# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ASUS P4SP-MX SE. You'll find the answers to all your questions on the ASUS P4SP-MX SE in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual ASUS P4SP-MX SE**
**User guide ASUS P4SP-MX SE**
**Operating instructions ASUS P4SP-MX SE**
**Instructions for use ASUS P4SP-MX SE**
**Instruction manual ASUS P4SP-MX SE**

/ISUS

*P4SP-MX SE*

Motherboard

User Guide

*Manual abstract:*

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.....

.. @@@@@@viii Chapter 1: Product introduction 1.1 1.2 1.3 Welcome! @@1-2 Package contents .....

..........

.....

.....

..........

..........

.....

.....

........ 1-2 Special features ..

..........

.....

.....

..........

..........

.....

.....

..........

.... 1-2 1.3.1 Product highlights ....

.....

.....

..........

..........

.....

.....

...... 1-2 1.3.2 ASUS unique features ..

..........

.....

.....

..........

..........

. 1-4 Before you proceed ....

.....

..........

..........

.....

.....

..........

..........

. 1-5 Motherboard overview ....

.....

..........

..........

.....

Contents

Safeguards

Chapter 2: BIOS information

iv

## Notices

### 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.

v

## 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 adpater 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.

· If you encounter technical problems with the product, contact a qualified service technician or your retailer.

vi

## P4SP-MX SE specification summary*

CPU

*Socket 478 for Intel® Pentium® 4/Celeron processor Intel® Hyper-Threading technology ready New power design for next generation Intel® Prescott CPU SiS651 Northbridge SiS962L Southbridge 533/400MHz 2 x 184-pin DDR DIMM sockets for up to 2GB memory Supports PC2700/2100/1600 unbuffered non-ECC DDR DIMMs.*

*1 x AGP 4X (1.5V only) 3 x PCI Integrated 3D graphics controller in SiS 651 chip 2 x UltraDMA133, PIO Mode 0 ~ 4 ADI AD1888 6-channel audio CODEC SiS962L integrated 10/100 Mbps Fast Ethernet with Realtek external PHY Power loss restart Digital audio via an S/PDIF out inteface 1 x Parallel port 1 x S/PDIF out port 1 x Video port 1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x RJ-45 port 4 x USB 2.*

0/USB 1.1 ports Line In/Line Out/Microphone ports USB 2.0 connector for two additional USB ports CPU and chassis fan connectors 20-pin/4-pin ATX 12V power connectors CD/AUX audio connectors GAME/MIDI connector Front panel audio connector Serial (COM1) connector Panel connector 2Mb Flash ROM, DMI 2.0, Award BIOS. TCAV PnP features, SM BIOS 2.3, WfM 2.0, ASUS CrashFree BIOS, ASUS EZ Flash Chipset Front Side Bus (FSB) Memory Expansion slots VGA Storage Audio LAN Special features Rear panel I/O Internal I/O BIOS features * Specifications are subject to change without notice. (Continued on the next page.

) vii P4SP-MX SE specification summary Industry standard Manageability Form Factor Support CD contents PCI 2.2, USB 2.0/1.1 WOL/WOR by PME, DMI 2.0, WfM 2.0 Micro-ATX form factor: 9.6 in x 9.6 in (24.5 cm x 24.5 cm) Device drivers ASUS PC Probe ASUS LiveUpdate ASUS Screensaver Adobe Acrobat Reader Trend MicroTM PC-cillin 2002 anti-virus software Microsoft® DirectX 9.

0 About this guide Conventions used in this guide To make sure that you perform certain tasks properly, take note of the following symbols used throughout this guide. WARNING: Information to prevent injury to yourself when trying to complete a task. CAUTION: Information to prevent damage to the components when trying to complete a task. IMPORTANT: Information that you MUST follow to complete a task. NOTE: Tips and additional information to aid in completing a task.

viii Chapter 1 This chapter describes the features of the motherboard. It includes brief descriptions of the motherboard components, and illustrations of the layout, jumper rboard user guide 1-3 1.3.2 ASUS unique features ASUS CrashFree BIOS CrashFree BIOS allows users to restore BIOS data from a floppy diskette even when BIOS code and data are corrupted during upgrade or invaded by a virus. Unlike other competing vendors' products, ASUS motherboards now enable users to enjoy this protection feature without the need to pay for an optional ROM.

See page 2-6. ASUS EZ Flash BIOS With the ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-3. 1-4 Chapter 1: Product introduction 1.4 Before you proceed Take note of the following precautions before you install motherboard components or change any motherboard settings. · · Unplug the power cord from the wall socket before touching any component. Use a grounded wrist strap or touch a safely groCPU. 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 Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely. 90 - 100 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, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked. 6. Install a CPU heatsink and fan following the instructions that came with the heatsink package. 7. Connect the CPU fan cable to the CPU_FAN1 connector on the motherboard.

ASUS P4SP-MX SE motherboard user guide 1-9 1.7 System memory 1.7.1 DIMM sockets location The following figure illustrates the location of the DDR DIMM sockets. 104 Pins 80 Pins ® P4SP-MX SE P4SP-MX SE 184-pin DDR DIMM sockets · 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. When installing long AGP cards, it is recommended to install the memory modules first. Long AGP cards, when installed, may interfere with the memory sockets. · 1.7.2 Memory configurations You may install 64MB, 128MB, 256MB, 512MB, and 1GB DDR DIMMs into the DIMM sockets. 1-10 Chapter 1: Product introduction 1.7.3 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. 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. Unlocked retaining clip DDR DIMM notch 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 1.

7.4 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. ASUS P4SP-MX SE motherboard user guide 1-11 1.8 Expansion slots 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. In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support. 1.8.1 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. 1.

8.2 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 2 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.

1-12 Chapter 1: Product introduction Standard interrupt assignments IRQ Priority Standard Function 0 1 System Timer 1 2 Keyboard Controller 2 N/A Programmable Interrupt 3* 11 Communications Port (COM2) 4* 12 Communications Port (COM1) 5* 13 IRQ holder for PCI steering 6 14 Floppy Disk Controller 7* 15 Printer Port (LPT1) 8 3 System CMOS/Real Time Clock 9* 4 IRQ holder for PCI steering 10* 5 Advance AC'97 CODEC 11* 6 Standard PCI Graphics Adapter (VGA) 12* 7 PS/2 Compatible Mouse Port 13 8 Numeric Data Processor 14* 9 Primary IDE Channel 15* 10 Secondary IDE Channel These IRQs are usually available for ISA or PCI devices.

\* IRQ assignments for this motherboard A B C D E PCI slot 1 -- used -- -- -- PCI slot 2 -- -- shared -- -- PCI slot 3 -- -- -- shared -- AGP slot shared -- -- -- -- Onboard USB controller 1 -- -- -- -- used Onboard USB controller 2 -- -- -- -- Onboard USB controller 3 -- -- -- -- Onboard USB 2.0 controller -- -- -- -- Onboard LAN -- -- -- shared -- Onboard audio -- -- shared -- -- Onboard VGA shared -- -- -- -- F -- -- -- -- used -- -- -- -- -- G H -- -- -- -- -- -- -- -- -- -- -- -- used -- -- used -- -- -- -- -- -- 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. ASUS P4SP-MX SE motherboard user guide 1-13 1.8.3 PCI slots The PCI slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. 1.8.4 AGP slot The Accelerated Graphics Port (AGP) slot that supports AGP 4X (+1.

5V) 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 the motherboard. This motherboard does not support 3.3V AGP cards. Install only +1.5V AGP cards. ® P4SP-MX SE P4SP-MX SE Accelerated Graphics Port (AGP ) 1-14 Chapter 1: Product introduction 1.9 Jumpers 1.

Clear RTC RAM (CLRTC1) 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. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2. 3. Plug the power cord and turn ON the computer.

4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data. Except when clearing the RTC RAM, never remove the cap on CLRTC1 jumper default position. Removing the cap will cause system boot failure! CLRTC1 12 ® 23 Clear CMOS P4SP-MX SE Normal (Default) P4SP-MX SE Clear RTC RAM setting ASUS P4SP-MX SE motherboard user guide 1-15 2. USB device wake-up (3-pin USBPW12, USBPW34, USBPW56) 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 USBPW_12 and USBPW_34 jumpers are for the rear USB ports. The USBPW_56 jumper is for the internal USB header that you can connect to the front USB ports. · 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 would not power up. The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode. USBPWR_34 USBPWR_12 12 23 · +5V (Default) +5VSB USBPWR_56 ® P4SP-MX SE 12 +5V (Default) 23 +5VSB P4SP-MX SE USB device wake up 1-16 Chapter 1: Product introduction 1.10 Connectors This section describes and illustrates the motherboard rear panel and internal connectors. 1.10.1 Rear panel connectors 1 2 3 4 5 6 11 10 9 8 7 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, scanner, or other devices.

RJ-45 port. This port allows connection to a Local Area Network (LAN) through a network hub. Line In port. This Line In (light blue) port connects a tape player or other audio sources. In 6-channel mode, the function of this port becomes Bass/Center.

Line Out port. This Line Out (lime) port connects a headphone or a speaker. In 4/6-channel mode, the function of this port becomes Front Speaker Out. Microphone port. This Mic (pink) port connects a microphone.

In 4/6-channel mode, the function of this port becomes Rear Speaker Out. The functions of the Line Out, Line In, and Microphone ports change when you select the 4/6-channel audio configuration as shown in the following table. 1. 2. 3. 4. 5. 6. Audio ports function variation Port Light Blue Lime Pink Headphone /2-Speaker Line In Line Out Mic In 4-Speaker Line In Front Speaker Out Rear Speaker Out 6-Speaker Bass/Center Front Speaker Out Rear Speaker Out Windows® 98SE only supports 2-channel speaker configuration. 7.

USB 2.0 ports 3 and 4. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices. 8. USB 2.0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices. 9.

VGA port. This port connects a VGA compatible monitor. 10. S/PDIF port. This port connects S/PDIF devices that provide 6-channel surround sound and 3D audio.

11. PS/2 keyboard port. This purple connector is for a PS/2 keyboard. ASUS P4SP-MX SE motherboard user guide 1-17 1.10.

2 Internal connectors 1. IDE connectors (40-1 pin PRI_IDE1, SEC_IDE1) This connector supports the provided UltraDMA133 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 UltraDMA133 slave device (hard disk drive) and the black connector to the UltraDMA133 master device. · · Follow the hard disk drive documentation when setting the device in master or slave mode. 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. The hole near the blue connector on the UltraDMA cable is intentional. · SEC_IDE1 NOTE: Orient the red markings on the IDE ribbon cable to PIN 1 ® P4SP-MX SE PIN 1 PIN 1 P4SP-MX SE IDE connectors 2. Floppy disk drive connector (34-1 pin FLOPPY1) 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). FLOPPY1 ® P4SP-MX SE PIN 1 NOTE: Orient the red markings on the floppy ribbon cable to PIN 1. P4SP-MX SE Floppy disk drive connector 1-18 Chapter 1: Product introduction PRI_IDE1 3. ATX power connectors (20-pin ATXPWR1, 4-pin ATX12V1) 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. 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.

ATXPWR1 +5.0VDC +5.0VDC -5.0VDC COM COM COM PS_ON# COM -12.0VDC +3.

3VDC ® P4SP-MX SE P4SP-MX SE ATX power connectors +12V DC COM 4. Front panel audio connector (10-1 pin FP_AUDIO1) This is an interface for the front panel cable that allows convenient connection and control of audio devices. Be default, the pins labeled LINE OUT_R/BLINE_OUT_R and the pins LINE OUT_L/BLINE_OUT_L are shorted with jumper caps. Remove the caps only when you are connecting the front panel audio cable. AGND +5VA BLINE_OUT_R FP_AUDIO1 MIC2 MICPWR Line out_R NC ® P4SP-MX SE P4SP-MX SE Front panel audio connector ASUS P4SP-MX SE motherboard user guide Line out_L BLINE_OUT_L +12.

0VDC +5VSB PWR_OK COM +5.0VDC COM +5.0VDC COM +3.3VDC +3.3VDC ATX12V1 +12V DC COM 1-19 5. CPU and chassis fan connectors (3-pin CPU_FAN1, CHA_FAN1) 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_FAN1 GND +12V Rotation CHA_FAN1 ® P4SP-MX SE P4SP-MX SE Fan connectors 6. USB header (10-1 pin USB56) If the USB ports on the rear panel are inadequate, a USB header is available for additional USB ports. Connect the USB cable of an optional USB 2.0 module to this header. You may install the USB module in the chassis front panel. The module has two USB 2.

0 ports for connecting next generation USB peripherals such as high-resolution cameras, scanners, and printers. GND +12V Rotation ® P4SP-MX SE USB56 USB+5V USB_P5USB_P5+ GND (Blue) 1 P4SP-MX SE USB 2.0 connector The USB module is purchased separately. 1-20 Chapter 1: Product introduction USB+6V USB_P6USB_P6+ GND NC 7. Internal audio connectors (4-pin AUX1, CD1) These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

CD1 (Black) AUX1 (White) Left Audio Channel Ground Ground Right Audio Channel ® P4SP-MX SE P4SP-MX SE Internal audio connectors 8. GAME/MIDI connector (16-1 pin GAME1) This connector supports a GAME/MIDI module. Connect the GAME/MIDI cable with yellow connector to the yellow header onboard. 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. ® P4SP-MX SE GAME1 MIDI_IN J2B2 J2CY MIDI_OUT J2CX J2B1 +5V P4SP-MX SE Game connector The GAME module is purchased separately.

ASUS P4SP-MX SE motherboard user guide +5V J1B2 J1CY GND GND J1CX J1B1 +5V 1-21 9. Serial port connector (10-1 pin COM1) This connector accommodates the bundled serial port module. Use the COM cable to connect the serial port module to this connector, then install the module into a slot opening at the front or back of the system chassis. COM1 PIN 1 ® P4SP-MX SE P4SP-MX SE Serial port connector 10. System panel connector (10-1 pin PANEL1) This connector accommodates several system front panel functions. Power LED PLED+ PLED- Speaker Connector +5V Ground Ground Speaker ExtSMI# Ground PWR Ground +5 V IDELED ® IDE LED SMI Lead Reset SW ATX Power Switch* P4SP-MX SE * Requires an ATX power supply. P4SP-MX SE System panel connector · 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. · System Warning Speaker Lead (4-pin SPEAKER) This 4-pin connector connects to the case-mounted speaker and allows you to hear system beeps and warnings. · System Management Interrupt Lead (2-pin SMI) This 2-pin connector allows you to manually place the system into a suspend mode, or "green" mode, where system activity is instantly decreased to save power and to expand the life of certain system components.

Attach the case-mounted suspend switch to this 2-pin connector. 1-22 Chapter 1: Product introduction Reset Ground · ATX Power Switch / Soft-Off Switch Lead (2-pin PWRBTN) This connector connects a switch that controls the system power. Pressing the power switch turns the system between ON and SLEEP, or ON and SOFT OFF, depending on the BIOS or OS settings. Pressing the power switch while in the ON mode for more than 4 seconds turns the system OFF. · Reset Switch Lead (2-pin RESET) This 2-pin connector connects to the case-mounted reset switch for rebooting the system without turning off the system power. · Hard Disk Activity Lead (2-pin IDELED) This connector supplies power to the hard disk activity LED. The read or write activities of any device connected to the primary or secondary IDE connector cause this LED to light up. ASUS P4SP-MX SE motherboard user guide 1-23 1-24 Chapter 1: Product introduction Chapter 2 This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided. BIOS information 2.

1 Managing and updating your BIOS The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup. 1. ASUS EZ Flash (Updates the BIOS using a floppy disk during POST.) 2. ASUS AFlash (Updates the BIOS using a floppy disk in DOS mode.

) 3. ASUS CrashFree BIOS (Updates the BIOS using a bootable floppy disk.) 4. ASUS Update (Updates the BIOS in Windows® environment.) Refer to the corresponding section for details on these utilities.

Important notes · It is recommended that you save a copy of the original motherboard BIOS file to a bootable floppy disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFLASH utilities. Visit the ASUS website and download the latest BIOS file for this motherboard using the ASUS Update utility. · 2.1.1 Creating a bootable floppy disk 1. Do either one of the following to create a bootable floppy disk. DOS environment Insert a 1.44 MB floppy disk into the drive. @@b.

c. d. From your Windows desktop, click on Start, then select My Computer. @@Click on the Startup Disk tab, then on Create Disk.

.. button. Insert a 1.44 MB floppy disk when prompted. @@From your Windows desktop, click on Start, then select My Computer. Select the 3 1/2 Floppy Drive icon. Click File from the menu, then select Format. A Format 3 1/2 Floppy Disk window appears. e. @@2. @@a. b. c. @@@@@@Save the BIOS file to a floppy disk. 2.

Reboot the system. 3. @@Starting BIOS recovery... @@@@Insert the floppy disk that contains the BIOS file. If the P4SPMXSE.BIN file is found in the floppy disk, EZ Flash performs the BIOS update process and automatically reboots the system when done. DO NOT shutdown or reset the system while updating the BIOS! Doing so may cause system boot failure! User recovery requested. Starting BIOS recovery.

.. Checking for floppy... Floppy found! Reading file "P4SPMXSE.BIN". Completed. Start flashing.. . Flashed successfully. Rebooting. ASUS P4SP-MX SE motherboard user guide 2-3 2.1.

3 Using the AFLASH utility AFLASH is a Flash Memory Writer utility that allows you to update the BIOS using a bootable floppy disk, or copy the original motherboard BIOS. This utility only works in DOS mode. Copying the original motherboard BIOS To copy the original motherboard BIOS file: 1. Copy the AFLASH utility from the support CD to the boot disk you created. AFLASH does not work in the DOS prompt within Windows®, and does not work with certain memory drivers that may be loaded when you boot from the hard drive.

It is recommended that you reboot using a floppy disk. 2. Reboot the computer from the floppy disk. The BIOS setup must specify "Floppy" as the first item in the boot sequence. 3. In DOS prompt, type AFLASH, then press <Enter> to run AFLASH. 4. Select 1. Save Current BIOS to File, then press <Enter>. The Save Current BIOS To File screen appears.

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. 5. @@@@@@2. Reboot the computer from the floppy disk. 3. In DOS prompt, type AFLASH, then press <Enter> to run AFLASH. 4. Select 2. Update BIOS including Boot Block and ESCD, then press <Enter>. The Update BIOS Including Boot Block and ESCD screen appears.

5. @@6. When prompted, press Y to start the update. 7. The utility starts updating the BIOS.

The boot block is automatically updated only when necessary. @@@@@@@@@@@@@@@@@@@Boot the system. 2. @@Starting BIOS recovery.. . Checking for floppy... 3. @@@@P4SPMXSE_1001.BIN), rename it to P4SPMXSE.BIN. @@Starting BIOS recovery..

. Checking for floppy... Floppy found! Reading file "P4SPMXSE.BIN". Completed. @@Doing so may cause system boot failure! 4. @@@@@@To install ASUS Update: 1. Place the support CD to the optical drive.
The Drivers menu appears. 2. Click the Utilities tab, then click Install ASUS Update VX.XX.XX.
See page 3-3 for the Utilities menu screen. 3. The ASUS Update utility is copied into your system. To update the BIOS using the ASUS Update: 1. Launch the utility from the Windows desktop by clicking Start > Programs > ASUS > ASUSUpdate > ASUSUpdate.
The ASUS Update initial screen appears. 2. Select your desired update method, then click Next. ASUS P4SP-MX SE motherboard user guide 2-7 3. If you selected updating/ downloading from the Internet, select the ASUS FTP site nearest you to avoid network traffic, or choose Auto Select. Click Next. 4. From the FTP site, select the BIOS version that you wish to download. Click Next. 5.

Follow the instructions on the succeeding screens to complete the update process. If you selected the option to update the BIOS from a file, a window pops up prompting you to locate the file. Select the file, click Save, then follow the screen instructions to complete the update process. 2-8 Chapter 2: BIOS information 2.2 BIOS Setup program This motherboard supports a programmable Flash ROM that you can update using the provided utility described in section "2.1 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 Flash ROM. The Flash ROM 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 menudriven 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.

2.2.1 BIOS menu bar The top of the screen has a menu bar with the following selections: MAIN ADVANCED POWER BOOT EXIT Use this menu to make changes to the basic system configuration. Use this menu to enable and make changes to the advanced features. Use this menu to configure and enable Power Management features. Use this menu to configure the default system device used to locate and load the Operating System. Use this menu to exit the current menu or to exit the Setup program. To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted. ASUS P4SP-MX SE motherboard user guide 2-9 2.2.

2 Legend bar At the bottom of the Setup screen is a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. @@@@@@@@@@@@@@A submenu contains additional options for a field parameter. @@The sub-menu appears. @@Use the <Esc> key to return to the main menu. @@Practice navigating through the various menus and sub-menus. If you accidentally make unwanted changes to any of the fields, use the set default hot key <F5> to load the Setup default values. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field. 2.
3 Main menu When you enter the Setup program, the following screen appears.

*System Time [XX:XX:XX] Sets the system to the time that you specify (usually the current time). The format is hour, minute, second. Valid values for hour, minute and second are Hour: (00 to 23), Minute: (00 to 59), Second: (00 to 59). Use the <Tab> or <Shift> + <Tab> keys to move between the hour, minute, and second fields.*

*System Date [XX/XX/XXXX] Sets the system to the date that you specify (usually the current date). The format is month, day, year. Valid values for month, day, and year are Month: (1 to 12), Day: (1 to 31), Year: (up to 2099). Use the <Tab> or <Shift> + <Tab> keys to move between the month, day, and year fields. ASUS P4SP-MX SE motherboard user guide 2-11 Legacy Diskette A [1.*

*44M, 3.5 in.] Sets the type of floppy drive installed. Configuration options: [None] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K , 3.5 in.*

*] [1.44M, 3.5 in.] [2.88M, 3.5 in.] Floppy 3 Mode Support [Disabled] This is required to support older Japanese floppy drives. The Floppy 3 Mode feature allows reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.*

*5-inch diskette. Configuration options: [Disabled] [Enabled] Supervisor Password [Disabled] / User Password [Disabled] These fields allow you to set passwords. To set a password, highlight the appropriate field and press <Enter>. Type in a password then press <Enter>. You can type up to eight alphanumeric characters.*

*Symbols and other characters are ignored. To confirm the password, type the password again and press <Enter>. The password is now set to [Enabled]. This password allows full access to the BIOS Setup menus. To clear the password, highlight this field and press <Enter>.*

*The same dialog box as above appears. Press <Enter>. The password is set to [Disabled]. A note about passwords The BIOS Setup program allows you to specify passwords in the Main menu. The passwords control access to the BIOS during system startup. Passwords are not case sensitive, meaning, passwords typed in either uppercase or lowercase letters are accepted. The BIOS Setup program allows you to specify two different passwords: a Supervisor password and a User password. If you did not set a Supervisor password, anyone can access the BIOS Setup program. If you did, the Supervisor password is required to enter the BIOS Setup program and to gain full access to the configuration fields. Forgot the password? If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM.*

*The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, unplug the all the power cables and remove the button cell battery. Reinstall the battery after about 2 seconds, then power up the system. Refer to section "1.9 Jumpers" on how to clear the RTC RAM. Halt On [All Errors] This field specifies the types of errors that will cause the system to halt. Configuration options: [All Errors] [No Error] [All but Keyboard] [All but Disk] [All but Disk/Keyboard] Installed Memory [XXX MB] This field automatically displays the amount of conventional memory detected by the system during the boot process. 2-12 Chapter 2: BIOS information 2.3.1 Primary and Secondary Master/Slave Type [Auto] Select [Auto] to automatically detect an IDE hard disk drive.*

*If automatic detection is successful, Setup automatically fills in the correct values for the remaining fields on this sub-menu. If automatic detection fails, this may be because the hard disk drive is too old or too new. If the hard disk was formatted on an older system, Setup may detect incorrect parameters. In these cases, select [User Type HDD] to manually enter the IDE hard disk drive parameters. Refer to the next section for details.*

*Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk. [User Type HDD] Manually enter the number of cylinders, heads and sectors per track for the drive. Refer to the drive documentation or on the drive label for this information. ASUS P4SP-MX SE motherboard user guide 2-13 After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives.*

*This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active. If no drive is installed or if you are removing a drive and not replacing it, select [None]. Other options for the Type field are: [CD-ROM] - for IDE CD-ROM drives [LS-120] - for LS-120 compatible floppy disk drives [ZIP] - for ZIP-compatible disk drives [MO] - for IDE magneto optical disk drives [Other ATAPI Device] - for IDE devices not listed here After making your selections on this sub-menu, press the <Esc> key to return to the Main menu. When the Main menu appears, the hard disk drive field displays the size for the hard disk drive that you configured. Translation Method [LBA] Select the hard disk drive type in this field. When Logical Block Addressing (LBA) is enabled, the 28-bit addressing of the hard drive is used without regard for cylinders, heads, or sectors. Note that LBA Mode is necessary for drives with more than 504MB storage capacity. Configuration options: [LBA] [LARGE] [Normal] [Match Partition Table] [Manual] Cylinders This field configures the number of cylinders. Refer to the drive documentation to determine the correct value.*

*To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual]. Head This field configures the number of read/write heads. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual]. Sector This field configures the number of sectors per track. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual]. CHS Capacity This field shows the drive's maximum CHS capacity as calculated by the BIOS based on the drive information you entered. Maximum LBA Capacity This field shows the drive's maximum LBA capacity as calculated by the BIOS based on the drive information you entered. 2-14 Chapter 2: BIOS information Multi-Sector Transfers [Maximum] This option automatically sets the number of sectors per block to the highest number that the drive supports.*

*Note that when this field is automatically configured, the set value may not always be the fastest value for the drive. You may also manually configure this field. Refer to the documentation that came with the hard drive to determine the optimum value and set it manually. To make changes to this field, set the Type field to [User Type HDD].*

Configuration options: [Disabled] [2 Sectors] [4 Sectors] [8 Sectors] [16 Sectors] [32 Sectors] [Maximum] SMART Monitoring [Disabled] This field allows you to enable or disable the S.

M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system that utilizes internal hard disk drive monitoring technology.

This parameter is normally disabled because the resources used in the SMART monitoring feature may decrease system performance. Configuration options: [Disabled] [Enabled] PIO Mode [4] This option lets you set a PIO (Programmed Input/Output) mode for the IDE device. Modes 0 through 4 provide successive increase in performance. Configuration options: [0] [1] [2] [3] [4] Ultra DMA Mode [Disabled] Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability. To make changes to this field, set the Type field to [User Type HDD]. Configuration options: [0] [1] [2] [3] [4] [5] [6] [Disabled] 2.3.2 Keyboard Features Boot Up NumLock Status [On] This field enables users to activate the Number Lock function upon system boot. Configuration options: [Off] [On] ASUS P4SP-MX SE motherboard user guide 2-15 Keyboard Auto-Repeat Rate [12/Sec] This controls the speed at which the system registers repeated keystrokes.

Options range from 6 to 30 characters per second. Configuration options: [6/Sec] [8/Sec] [10/Sec] [12/Sec] [15/Sec] [20/Sec] [24/Sec] [30/Sec] Keyboard Auto-Repeat Delay [1/4 Sec] This field sets the time interval for displaying the first and second characters. Configuration options: [1/4 Sec] [1/2 Sec] [3/4 Sec] [1 Sec] 2.4 Advanced menu CPU Speed [Manual] When the motherboard is set to JumperFreeTM mode, this field allows you to select the internal frequency of the CPU. Select [Manual] if you want to make changes to the two subsequent fields. Note that selecting a frequency higher than the CPU manufacturer recommends may cause the system to hang or crash. CPU Frequency Multiple [Xx] This field sets the frequency multiple between the CPU's internal frequency (CPU speed) and external frequency. Set this field in conjunction with CPU Frequency (MHz) to match the speed of the CPU. This item is configurable only when you set the CPU Speed option to [Manual]. The item CPU Frequency Multiple is accessible only if you have an unlocked processor. If your processor frequency multiple is locked, you cannot change the setting of this item. CPU External Frequency (XXX/XX) This item is configurable only when you set the CPU Speed item to [Manual]. This feature tells the clock generator what frequency to send to the system bus and PCI bus. The bus frequency (external frequency) multiplied by the bus multiple equals the CPU speed. 2-16 Chapter 2: BIOS information Memory Frequency [Auto] This field determines whether the memory clock frequency is set to be in synchronous or asynchronous mode with respect to the system frequency.

The options that appear in the popup menu vary according to the CPU Frequency (MHz). Configuration options: [Auto] [266MHz] [333MHz] [400MHz] CPU Level 2 Cache [Enabled] This field allows you to choose from the default [Enabled] or choose [Disabled] to turn on or off the CPU Level 2 built-in cache. Configuration options: [Disabled] [Enabled] BIOS Update [Enabled] This field functions as an update loader integrated into the BIOS to supply the processor with the required data. When set to [Enabled], the BIOS loads the update on all processors during system bootup. Configuration options: [Disabled] [Enabled] PS/2 Mouse Function Control [Auto] The default setting [Auto] allows the system to detect a PS/2 mouse at startup.

If a mouse is detected, the BIOS assigns IRQ12 to the PS/2 mouse. Otherwise, IRQ12 can be used for expansion cards. When you set this field to [Enabled], BIOS reserves IRQ12, whether or not a PS/2 mouse is detected at startup. Configuration options: [Enabled] [Auto] USB Legacy Support [Auto] This motherboard supports Universal Serial Bus (USB) devices. The default of [Auto] allows the system to detect a USB device at startup. If detected, the USB controller legacy mode is enabled. If not detected, the USB controller legacy mode is disabled. When you set this field to [Disabled], the USB controller legacy mode is disabled whether or not you are using a USB device. Configuration options: [Disabled] [Enabled] [Auto] OS/2 Onboard Memory > 64M [Disabled] When using OS/2 operating systems with installed DRAM of greater than 64MB, you need to set this option to [Enabled]. Otherwise, leave to the default setting [Disabled].

Configuration options: [Disabled] [Enabled] ASUS P4SP-MX SE motherboard user guide 2-17 2.4.1 Chip Configuration SDRAM Configuration [By SPD] This parameter allows you to set the optimal timings for items 25, depending on the memory modules you are using. The default setting is [By SPD], which configures items 2 ~ 5 by reading the contents in the SPD (Serial Presence Detect) device. The EEPROM on the memory module stores critical information about the module, such as memory type, size, speed, voltage interface, and module banks. Configuration options: [User Defined] [By SPD] The SDRAM parameters (items 2 ~ 5) are user-configurable only when you set the SDRAM Configuration to [User Defined]. SDRAM CAS Latency (XT) This item controls the latency between the SDRAM read command and the actual time the data becomes available. Configuration options: [2.5T] [2T] [1.5T] [3T] SDRAM RAS to CAS Delay (XT) This item controls the latency between the DDR SDRAM active command and the read/write command.

Configuration options: [3T] [2T] [4T] SDRAM RAS Precharge Time (XT) This item controls the idle clocks after issuing a precharge command to the DDR SDRAM. Configuration options: [3T] [2T] [4T] SDRAM Active Time (XT) This item controls the number of DDR SDRAM clocks used for DDR SDRAM parameters. Configuration options: [6T] [7T] [5T] [4T] SDRAM Command Lead-off Time [Auto] Configuration options: [Auto] [2T] [1T] 2-18 Chapter 2: BIOS information Graphics Aperture Size [64MB] This feature allows you to select the size of mapped memory for AGP graphic data. Configuration options: [4MB] [8MB] [16MB] [32MB] [64MB] [128MB] [256MB] AGP Fast Write Capability [Enabled] This field enables or disables the AGP 4x Fast Write Capability feature. Configuration options: [Disabled] [Enabled] Onboard VGA Shared Memory Size [32M] This field allows you to set the onboard VGA memory size with the currently installed memory.

Configuration options: [32M] [64M] Video Memory Cache Mode [UC] USWC (uncacheable, speculative write combining) is a new cache technology for processor video memory. This feature improves the display speed by caching the display data. You must set this item to UC (uncacheable) if your graphics card does not support this feature, otherwise the system may not boot. Configuration options: [UC] [USWC] PCI 2.

1 Support [Enabled] This field enables or disables the motherboard feature to support PCI 2.

1 cards. Configuration options: [Disabled] [Enabled] Onboard PCI IDE [Both] This field allows you to enable either the primary IDE channel or secondary IDE channel, or both. You may also set both channels to [Disabled]. Configuration options: [Both] [Primary] [Secondary] [Disabled] IDE Bus Master Support [Enabled] This item controls the IDE Bus Master support for non-Windows® operating systems. Configuration options: [Disabled] [Enabled] ASUS P4SP-MX SE motherboard user guide 2-19 2.4.2 I/O Device Configuration Floppy Disk Access Control [R/W] Setting this item to [Read Only] allows the floppy disk drive to only read data from a floppy disk. The default setting [R/W] allows both reading and writing data to a floppy disk. Configuration options: [R/W] [Read Only] Onboard Serial Port 1 [3F8H/IRQ4] This field allows you to set the addresses for the onboard serial connector. Configuration options: [3F8H/IRQ4] [2F8H/IRQ3] [3E8H/IRQ4] [2E8H/IRQ10] [Disabled] Onboard Parallel Port [378H/IRQ7] This field allows you to set the address of the onboard parallel port connector.

If you disable this field, the Parallel Port Mode and ECP DMA Select options do not appear. Configuration options: [Disabled] [378H/IRQ7] [278H/IRQ5] Parallel Port Mode [ECP+EPP] This field allows you to set the operation mode of the parallel port. [Normal] allows normal-speed operation but in one direction only; [EPP] allows bi-directional parallel port operation; [ECP] allows the parallel port to operate in bi-directional DMA mode; [ECP+EPP] allows normal speed operation in a two-way mode. Configuration options: [Normal] [EPP] [ECP] [ECP+EPP] ECP DMA Select [3] This field allows you to configure the parallel port DMA channel for the selected ECP mode. This selection is available only if you select [ECP] or [ECP+EPP] in Parallel Port Mode above. Configuration options: [1] [3] Onboard Game Port [200H-207H] This field sets the I/O address for the game port. Configuration options: [Disabled] [200H-207H] [208H-20FH] Onboard MIDI I/O [Disabled] This field sets the I/O address for the MIDI I/O port. Configuration options: [Disabled] [330H-331H] [300H-301H] 2-20 Chapter 2: BIOS information 2.4.3 PCI Configuration Slot 1, Slot 2, Slot 3 IRQ [Auto] These fields automatically assign the IRQ for each PCI slot.

The default setting for each field is [Auto], which utilizes auto-routing to determine IRQ assignments. Configuration options: [Auto] [NA] [3] [4] [5] [7] [9] [10] [11] [12] [14] [15] PCI/VGA Palette Snoop [Disabled] Some non-standard VGA cards, like graphics accelerators or MPEG video cards, may not show colors properly. Setting this field to [Enabled] corrects this problem. If you are using standard VGA cards, leave this field to the default setting [Disabled]. Configuration options: [Disabled] [Enabled] PCI Latency Timer [32] Leave this field to the default setting [32] for best performance and stability. Primary VGA BIOS [PCI VGA Card] This field allows you to select the primary graphics card. Configuration options: [PCI VGA Card] [AGP VGA Card] [Onboard VGA] Onboard VGA [Enabled] This field allows you to enable or disable the onboard VGA port. Configuration options: [Disabled] [Enabled] USB Function [Enabled] This field allows you to enable or disable the USB function. Configuration options: [Disabled] [Enabled] USB Function 2.0 [Enabled] This field allows you to enable or disable the USB 2.

0 function. Configuration options: [Disabled] [Enabled] ASUS P4SP-MX SE motherboard user guide 2-21 Onboard PCI Devices Control Onboard LAN [Enabled] This field allows you enable or disable the onboard LAN. Configuration options: [Disabled] [Enabled] Onboard LAN Boot ROM [Disabled] This field allows you enable or disable the onboard LAN Boot ROM feature. Configuration options: [Disabled] [Enabled] Onboard AC97 Audio Controller [Auto] This field allows you to disable the onboard AC97 audio controller or set to the default [Auto] for optimum performance. Configuration options: [Disabled] [Auto] PCI IRQ Resource Exclusion 2-22 Chapter 2: BIOS information IRQ XX Reserved [No/ICU] These fields indicate whether or not the displayed IRQ for each field is being used by a legacy (non-PnP) ISA card. The setting [No/ICU] for an IRQ field indicates that you are using the ISA Configuration Utility (ICU), and that this particular IRQ is NOT required by a legacy ISA card. Set the IRQ field to [Yes] if you install a legacy ISA card that requires a unique IRQ and you are NOT using ICU. Configuration options: [No/ICU] [Yes] 2.5 Power menu The Power menu allows you to reduce power consumption. This feature turns off the video display and shuts down the hard disk after a period of inactivity.

Power Management [User Defined] This field allows you to activate or deactivate the automatic power saving features of this motherboard. When set to [Disabled], power management does not function regardless of the other settings on this menu. The [User Defined] option allows you to set the period of inactivity before the system enters suspend mode. Refer to the "Suspend Mode" item for details. When set to [Max Saving], system power is conserved to its greatest amount. This setting automatically puts the system into suspend mode after a brief period of inactivity. [Min Saving] allows the system to enter suspend mode after a long period of inactivity. Configuration options: [User Defined] [Disabled] [Min Saving] [Max Saving] Video Off Option [Suspend -> Off ] This field determines when to activate the video off feature for monitor power management. Configuration options: [Suspend -> Off] [Always On] Video Off Method [DPMS OFF] This field defines the video off features. The Display Power Management System (DPMS) allows the BIOS to control the video display card if it supports DPMS.

Set this option to [Blank Screen] when using monitors that do not support power management or "green" features. ASUS P4SP-MX SE motherboard user guide 2-23 Your screen saver does not display when you select [Blank Screen] as your video-off method. [V/H SYNC+Blank] blanks the screen and turns off vertical and horizontal scanning. Configuration options: [Blank Screen] [V/H SYNC+Blank] [DPMS Standby] [DPMS Suspend] [DPMS OFF] [DPMS Reduce ON] HDD Power Down [Disabled] Shuts down any IDE hard disk drives in the system after a period of inactivity as set in this user-configurable field. This feature does not affect SCSI hard drives.

Configuration options: [Disabled] [1 Min] [2 Min] [3 Min]...[15 Min] ACPI Suspend To RAM [Disabled] This field allows you to enable or disable the ACPI Suspend-to-RAM feature. To support this feature, the +5VSB of the power supply should have the capacity to provide more than 720mA current. Configuration options: [Disabled] [Enabled] Suspend Mode [Disabled] Sets the time period before the system goes into suspend mode.

*Configuration options: [Disabled] [1~2 Min] [2~3 Min] [4~5 min] [8~9 Min] [20 Min] [30 Min] PWR Button < 4 Secs [Soft Off] When set to [Soft off], the ATX switch can be used as a normal system power-off button when pressed for less than 4 seconds. [Suspend] allows the button to have a dual function where pressing less than 4 seconds puts the system in sleep mode. Regardless of the setting, holding the ATX switch for more than 4 seconds powers off the system.*

*Configuration options: [Soft off] [Suspend] 2.5.1 Power Up Control AC PWR Loss Restart [Disabled] This allows you to set whether or not to reboot the system after power interruptions. [Disabled] leaves your system off while [Enabled] reboots the system. [Previous State] sets the system back to the state it was before the power interruption. Configuration options: [Disabled] [Enabled] [Previous State] 2-24 Chapter 2: BIOS information Wake/Power Up On Ext.*

*Modem [Disabled] This allows either settings of [Enabled] or [Disabled] for powering up the computer when the external modem receives a call while the computer is in Soft-off mode. Configuration options: [Disabled] [Enabled] The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that turns the system power on. Power Up On PCI Device [Disabled] When set to [Enabled], this parameter allows you to turn on the system through a PCI LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled] Power On By PS/2 Keyboard [Disabled] This parameter allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-Esc] [Power Key] Automatic Power Up [Disabled] This allows an unattended or automatic system power up. You may configure your system to power up at a certain time of the day by selecting [Everyday] or at a certain time and day by selecting [By Date].*

*Configuration options: [Disabled] [Everyday] [By Date] 2.5.2 Hardware Monitor CPU Temperature [XXºC/XXºF] The onboard hardware monitor automatically detects and displays the CPU temperature in degree Celsius. Select [Ignore] to disable the CPU temperature auto-detect function. ASUS P4SP-MX SE motherboard user guide 2-25 CPU Fan Speed [xxxxRPM] or [N/A] Chassis Fan Speed [xxxxRPM] or [N/A] The onboard hardware monitor automatically detects and displays the CPU, chassis, and power fan speeds in rotations per minute (RPM).*

*If any of the fans is not connected to the motherboard, the specific field shows N/A. VCORE Voltage, +3.3V Voltage, +5V Voltage, +12V Voltage The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. If any of the monitored items is out of range, the following error message appears: "Hardware Monitor found an error. Enter Power setup menu for details".*

*You will then be prompted to "Press F1 to continue or DEL to enter SETUP". 2.6 Boot menu Boot Sequence The Boot menu allows you to select among the four possible types of boot devices listed using the up and down arrow keys. By using the <+> or <Space> key, you can promote devices and by using the <-> key, you can demote devices. Promotion or demotion of devices alters the priority which the system uses to search for a boot device on system power up. @@@@@@When [Yes] is selected, interrupts may be reassigned by the OS. @@Configuration options: [No] [Yes] Quick Power On Self Test [Enabled] This field speeds up the Power-On-Self Test (POST) routine by skipping retesting a second, third, and fourth time. Configuration options: [Enabled] [Disabled] Boot Up Floppy Seek [Enabled] When enabled, the BIOS will seek the floppy disk drive to determine whether the drive has 40 or 80 tracks. Configuration options: [Enabled] [Disabled] Interrupt Mode [APIC] The Advanced Programmable Interrupt Controller (APIC) setting allows you to distribute interrupt routings other than the 16 IRQs. The Programmable Interrupt Controller (PIC) setting allows you to use the 16 IRQs only.*

*@@@@@@@@When you select this option, a confirmation window appears. Select [Yes] to save changes and exit. If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Pressing <Enter> saves the changes while exiting. Exit & Discard Changes Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than system date, system time, and password, the BIOS asks for a confirmation before exiting. Load Setup Defaults This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [Yes] to load default values. Select Exit & Save Changes or make other changes before saving the values to the non-volatile RAM. Discard Changes This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [Yes] to discard any changes and load the previously saved values. Save Changes This option saves your selections without exiting the Setup program. You can then return to other menus and make further changes.*

*After you select this option, a confirmation window appears. Select [Yes] to save changes to the non-volatile RAM. 2-28 Chapter 2: BIOS information Chapter 3 This chapter describes the contents of the support CD that comes with the motherboard package. Software support 3.1 Install an operating system This motherboard supports Windows® 98SE/ME/2000/XP operating system (OS).*

*Always install the latest OS version and corresponding updates so you can maximize the features of your hardware. Because motherboard settings and hardware options vary, use the setup procedures presented in this chapter for general reference only. Refer to your OS documentation for more information. 3.2 Support CD information The support CD that came with the motherboard contains useful software and several utility drivers that enhance the motherboard features. The contents of the support CD are subject to change at any time without notice. Visit the ASUS website for updates. 3.2.1 Running the support CD Place the support CD to your optical drive.*

*The CD automatically displays the Installation Items window if Autorun is enabled in your computer. Click an item to install. If Autorun is NOT enabled in your computer, browse the contents of the support CD to locate the file ASSETUP.*