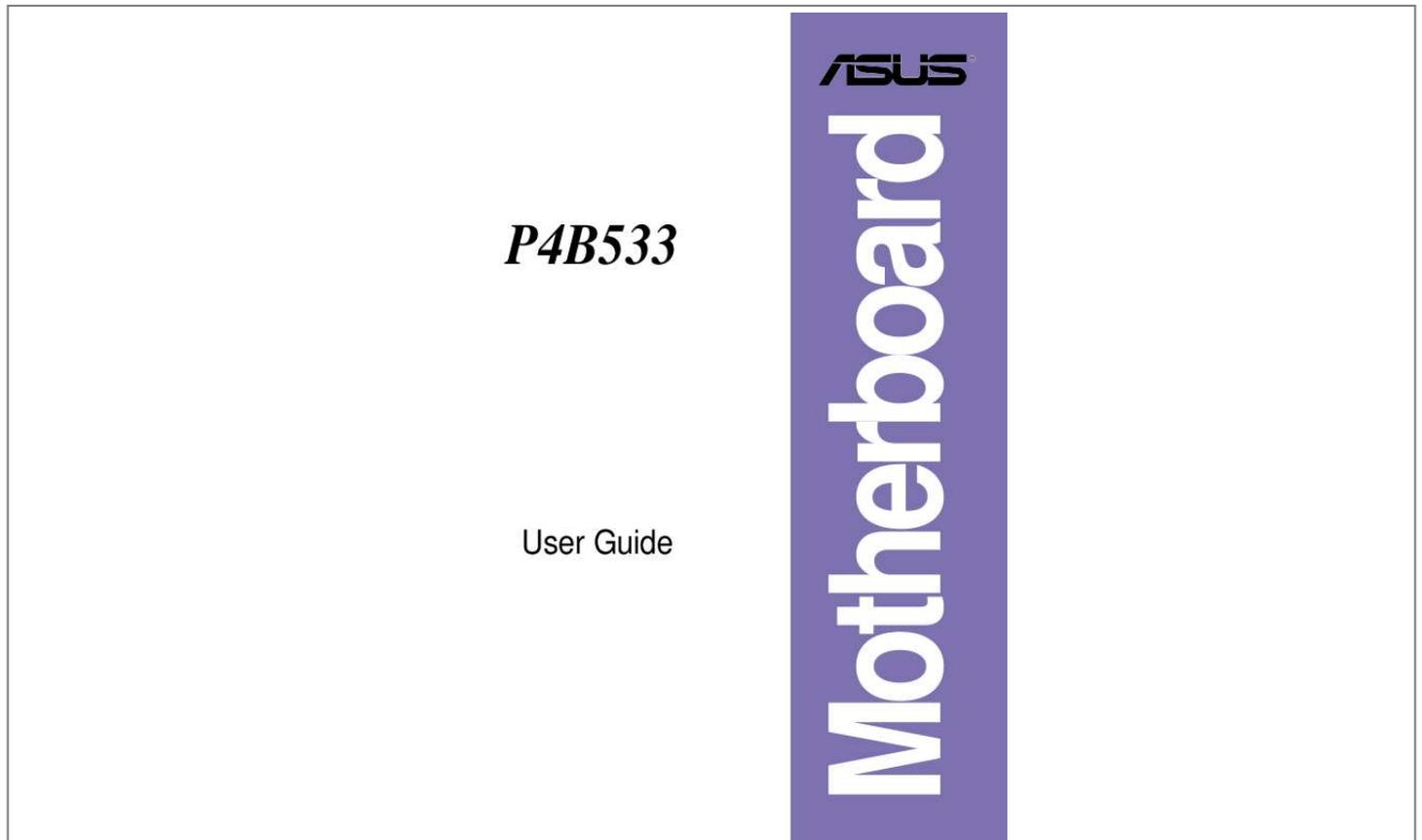




Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ASUS P4B533. You'll find the answers to all your questions on the ASUS P4B533 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASUS P4B533
User guide ASUS P4B533
Operating instructions ASUS P4B533
Instructions for use ASUS P4B533
Instruction manual ASUS P4B533



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Manual abstract:

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..... I-1 v FCC/CDC statements Federal Communications Commission Statement This device complies with FCC Rules Part 15. Operation is subject to the following two conditions: · This device may not cause harmful interference, and · This device must accept any interference received including interference that may cause undesired operation. 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 manufacturer's 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 receiver.

· Connect the equipment to 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. The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. Canadian Department of Communications Statement This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003. vi Safety information Electrical safety · To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system. · When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device. · Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged. · Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit. · Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company. · If the power supply is broken, do not try to fix it by yourself.

Contact a qualified service technician or your retailer. Operation safety · Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package. · Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately. · To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry. · Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet. · Place the product on a stable surface.



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supply. Connect a 4-pin device connector from a standard power supply to this connector to provide sufficient power to the CPU. ATX 12V connector. This power connector connects the 4-pin 12V plug from the ATX 12V power supply. DIP switches (DSW1). This 6-switch Dual Inline Package (DIP) allows you to set the CPU external frequency. CPU socket.

A 478-pin surface mount, Zero Insertion Force (ZIF) socket for the Intel® Pentium® 4 Processor, with 533/400 MHz system bus that allows 4.3GB/s and 3.2GB/s data transfer rates, respectively. North bridge controller. The Intel® 845E Memory Controller Hub (MCH) provides the processor interface with 533/400MHz frequency, system memory interface at 133/100MHz operation, and 1.

5V AGP interface that supports AGP 2.0 specification including 2X/4X Fast Write protocol. The MCH interconnects to the south bridge ICH4 via the Intel proprietary Hub Interface.



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DDR DIMM sockets. These three 184-pin DIMM sockets support up to 2GB system memory using unbuffered ECC or non-ECC PC2100/1600 DDR DIMMs. Floppy disk connector. This connector accommodates the provided ribbon cable for the floppy disk drive. One side of the connector is slotted to prevent incorrect insertion of the floppy disk cable. ATX power connector. This 20-pin connector connects to an ATX +12V power supply. The power supply must have at least 1A on the +5V standby lead (+5VSB). South bridge controller. The fourth-generation Intel I/O Controller Hub (ICH4) is a subsystem that integrates various I/O functions including 2-channel ATA/100 bus master IDE controller, up to six USB 2.0/1.1 ports, I/O APIC, SMBus 2.

0 controller, LPC interface, AC'97 2.2 interface, PCI 2.2 interface, and integrated LAN controller. The ICH4 also contains the necessary arbitration and buffering for efficient utilization of these interfaces. 2 3 4 5 6 7 8 9 1-8 Chapter 1: Product introduction 10 IDE connectors. These dual-channel bus master IDE connectors support up to four Ultra DMA/100/66, PIO Modes 3 & 4 IDE devices. Both the primary (blue) and secondary (black) connectors are slotted to prevent incorrect insertion of the IDE ribbon cable. DIP switches (DSW2). This 4-switch Dual Inline Package (DIP) allows you to select the CPU frequency multiple. Flash EEPROM.

This 4Mb firmware contains the programmable BIOS program. ASUS ASIC. This chip performs multiple system functions that include hardware and system voltage monitoring, IRQ routing, among others. Standby power LED. This LED lights up if there is a standby power on the motherboard.

This LED acts as a reminder to turn off the system power before plugging or unplugging devices. Audio controller. This C-Media 6-channel PCI audio chip supports legacy audio and HRTF 3D positional audio functions. The chip also supports 24-bit S/PDIF In (0.5~5V) and S/PDIF Out (44.

1K and 48K formats) professional digital audio interface, and one MPU-401 UART mode compatible MIDI/game port. (on audio models only) PCI slots.

These six 32-bit PCI 2.2 expansion slots support bus master PCI cards like SCSI or LAN cards with 133MB/s maximum throughput. Super I/O controller. This Low Pin Count (LPC) interface provides the commonly used Super I/O functionality. The chipset supports a high-performance floppy disk controller for a 360K/720K/1.44M/2.88M floppy disk drive, a multi-mode parallel port, two standard compatible UARTs, a Standard Infrared (SIR), and a Flash ROM interface. AGP warning LED.

Serving as a smart burn-out protection for the motherboard, this red LED lights up if you plug in any 3.3V AGP card into the AGP slot. When this LED is lit, there is no way you can turn on the system power even if you press the power button. AGP slot. This Accelerated Graphics Port (AGP) slot supports 1.5V AGP4X mode graphics cards for 3D graphical applications. 11 12 13 14 15 16 17 18 19 ASUS P4B533 motherboard user guide 1-9 20 21 22 PS/2 mouse port. This green 6-pin connector is for a PS/2 mouse. Parallel port. This 25-pin port connects a parallel printer, a scanner, or other devices.

Line In jack. This Line In (light blue) jack connects a tape player or other audio sources. In 6-channel mode, the function of this jack becomes Rear Speaker Out. (on audio models only) Line Out jack. This Line Out (lime) jack connects a headphone or a speaker.

In 6-channel mode, the function of this jack becomes Front Speaker Out. (on audio models only) Microphone jack. This Mic (pink) jack connects a microphone. In 6-channel mode, the function of this jack becomes Bass/Center. (on audio models only) USB 2.

0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices. Serial ports. These two 9-pin COM1/COM2 ports are for pointing devices or other serial devices. USB 2.0 ports 3 and 4. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices. PS/2 keyboard port.

This purple 6-pin connector is for a PS/2 keyboard. 23 24 25 26 27 28 1-10 Chapter 1: Product introduction Chapter 2 This chapter describes the hardware setup procedures that you have to perform when installing system components. It includes details on the switches, jumpers, and connectors on the motherboard. Hardware information Chapter summary 2.1 2.2 2.3 2.4 2.5 2.6 2.

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2. Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
3. Hold components by the edges to avoid touching the ICs on them.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- 5.

Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components. When lit, the green LED (SB_PWR) indicates that the system is ON, in sleep mode, or in soft-off mode, a reminder that you should shut down the system before removing or plugging in any motherboard component. The red LED (AGP_WARN) is a smart protection from motherboard burn out caused by an incorrect AGP card. If you plug in any 3.

3V AGP card into the 1.5V AGP slot, this LED lights up thus preventing the system to power up. This LED remains off if you plug in a 1.5V AGP card. AGP_WARN ON Incorrect AGP Card © OFF Correct AGP Card SB_PWR P4B533 P4B533 Onboard LED ON Standby Power OFF Powered Off ASUS P4B533 motherboard user guide 2-3 2.4 Central Processing Unit (CPU) 2.4.1 Overview The motherboard comes with a surface mount 478-pin Zero Insertion Force (ZIF) socket. The socket is designed for the Intel Pentium 4 Processor in the 478-pin package with 512KB L2 cache on 0.13 micron process.

This processor includes the Intel® NetBurst™ micro-architecture that features the hyper-pipelined technology, rapid execution engine, 533/400MHz system bus, and execution trace cache. Together, these attributes improve system performance by allowing higher core frequencies, faster execution of integer instructions, and data transfer rates of 4.2GB/s and 3.2GB/s. Gold Mark Note in the illustration that the CPU has a gold triangular mark on one corner. This mark indicates the processor Pin 1 that should match a specific corner of the CPU socket. Incorrect installation of the CPU into the socket may bend the pins and severely damage the CPU! 2-4 Chapter 2: Hardware information 2.4.2 Installing the CPU Follow these steps to install a CPU. 1.

Locate the 478-pin ZIF socket on the motherboard. 2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle. Socket Lever 90 - 100 Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely. ASUS P4B533 motherboard user guide 2-5 3. Position the CPU above the socket such that its marked corner matches the base of the socket lever. 4. Carefully insert the CPU into the socket until it fits in place. The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to prevent bending the pins and damaging the CPU! Gold Mark 5.

When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked. 2-6 Chapter 2: Hardware information 2.4.3 Installing the heatsink and fan The Intel® Pentium® 4 Processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance. When you buy a boxed Intel Pentium 4 Processor, the package includes the heatsink, fan, and retention mechanism. In case you buy a CPU separately, make sure that you use only Intel certified heatsink and fan. Follow these steps to install the CPU heatsink and fan. 1. Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.

The retention module base is already installed on the motherboard upon purchase. You do not have to remove the retention module base when installing the CPU or installing other motherboard components. CPU Heatsink Retention Module Base Your boxed Intel Pentium 4 Processor package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter. ASUS P4B533 motherboard user guide 2-7 2. Position the fan with the retention mechanism on top of the heatsink. Align and snap the four hooks of the retention mechanism to the holes on each corner of the module base. Make sure that the fan and retention mechanism assembly perfectly fits the heatsink and module base, otherwise you cannot snap the hooks into the holes. Retention Hole Retention Lock Retention Hook Snapped to the Retention Hole Keep the retention locks lifted upward while fitting the retention mechanism to the module base. 2-8 Chapter 2: Hardware information 3.

Push down the locks on the retention mechanism to secure the heatsink and fan to the module base. When secure, the retention locks should point to opposite directions. 2.4.4 Connecting the CPU fan cable When the fan, heatsink, and the retention mechanism are in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.

CPU Fan Connector (CPU_FAN) Don't forget to connect the CPU fan connector! Hardware monitoring errors may occur if you fail to plug this connector. ASUS P4B533 motherboard user guide 2-9 2.5 System memory 2.5.1 Overview The motherboard comes with three Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets.

These sockets support up to 2GB system memory using 184-pin unbuffered ECC or non-ECC PC2100/1600 DIMMs. 80 Pins © 104 Pins P4B533 P4B533 184-Pin DDR DIMM Sockets A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM. The DDR SDRAM technology evolved from the mainstream PC66, PC100, PC133 memory known as Single Data Rate (SDR) SDRAM. DDR memory however, has the ability to perform two data operations in one clock cycle, thus providing twice the throughput of SDR memory. For example, a 200MHz DDR DIMM will support a 100MHz memory bus, and a 266MHz DDR DIMM will support a 133MHz memory bus. DDR Data Transfer Rate 266MHz 200MHz DDR Base Frequency 133MHz 100MHz A DDR DIMM has the same physical dimensions as an SDR DIMM, but it has a 184-pin footprint compared to the 168-pin of the SDR DIMM. Also, a DDR DIMM is single notched while an SDR DIMM is double notched. Therefore, a DDR DIMM is not backward compatible with SDR, and should be installed only in a socket specially designed for DDR DIMMs. 2-10 Chapter 2: Hardware information 2.

5.2 Memory configurations You may install any DDR DIMMs with 64MB, 128MB, 256MB, 512MB, and 1GB densities into the DIMM sockets. Use only the following combinations to install DDR DIMMs. Otherwise, the system may not boot up. DDR DIMM1 (Rows 0&1) SS/DS SS/DS * SS - Single-sided DIMM DS - Double-sided DIMM DDR DIMM2 (Rows 2&3) DS SS DDR DIMM3 (Rows 3&2) None SS DDR DIMM sockets 2 and 3 share the same rows, so if you install a double-sided DIMM into DIMM2 socket, you must leave DIMM3 socket empty.



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However, you may install single-sided DIMMs into DIMM2 and DIMM3 sockets at the same time. 2.5.3 Installing a DIMM Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

Follow these steps to install a DIMM. 1. Unlock a DIMM socket by pressing the retaining clips outward. 2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.

Unlocked Retaining Clip ASUS P4B533 motherboard user guide 2-11 3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated. Locked Retaining Clip 2.5.4 Removing a DIMM Follow these steps to remove a DIMM.

1. Simultaneously press the retaining clips outward to unlock the DIMM. Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force. 2. Remove the DIMM from the socket. 2-12 Chapter 2: Hardware information 2.6 Expansion slots In the future, you may need to install expansion cards. The motherboard has six PCI slots and one Accelerated Graphics Port (AGP) slot. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components. 2.6.1 Installing an expansion card Follow these steps to install an expansion card. 1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card. 2. Remove the system unit cover (if your motherboard is already installed in a chassis). 3.

Remove the bracket opposite the slot that you intend to use. Keep the screw for later use. 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot. 5.

Secure the card to the chassis with the screw you removed earlier. 6. Replace the system cover. 2.6.

2 Configuring an expansion card After installing the expansion card, configure the it by adjusting the software settings. 1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup. 2. Assign an IRQ to the card. Refer to the tables on the next page. 3. Install the software drivers for the expansion card. ASUS P4B533 motherboard user guide 2-13 Standard Interrupt Assignments IRQ 0 1 2 3* 4* 5* 6 7* 8 9* 10* 11* 12* 13 14* 15* Priority 1 2 N/A 11 12 13 14 15 3 4 5 6 7 8 9 10 Standard Function System Timer Keyboard Controller Programmable Interrupt Communications Port (COM2) Communications Port (COM1) Sound Card (sometimes LPT2) Floppy Disk Controller Printer Port (LPT1) System CMOS/Real Time Clock ACPI Mode when used IRQ Holder for PCI Steering IRQ Holder for PCI Steering PS/2 Compatible Mouse Port Numeric Data Processor Primary IDE Channel Secondary IDE Channel * These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard A PCI slot 1 -- PCI slot 2 -- PCI slot 3 -- PCI slot 4 -- PCI slot 5 -- PCI slot 6 -- AGP slot shared Onboard USB controller HC0 shared Onboard USB controller HC1 -- Onboard USB controller HC2 -- Onboard USB 2.0 controller -- Onboard Audio -- B ----- C D ----- shared ----- used shared ----- E F G H -- shared ----- used ----- shared used ----- shared ----- shared -- shared -- -- When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable. 2-14 Chapter 2: Hardware information 2.6.3 PCI slots There are six 32-bit PCI slots in this motherboard. The slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The following figure shows a LAN card installed on a PCI slot. 2.6.

4 AGP slot This motherboard has an Accelerated Graphics Port (AGP) slot that supports +1.5V AGP cards. When you buy an AGP card, make sure that you ask for one with +1.5V specification. Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.

If you installed an incorrect AGP card, such as a SiS305-based AGP card or any other 3.3V AGP card, the onboard red LED (AGP_WARN) lights up, an indication that the card is not supported on the motherboard. As long as this LED is lighted, you cannot turn on the system power even if you press the power button, thus preventing permanent damage to the motherboard. Install only 1.5V AGP cards on this motherboard! ® P4B533 Keyed for 1.

5v P4B533 Accelerated Graphics Port (AGP) ASUS P4B533 motherboard user guide 2-15 2.7 Switches and jumpers The motherboard frequency is adjusted through the DIP switches. The white block represents the switch position. The illustration below shows all the switches in the OFF position. DSW1 1.Frequency Selection 2.Frequency Selection 3.Frequency Selection 4.Frequency Selection 5.Frequency Selection 6.

Frequency Selection 123456 ON P4B533 DSW2 ON ON 1234 OFF ON ® P4B533 DIP Switches OFF 1.Frequency Multiple 2.Frequency Multiple 3.Frequency Multiple 4.Frequency Multiple The JEN jumper must be set to pins 2-3 (jumper mode) if you wish to use the DIP switches. Otherwise, setting the switches does not produce any effect. 1. JumperFree™ mode (JEN) This jumper allows you to enable or disable the JumperFree™ mode. The JumperFree mode allows you to change CPU settings through the BIOS setup instead of using the DIP switches. JEN 123456 DSW1 ON DSW2 ® ON 1234 12 P4B533 23 P4B533 JumperFree™ Mode Setting Jumper Free (Default) Jumper Mode The JEN jumper is set in conjunction with the DIP switches.

In JumperFree mode, set all the DIP switches to OFF. 2-16 Chapter 2: Hardware information 2. CPU Core:Bus frequency multiple (DSW2 Switches 1-4) This option sets the frequency multiple between the CPU internal and external frequencies. This must be set in conjunction with the CPU Bus Frequency.

DSW2 ON 1234 ON 1234 ON 1234 ON 1234 8.

0x ON 1234 10.0x ON 1234 11.0x ON 1234 12.0x ON 1234 13.0x ON 1234 ® 14.

0x ON 1234 15.0x ON 1234 16.0x ON 1234 P4B533 17.0x ON 1234 18.0x ON 1234 19.0x ON 1234 20.0x ON 1234 P4B533 CPU Frequency Multiple Selection 21.0x 22.0x 23.0x 24.

0x Make sure that the JEN jumper is set to jumper mode before setting the above switches. The option to set the CPU core:bus frequency multiple is available only on unlocked CPUs. If you are using a locked CPU, setting the switches does not produce any effect.



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ASUS P4B533 motherboard user guide 2-17 3. CPU external frequency selection (DSWI Switches 1-6) This option tells the clock generator what frequency to send the CPU. This allows the selection of the CPU's external frequency (or Bus Clock). The BUS Clock multiplied by the Frequency Multiple equals the CPU's internal frequency (the advertised CPU speed). To select the CPU external frequency using the DIP switches, ensure that the JEN jumper is set to jumper mode. DSW1 ON 123456 123456 123456 ON ON CPU 100MHz AGP 66MHz 33MHz PCI 123456 @ 105MHz 70MHz 35MHz 123456 109MHz 72MHz 36MHz 123456 133MHz 66MHz 33MHz 123456 P4B533 ON ON ON P4B533 CPU External Frequency Selection CPU 141MHz AGP 70MHz PCI 35MHz 145MHz 72MHz 36MHz 166MHz 66MHz 33MHz 200MHz 66MHz 33MHz Set the CPU frequency only to the recommended settings. Frequencies other than the recommended CPU bus frequencies are not guaranteed to be stable.

2-18 Chapter 2: Hardware information ON ON 123456 4. Keyboard power (3-pin KBPWR) This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default is the Space Bar). This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS (see section 4.5. 1 Power Up Control). KBPWR 3 2 +5VSB 2 1 +5V (Default) P4B533 @ P4B533 Keyboard Power Setting 5. Vcore over-voltage (3-pin OVER_VOLT) When enabled, this jumper allows CPU Vcore ranges of 1.5V to 1.8V for Pentium 4 Northwood CPU and 1.75V to 1.95V for Pentium 4 Willamette CPU. When this jumper is disabled, Northwood has a Vcore setting range of +1.5V to +1.7V, and Willamette has 1.75V to 1.85V. You may adjust the CPU Vcore through the BIOS Setup. Setting to a very high core voltage may cause permanent damage to the CPU. It is recommended that you keep the default setting (Disable).

OVER_VOLT 3 2 Enable 2 1 Disable (Default) P4B533 @ P4B533 OVER_VOLT Setting ASUS P4B533 motherboard user guide 2-19 6. USB device wake-up (3-pin USBPWR_12, USBPWR_34, USBPWR_56) Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 sleep mode (no power to CPU, DRAM in slow refresh, power supply in reduced power mode). Both jumpers are set to pins 1-2 (+5V) by default because not all computers have the appropriate power supply to support this feature. The USBPWR_12 and USBPWR_34 jumpers are for the rear USB ports. The USBPWR_56 jumper is for the internal USB header that you can connect to the front USB ports. 1. This feature requires a power supply that can provide at least 1A on the +5VSB lead when these jumpers are set to +5VSB. Otherwise, the system does not power up. 2.

The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode. USBPWR_34 2 1 +5V (Default) +5VSB 3 2 USBPWR_12 12 +5V (Default) @ 23 +5VSB USBPWR_56 P4B533 12 23 P4B533 USB Device Wake Up +5V (Default) +5VSB 2-20 Chapter 2: Hardware information 7. Speaker selector (3-pin SPEECH) This jumper allows you to select the speaker you wish to use for the ASUS POST Reporter™ function. Set to pins 1-2 to use an external speaker. Connect the speakers to the Line Out jack (lime colored) on the rear panel.

Set to pins 2-3 to use an internal speaker (usually built in the chassis). SPEECH 12 @ 23 P4B533 LINEOUT (Default) BUZZER P4B533 Speaker Selector 8. SMBus 2.0 setting (two 3-pin PCISMB_SW1, PCISMB_SW2) These jumpers allow you to enable or disable the SMBus 2.0 support on the motherboard. When these jumpers are set to pins 2-3 (Enable), you may install PCI devices that comply with SMBus 2.0 specification. PCISMB_SW1 PCISMB_SW2 P4B533 @ 12 23 P4B533 PCISMB Setting Disable (Default) Enable ASUS P4B533 motherboard user guide 2-21 9. Line out selector (two 2-pin FP_LO_SWL, FP_LO_SWR) (on audio models only) By default, these jumpers are shorted (jumper caps on) to route the signal from the audio controller to the rear panel Line Out jack to make it available for audio out devices such as speakers or a headphone. If you connect the Intel Front Panel audio cable to the FP_AUDIO connector (see page 2-33 for the location), remove the caps from these jumpers to allow automatic switching of audio signal between the rear panel Line Out jack and the audio cable. FP_LO_SWL P4B533 FP_LO_SWR BLOL FLOL BLOR FLOR P4B533 Internal Line Out Connectors 10. Bass/Center setting (3-pin BCS1, BCS2) (on audio models only) These jumpers allow you to select the speaker output for a 6-channel audio system. Switch the jumpers from the CENTER/BASS (pins 1-2) position to BASS/CENTER (pins 2-3) position to re-route signals on the internal leads of the Mic port. Use the audio driver included in the support CD to install the multichannel audio feature. See section "5.

3 Software information." @ BCS1 BCS2 12 P4B533 @ 23 P4B533 Bass Center Setting (CENTER/BASS) (Default) (BASS/CENTER) 2-22 Chapter 2: Hardware information 11. Audio CODEC setting (3-pin AUDIO_SW) (on audio models only) This jumper allows you to enable or disable the audio CODEC on the motherboard. Disable the onboard audio CODEC if you desire to install a PCI audio card into a PCI slot. AUDIO_SW 12 P4B533 23 Disable @ Enable (Default) P4B533 Audio CODEC Setting 12. Clear RTC RAM (CLRRTC) This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The RAM data in CMOS, that include system setup information such as system passwords, is powered by the onboard button cell battery. To erase the RTC RAM: 1. Turn OFF the computer and unplug the power cord.

2. Remove the battery. 3. Place a jumper cap over the CLRRTC jumper for about 5 seconds, then remove the cap. DON'T leave the cap on the jumper! 4. Re-install the battery. 5. Plug the power cord and turn ON the computer. 6. Hold down the key during the boot process and enter BIOS setup to re-enter data.

Intel I/O Controller Hub (ICH4) @ P4B533 CLRRTC Short Jumper to Clear CMOS P4B533 Clear RTC RAM ASUS P4B533 motherboard user guide 2-23 2.8 Connectors This section describes and illustrates the internal connectors on the motherboard. Always connect ribbon cables with the red stripe to Pin 1 on the connectors. Pin 1 is usually on the side closest to the power connector on hard drives and CD-ROM drives, but may be on the opposite side on floppy disk drives. 1. Hard disk activity LED (2-pin IDE_LED) This connector supplies power to the hard disk activity LED.



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The read or write activities of any device connected to the primary or secondary IDE connector cause this LED to light up. TIP: If the case-mounted LED does not light, try reversing the 2-pin plug. ® IDE_LED P4B533 P4B533 HD Activity LED 2. Floppy disk drive connector (34-1 pin FLOPPY) This connector supports the provided floppy drive ribbon cable.

After connecting one end to the motherboard, connect the other end to the floppy drive. (Pin 5 is removed to prevent incorrect insertion when using ribbon cables with pin 5 plug). FLOPPY PIN 1 NOTE: Orient the red markings on the floppy ribbon cable to PIN 1. P4B533 P4B533 Floppy Disk Drive Connector 2-24 ® Chapter 2: Hardware information 3. IDE connectors (two 40-1 pin PRI_IDE/SEC_IDE) This connector supports the provided UltraDMA/100/66 IDE hard disk ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraDMA/100/66 slave device (hard disk drive) and the black connector to the UltraDMA/100/66 master device. It is recommended that you connect non-UltraDMA/100/66 devices to the secondary IDE connector. If you install two hard disks, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings. BIOS supports specific device bootup.

If you have more than two UltraDMA/100/66 devices, purchase another UltraDMA/100/66 cable. You may configure two hard disks to be both master devices with two ribbon cables one for the primary IDE connector and another for the secondary IDE connector. 1. Pin 20 on each IDE connector is removed to match the covered hole on the UltraDMA cable connector. This prevents incorrect orientation when you connect the cables.

2. The hole near the blue connector on the UltraDMA/100/66 cable is intentional. PIN 1 SEC_IDE Connector PIN 1 PRI_IDE Connector ® NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1. P4B533 P4B533 IDE Connectors For UltraDMA/100/66 IDE devices, use an 80-conductor IDE cable. The UltraDMA/66 cable included in the motherboard package also supports UltraDMA/100.

ASUS P4B533 motherboard user guide 2-25 4. Chassis open alarm lead (4-1 pin CHASSIS) This lead is for a chassis designed with intrusion detection feature. This requires an external detection mechanism such as a chassis intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event. If you do not wish to use the chassis intrusion lead, place a jumper cap over the pins labeled "Chassis Signal" and "Ground" to close the circuit. CHASSIS Chassis Signal GND P4B533 P4B533 Chassis Alarm Lead 5. SMBus connector (6-1 pin SMB) This connector allows you to connect SMBus (System Management Bus) devices. Devices communicate with an SMBus host and/or other SMBus devices using the SMBus interface. SMBus is a specific implementation of an I2C bus, a multi-device bus that allows multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer. +5VSB_MB 1 ® SMB ® P4B533 FLOATING SMBCLK P4B533 SMBus Connector 2-26 Chapter 2: Hardware information Ground SMBDATA +3V 6.

ASUS EZ Plug™ and ATX power connectors (20-pin ATXPWR, 4-pin EZ_PLUG, 4-pin ATX12V) These connectors connect to an ATX 12V power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit. In addition to the 20-pin ATXPWR connector, this motherboard requires that you connect the 4-pin ATX +12V power plug to provide sufficient power to the CPU. If you are using a standard ATX power supply that does not have the ATX +12V plug, connect one 4-pin device power plug to the ASUS EZ Plug™ connector labeled EZ_PLUG. Make sure that your ATX 12V power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate. ATXPWR Pin 1 +12.0VDC +5VSB PWR_OK COM +5.

0VDC COM +5.0VDC COM +3.3VDC +3.3VDC +5.0VDC +5.

0VDC -5.0VDC COM COM COM PS_ON# COM -12.0VDC +3.3VDC EZ_PLUG +5V GND GND +12V ATX12V +12V DC GND ® P4B533 +12V DC GND P4B533 ATX & Auxiliary Power Connectors ASUS P4B533 motherboard user guide 2-27 7. CPU, Chassis, and Power Fan Connectors (3-pin CPU_FAN, PWR_FAN, CHA_FAN) The fan connectors support cooling fans of 350mA~740mA (8.

88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector. Do not forget to connect the fan cables to the fan connectors. Lack of sufficient air flow within the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors! CPU_FAN GND +12V Rotation GND +12V Rotation PWR_FAN ® P4B533 CHA_FAN P4B533 12-Volt Fan Connectors 8. Power supply thermal connector (2-pin TRPWR) If your power supply has a thermal monitoring feature, connect its thermal sensor cable to this connector.

TRPWR P4B533 ® Ground TRPWR P4B533 Power Supply Thermal Connector 2-28 Chapter 2: Hardware information 9. USB header (10-1 pin USB20_56) If the USB ports on the rear panel are inadequate, a USB header is available for additional USB ports. The USB header complies with USB 2.0 specification that supports up to 480 Mbps connection speed. This speed advantage over the conventional 12 Mbps on USB 1.1 allows faster Internet connection, interactive gaming, and simultaneous running of high-speed peripherals. If your package came with a USB 2.0/GAME module, connect the USB cable to this header. The module has two USB 2.0 ports that support the next generation USB peripherals such as high resolution cameras, scanners, and printers. Download the USB 2.0 driver from the Microsoft website (www.microsoft.com). You must install the driver before you can use the USB 2.

0 capability. P4B533 10 GND LDP6 LDM6 USB+5V ® 6 NC GND LDP5 LDM5 USB+5V USB20_56 5 1 P4B533 USB 2.0 Header 10. Smart Card Reader connector (14-1 pin SMARTCON) (optional) This connector accommodates a Smart Card Reader that allows you to conveniently make transactions such as financial, health care, telephony, or traveling services through a Smart Card user interface software. SMARTCON NC NC SCRRES1 NC SCRUI SCRRES# P4B533 ® P4B533 Smartcard ASUS P4B533 motherboard user guide VCC NC SCRRES# SCRCLK NC GND NC 1 2-29 11.



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Infrared module connector (two 5-1 pin IR) This connector supports an optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system chassis that support this feature. You must also configure the **UART2 Use As** parameter in BIOS to set UART2 for use with IR. See section "4.4.2 I/O Device Configuration" for details. Use the five pins as shown in Back View and connect a ribbon cable from the module to the motherboard SIR connector according to the pin definitions. IR +5V (NC) IRRX GND IRTX Front View Back View 1 ® P4B533 IRTX GND IRRX +5V (NC) P4B533 Infrared Module Connector 12. **GAME/MIDI connector (16-1 pin GAME)** This connector supports a GAME/MIDI module. If your package came with the optional USB 2.

O/GAME module, connect the GAME/MIDI cable to this connector. The GAME/MIDI port on the module connects a joystick or a game pad for playing games, and MIDI devices for playing or editing audio files. GAME +5V J1B2 J1CY GND GND J1CX J1B1 +5V MIDI_IN J2B2 J2CY MIDI_OUT J2CX J2B1 +5V ® 8 P4B533 1 9 16 P4B533 Game Connector 2-30 Chapter 2: Hardware information 13. **Internal audio connectors (4-pin CD1, AUX, MODEM) (on audio models only)** These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card. The MODEM connector allows the onboard audio to interface with a voice modem card with a similar connector. It also allows the sharing of mono_in (such as a phone) and a mono_out (such as a speaker) between the audio and a voice modem card. AUX (White) CD(Black) Left Audio Channel Ground Ground Right Audio Channel P4B533 ® MODEM Modem-Out Ground Ground Modem-In P4B533 Internal Audio Connectors 14. **Line in connector (5-pin FP_LINE_IN) (on audio models only)** This connector is for a front panel Line In jack with a return path for automatic signal switching. By default, pins 1-2 and pins 3-4 are shorted with jumper caps to make the Line In source available from the rear panel Line In jack. Remove the jumper caps if you desire to install the Intel front panel audio cable.

FP_LINE_IN BLINE_IN_R LINE_IN_R AGND BLINE_LIN_L ALINE_LIN_L ® P4B533 P4B533 LINE_IN Connector ASUS P4B533 motherboard user guide 2-31 15. **ASUS iPanel connector (24-1 pin AFPANEL) (optional)** This connector allows you to connect an optional ASUS iPanel, an easy-to-access drive bay with front I/O ports and status LEDs. If you are not using an ASUS iPanel, you can connect an optional wireless transmitting and receiving infrared module to the SIR connector. AFPANEL IRRX GND IRTX SMBDATA +3VSB SMBCLK NC NC NC NC IRRX GND IRTX +5 V ® P4B533 SIR CIR P4B533 iPanel Connector 16. **Digital audio connector (6-1 pin SPDIF_C) (on audio models only)** This connector is for the bundled S/PDIF audio module that allows digital instead of analog sound output.

Connect one end of the audio cable to the S/PDIF In/Out connector on the motherboard, and the other end to the S/PDIF module. SPDIF_C GND ® SPDIF_OUT +5V SPDIF_IN GND P4B533 1 P4B533 Digital Audio Connector 2-32 Chapter 2: Hardware information NC GND NC CIRRX +5VSB +5 V NC GND NC CIRRX +5VSB CHASSIS# EXTSMI# +5V MLEDPCIRST# BATT NC IR_CON 17. **Front panel audio connector (10-1 pin FP_AUDIO) (on audio models only)** This is an interface for the Intel front panel audio cable that allow convenient connection and control of audio devices. Make sure to remove the caps from the FP_LO_SWL and FP_LO_SWR jumpers if you installed the Intel front panel audio cable. Refer to page 2-22 for the location of the jumpers.

FP_AUDIO BLINE_OUT_L ® P4B533 BLINE_OUT_R +5VA AGND Line out_L NC Line out_R MICPWR MIC2 P4B533 Front Panel Audio Connector 18.

System panel connector (20-pin PANEL) This connector accommodates several system front panel functions. Keyboard Lock Power LED PLED Keylock Ground +5 V Speaker Connector +5V Ground Ground Speaker +5 V MLED ExtSMI# Ground PWRBIN Ground P4B533 Message LED SMI Lead Reset SW ATX Power Switch* P4B533 System Panel Connectors * Requires an ATX power supply. ASUS P4B533 motherboard user guide Reset Ground ® 2-33 · **System Power LED Lead (3-1 pin PLED)** This 3-1 pin connector connects to the system power LED. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode. @@@@The LED blinks when data is received. @@@@Attach the case-mounted suspend switch to this 2-pin connector. @@@@3-1 Vocal POST Messages ...

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.. 3-2 Powering off the computer

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..... @@After making all the connections, replace the system case cover.

2. Be sure that all switches are off. 3. Connect the power cord to the power connector at the back of the system chassis. 4. Connect the power cord to a power outlet that is equipped with a surge protector. 5. Turn on the devices in the following order: a. Monitor b. External SCSI devices (starting with the last device on the chain) c.

System power (if you are using an ATX power supply, you need to switch on the power supply as well as press the ATX power switch on the front of the chassis). 6. @@@@The system then runs the power-on tests. @@@@You will hear the vocal POST messages instead. 7.

At power on, hold down <Delete> to enter BIOS Setup. Follow the instructions in Chapter 4. @@@@You can record your own messages to replace the default messages. @@@@ · Check the CPU if properly installed. · Call ASUS technical support for assistance.

See the "ASUS contact information" on page x. @@@@ · Make sure that your DIMMs are not defective. @@@@ · Make sure that your VGA/AGP card is not defective. @@@@ · Check the CPU fan and make sure it turns on after you applied power to the system. · Check your power supply and make sure it is not defective. · Call ASUS technical support for assistance. See the "ASUS contact information" on page x. No floppy disk detected No IDE hard disk detected CPU temperature too high CPU fan failed CPU voltage out of range System completed Power-On Self Test · No action required Computer now booting from operating · No action required system You may disable the ASUS POST Reporter™ in the BIOS setup. See section "4.4.

2 I/O Device Configuration". ASUS P4B533 motherboard user guide 3-3 3.3 Powering off the computer You must first exit the operating system and shut down the system before switching off the power. For ATX power supplies, you can press the ATX power switch after exiting or shutting down the operating system. If you use Windows 95/98/2000/XP, click the Start button, click Shut Down, then click the OK button to shut down the computer. The power supply should turn off after Windows shuts down. The message "You can now safely turn off your computer" does not appear when shutting down with ATX power supplies.

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3-4 Chapter 3: Powering up Chapter 4 This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided. BIOS setup Chapter summary 4.

1 4.2 4.3 4.4 4.5 4.

6 4.7 Managing and updating your BIOS

4-1 BIOS Setup program

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..... 4-7 Main Menu ..

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4-10 Advanced Menu

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... 4-17 Power Menu ..

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... 4-28 Boot Menu

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..... 4-34 Exit Menu

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.... 4-36 ASUS P4B533 motherboard 4.

Managing and updating your BIOS It is recommended that you save a copy of the motherboard's original BIOS to a bootable floppy disk in case you need to reinstall the original BIOS later. 4.1.1 Using ASUS EZ Flash to update the BIOS The ASUS EZ Flash feature allows you to easily update the BIOS without having to go through the long process of booting from a diskette and using a DOS-based utility. The EZ Flash is built-in the BIOS firmware so it is accessible by simply pressing <Alt> + <F2> right after the Power-On Self Tests (POST). Follow these steps to update the BIOS using ASUS EZ Flash. 1. Download the latest BIOS file from the ASUS website (see ASUS contact information on page x). Save the file to a floppy disk. Write down the BIOS file name on a piece of paper.

You need to type the exact BIOS file name at the EZ Flash screen. 2. Reboot the computer. 3. To use EZ Flash, press <Alt> + <F2> right after POST to display the following screen. ASUS EZ Flash V1.00 Copyright (C) 2002, ASUSTeK COMPUTER INC. [Onboard BIOS Information] BIOS Version : ASUS P4B533 ACPI BIOS Revision 1002 BIOS Model : P4B533 BIOS Built Date : 04/16/02 Please Enter File Name for NEW BIOS: _ *Note: EZ Flash will copy file from A:\, Press [ESC] to reboot The BIOS information in the above screen is for reference only. What you see on your screen may not be exactly the same as shown. 4.

Insert the disk that contains the new BIOS file into the floppy drive. You will receive the error message, "WARNING! Device not ready." if you proceed to step

5 without the disk in the drive. ASUS P4B533 motherboard user guide 4-1 5. At the prompt, "Please Enter File Name for NEW BIOS: _", type in the BIOS file name that you downloaded from the ASUS website, then press <Enter>.

EZ Flash will automatically access drive A to look for the file name that you typed. @@Continue to update the BIOS (Y/N)? @@File not found." appears. @@Press <Enter>. 6.

At the above prompt, type Y to continue with the update process. @@@@_(Y/N)? _ 1. Update Main BIOS area 2. Update Boot Block area 7. @@Doing so may cause system boot failure. 8. @@@@This file works only in DOS mode. @@Larger numbers represent a newer BIOS file. 1. Type FORMAT A:/S at the DOS prompt to create a bootable system disk.

DO NOT copy AUTOEXEC.BAT and CONFIG.SYS to the disk. 2. @@@@It is recommended that you reboot using a floppy disk. 3. Reboot the computer from the floppy disk. BIOS setup must specify "Floppy" as the first item in the boot sequence. 4. In DOS mode, type A:\AFLASH <Enter> to run AFLASH.

If the word "unknown" appears after Flash Memory:, the memory chip is either not programmable or is not supported by the ACPI BIOS and therefore, cannot be programmed by the Flash Memory Writer utility. ASUS P4B533 motherboard user guide 4-3 5. Select 1. Save Current BIOS to File from the Main menu and press <Enter>. The Save Current BIOS To File screen appears.

6. Type a filename and the path, for example, A:\XXX-XX.XXX, then press <Enter>. 4-4 Chapter 4: BIOS Setup Updating the BIOS Update the BIOS only if you have problems with the motherboard and you are sure that the new BIOS revision will solve your problems. Careless updating may result to more problems with the motherboard! 1.

Download an updated ASUS BIOS file from the Internet (WWW or FTP) (see ASUS CONTACT INFORMATION on page x for details) and save to the boot floppy disk you created earlier. 2. Boot from the floppy disk. 3. At the "A:\" prompt, type AFLASH and then press <Enter>. 4. At the Main Menu, type 2 then press <Enter>. The Update BIOS Including Boot Block and ESCD screen appears. 5. Type the filename of your new BIOS and the path, for example, A:\XXX-XX.

XXX, then press <Enter>. To cancel this operation, press <Enter>. 6. When prompted to confirm the BIOS update, press Y to start the update. ASUS P4B533 motherboard user guide 4-5 7. The utility starts to program the new BIOS information into the Flash ROM. The boot block is updated automatically only when necessary. This minimizes the possibility of boot problems in case of update failures. When the programming is done, the message "Flashed Successfully" appears. 8.

Follow the onscreen instructions to continue. If you encounter problems while updating the new BIOS, DO NOT turn off the system because this may cause boot problems. Just repeat the process, and if the problem persists, load the original BIOS file you saved to the boot disk. If the Flash Memory Writer utility is not able to successfully update a complete BIOS file, the system may not boot. If this happens, call the ASUS service center for support.

4-6 Chapter 4: BIOS Setup 4.2 BIOS Setup program This motherboard supports a programmable EEPROM that you can update using the provided utility described in section "4.1 Managing and updating your BIOS." Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to "Run Setup". This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you may want to change the configuration of your computer in the future. For example, you may want to enable the security password feature or make changes to the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the EEPROM. The EEPROM on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Delete> during the Power-On Self Test (POST) to enter the Setup utility, otherwise, POST continues with its test routines. If you wish to enter Setup after POST, restart the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed. The Setup program is designed to make it as easy to use as possible.

It is a menu-driven program, which means you can scroll through the various sub-menus and make your selections among the predetermined choices. Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purposes only, and may not exactly match what you see on your screen.



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