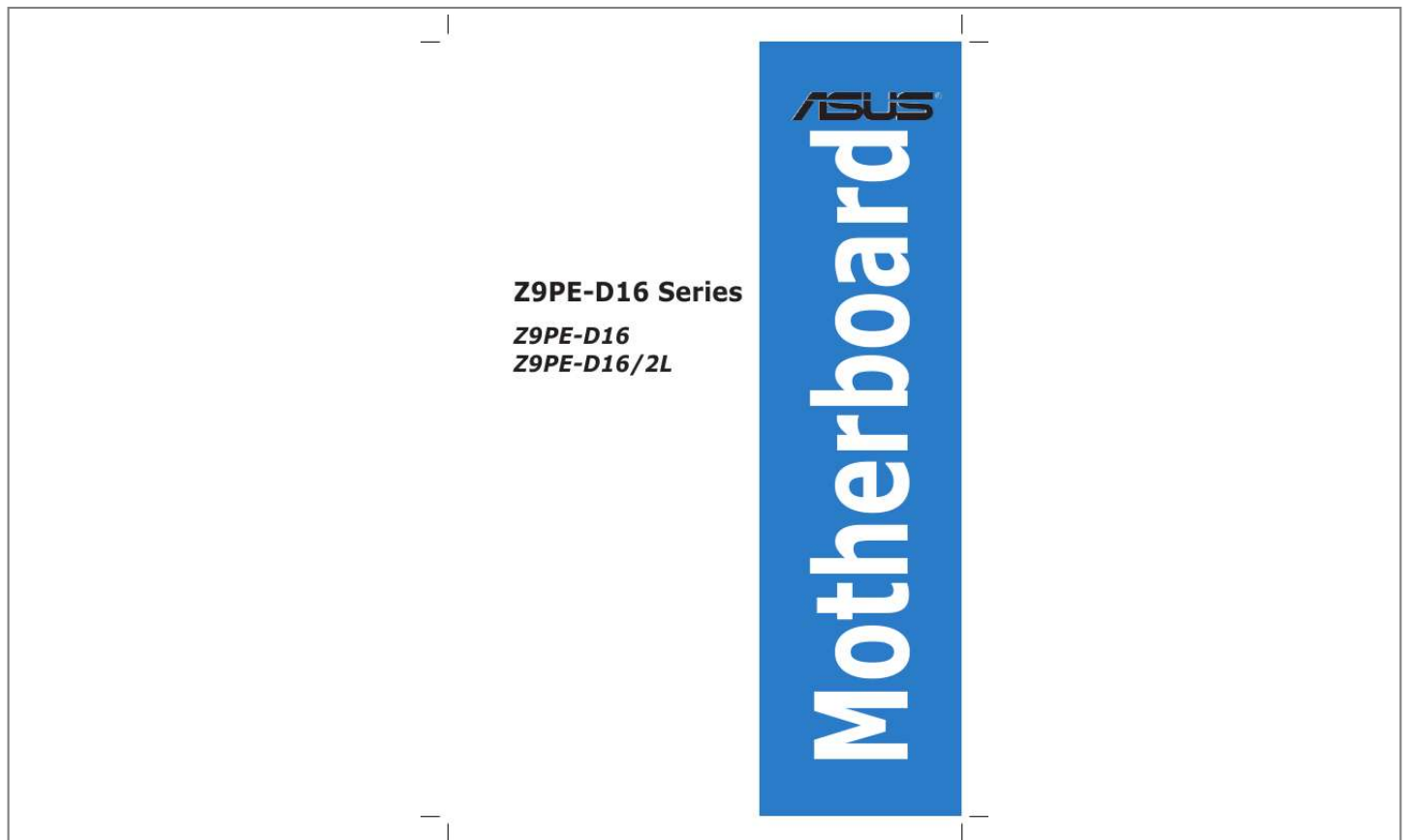# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ASUS Z9PE-D16/2L. You'll find the answers to all your questions on the ASUS Z9PE-D16/2L in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASUS Z9PE-D16/2L
User guide ASUS Z9PE-D16/2L
Operating instructions ASUS Z9PE-D16/2L
Instructions for use ASUS Z9PE-D16/2L
Instruction manual ASUS Z9PE-D16/2L

Z9PE-D16 Series
Z9PE-D16
Z9PE-D16/2L

ASUS

Motherboard

Manual abstract:

@@@@Ix Conventions used in this guide . 2 Starting up for the first time . 2 Using the OS shut down function. 3-4 Using the dual function power switch. 5-17 Checking the drives for data consistency . 8 Â® Selecting the boot drive from a RAID set . 5-32 Setting the Boot array in the BIOS Setup Utility. @@Operation is subject to the following two conditions: Â· â· This device must accept any interference received including interference that may cause undesired operation. This device may not cause harmful interference, and 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. @@@@@@Consult the dealer or an experienced radio/TV technician for help. @@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. REACH Complying with the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulatory framework, we publish the chemical substances in our products at ASUS REACH website at http://csr. 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. 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. If you encounter technical problems with the product, contact a qualified service technician or your retailer. dO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. check local regulations for disposal of electronic products. DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste. place the product on a stable surface. Viii About this guide This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized This user guide contains the following parts: Â· This chapter describes the features of the motherboard and the new technologies it supports. This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the switches, jumpers, and connectors on the motherboard. This chapter describes the power up sequence and ways of shutting down the system. This chapter tells how to change system settings through the BIOS Setup menus.

Detailed descriptions of the BIOS parameters are also provided. This chapter provides instructions for setting up, creating, and configuring RAID sets using the available utilities. This chapter provides instructions for installing the necessary drivers for different system components. This appendix includes additional information that you may refer to when configuring the motherboard. Where to find more information Refer to the following sources for additional information and for product and software updates.

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package. ix ASUS websites 2. Optional documentation Conventions used in this guide To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual. DANGER/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: Instructions that you MUST follow to complete a task. Keys enclosed in the less-than and greaterthan sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key. <Key1+Key2+Key3> If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).

Example: <Ctrl+Alt+Del> Command Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At the DOS prompt, type the command line: format A:/S x Z9PE-D16 Series specifications summary Model Name Processor Support / System Bus Z9PE-D16 Z9PE-D16/2L 2 x Socket LGA 2011 Â® Â® Intel Xeon processor E5-2600 product family QPI 6. 35V Voltage Maximum up to 512GB Capacity DDR3 1066/1333/1600 RDIMM Memory Type DDR3 1066/1333 UDIMM (ECC/non-ECC) DDR3 1066/1333 LRDIMM 2GB, 4GB, 8GB, 16GB (RDIMM) Memory Size 2GB, 4GB, 8GB* (UDIMM) 8GB, 16GB, 32GB* (LRDIMM) 6 Expansion Slots Total PCI/PCI-X/ PCI-E Slots 1 x PCI-E x16 (X8 Gen3 link, Auto switch to x8 link if PCIE PCIE 1 2 is occupied, MIO supported, White, from CPU 1) 1 x PCI-E x16 (X16 Gen3 link, Auto switch to x8 link if PCIE 2 PCIE 1 is occupied, White, from CPU 1) 1 x PCI-E x16 (X16 Gen3 link, Black, from CPU 2) PCIE 3 1 x PCI-E x16 (X16 Gen3 link, White, from CPU 1) PCIE 4 1 x PCI-E x16 (X16 Gen3 link, Black, from CPU 2) PCIE 5 1 x PCI-E x16 (X8 Gen3 link, Black, from CPU 2) PCIE 6 1 x PIKE Slot for Storage expansion (White, from CPU 1) Additional Slot 1 Storage SATA Controller Intel® C602-A: <AHCI> 2 SATA 6Gb/s ports; 4 SATA 3Gb/s ports Intel® RSTe (for Windows only) (Support software RAID 0, 1, 10 & 5) LSI® MegaRAID (for Linux/Windows) (Support software RAID 0, 1, 10) <SCU> 4 SATA 3Gb/s ports Intel® RSTe (for Windows only) (Support software RAID 0, 1, 10 & 5 for all SATA ports) Optional kits: ASUS PIKE 2008 8-port SAS 6G RAID card ASUS PIKE 2008/IMR 8-port SAS 6G RAID card ASUS PIKE 2108 8-port SAS 6G HW RAID card 1 x Quad Port Intel® 1 x Dual Port Intel® Ethernet Controller i350Ethernet Controller i350AM4 GbE LAN AM2 GbE LAN ASPEED® AST2300 + 16MB VRAM (continued on the next page) SAS Controller Networking Graphic LAN VGA xi Z9PE-D16 Series specifications summary Onboard I/O Connectors TPM Header PSU Connector Management Connector USB Connectors Fan Header Chassis Intruder Serial Port Header External USB Port VGA Port RJ-45 PS/2 KB/Mouse CPU Temperature FAN RPM 1 24-pin SSI power connector + 2*8-pin SSI 12V power connector Onboard socket for management card 3 x USB pin header (up to 5 devices, one for internal Type A USB connector) 8 x 4pin 1 2 2 1 4 + 1 Management Port 2 + 1 Management Port 2 V V Operation temperature: 10Â°C Â 35Â°C Non operation temperature: -40Â°C Â 70Â°C Non operation humidity: 20% Â 90% (Non condensing) Rear I/O Connectors Monitoring Environment *Refer to ASUS Server AVL for latest update.*

**Specifications are subject to change without notice. Xii This chapter describes the motherboard features and the new technologies it supports. The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards! Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below. 1. 2 Package contents Check your motherboard package for the following items. z9PE-D16 Series ASMB6-iKVM module SATA DOM cable Cables SATA cable Support CD Application CD Standard Gift Box Pack 1 1 10 1 1 1 1 1 1pc per carton Standard Bulk Pack 1 --1 1 1 1 1 10pcs per carton ASWM Enterprise SDVD ASMB6-iKVM SDVD Documentation Packing Qty. Motherboard User Guide ASMB6-iKVM User Guide If any of the above items is damaged or missing, contact your retailer. Optional items PIKE 2108 PIKE 2008/IMR PIKE 2008 Description LSI 8-port SAS2 6G RAID card LSI 8-port SAS2 6G RAID card LSI 8-port SAS2 6G RAID card ASUS Z9PE-D16 Series 1-3 1. 3 Serial number label Before requesting support from the ASUS Technical Support team, you must take note of the motherboard's serial number containing 12 characters xxS2xxxxxxx shown as the figure below. With the correct serial number of the product, ASUS Technical Support team members can then offer a quicker and satisfying solution to your problems. 1 Special features Product highlights Latest Processor Technology The motherboard supports the latest Intel Xeon® processor E5-2600 product family in LGA 2011 package with integrated memory controller to support 4 channel (8 DIMM prt CPU) DDR3 memory. Intel Xeon® processor E5-2600 product family supports Intel QuickPath Interconnect (QPI) with a system bus of up to 8.

0GT/s. Optimized Intel® Turbo Boost Technology Optimized Intel® Turbo Boost Technology opportunistically and automatically allows the processor to run faster than the marked frequency if the processor is operating below power, temperature and current limits. Intel® Hyper Threading The thread-level parallelism on each processor makes more efficient use of the processor resources, higher processing throughout and improved performance on today's multi-threaded software. intel® EM64T The motherboard supports Intel® processors with the Intel® EM64T (Extended Memory 64 Technology). The Intel® EM64T feature allows your computer to run on 64-bit operating systems and access larger amounts of system memory for faster and more efficient computing.

1-4 Chapter 1: Product introductiowitched 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. Standby Power LED (SB_PWR1) The motherboard comes with a standby power LED. The green LED lights up to indicate the system AC power cable plug or not. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED. aSUS Z9PE-D16 Series 2-3 2. 2 Motherboard overview Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. To optimize the motherboard features, we highly recommend that you install it in an SSI EEB 2011 1. 0 compliant chassis.

Ensure to unplug the chassis power cord before installing or removing the motherboard. Failure to do so can cause you physical injnk will be in contact with, ensuring that it is spread in an even thin layer. Some heatsinks come with preapplied thermal paste. If it gets into your eyes or touches your skin, wash it off immediately, and seek professional medical help. 12. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN1 / CPU_FAN2. DO NOT forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector. DDR3 modules are developed for better performance with less power consumption. The figure illustrates the location of the DDR3 DIMM sockets: 2. 4.

2 Memory Configurations You may install 2GB, 4GB, 8GB, and 16GB RDIMMs or 2GB, 4GB and 8GB* with ECC/Non-ECC UDIMMs or 8GB, 16GB and 32GB* LR-DIMMs into the DIMM sockets using the memory configurations in this section. Start installing the DIMMs from slot A1 and B1 (light blue). Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. Installing a DIMM on a single clip DIMM socket DIMM notch Unlock a DIMM socket by pressing the retaining clip outward. Align a DIMM on the socket such that the notch on the DIMM matches the DIMM slot key on the socket. 1 2 DIMM slot key Unlocked retaining clip A DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket in the wrong direction to avoid damaging the DIMM. 3. Hold the DIMM by both of its ends, then insert the DIMM vertically into the socket.

Apply force to both ends of the DIMM simultaneously until the retaining clip snaps back into place, and the DIMM cannot be pushed in any further to ensure proper sitting of the DIMM. 3 Locked Retaining Clip Always insert the DIMM into the socket VERTICALLY to prevent DIMM notch damage. To install two or more DIMMs, refer to the user guide bundled in the motherboard package. Refer to the user guide for qualified vendor lists of the memory modules. Removing a DIMM from a single clip DIMM socket 1. 2. Press the retaining clip outward to unlock the DIMM. 2 1 Remove the DIMM from the socket. Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

aSUS Z9PE-D16 Series 2-15 2. 5 Expansion slots In the future, you may need to install expansion cards. The following subsections describe the slots and the expansion cards that they support. Ensure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components. Installing an expansion card To install an expansion card: Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card. Remove the system unit cover (if your motherboard is already installed in a chassis). Remove the bracket opposite the slot that you intend to use. Keep the screw for later use. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Secure the card to the chassis with the screw you removed earlier. Configuring an expansion card After installing the expansion card, configure it by adjusting the software settings. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup. assign an IRQ to the card.
Refer to the tables on the next page.

Install the software drivers for the expansion card. 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. 3 IRQ 0 1 2 3* 4* 5* 6 8 7* 9* Interrupt assignments Priority 1 2 11 Standard function System Timer Keyboard Controller Standard Interrupt assignments Programmable Interrupt 12 13 14 15 3 4 5 6 7 8 9 10 Communications Port (COM2) Communications Port (COM1) --Floppy Disk Controller System CMOS/Real Time Clock ACPI Mode when used IRQ Holder for PCI Steering IRQ Holder for PCI Steering Numeric Data Processor Primary IDE Channel Secondary IDE Channel PS/2 Compatible Mouse Port 10* 11* 13 12* 14* 15* * These IRQs are usually available for ISA or PCI devices.

These slots support VGA cards and various server class high performance add-on cards. These slot supports VGA Cards and various server class high performance add-on cards. 6 PIKE slots The PIKE slot allows you to choose and change your preferred SAS solution easily. Install an optional ASUS PIKE RAID card based on your needs. ASUS Z9PE-D16 Series 2-17 PCIE 6 (x8 Gen3 link, Balck, from CPU 2) PCIE 5 (x16 Gen3 link, Balck, from CPU 2) PCIE 4 (x16 Gen3 link, White, from CPU 1) PCIE 3 (x16 Gen3 link, Balck, from CPU 2) PCIE 2 (x16 Gen3 link, Auto switch to x8 link if PCIE 1 is occupied, White, from CPU 1) PCIE 1 (x8 link, Gen3 link, MIO supported, White, from CPU 1) PIKE slot (from CPU 1) 2-18 Chapter 2: Hardware information 2. 5. 7 Installing an ASUS PIKE RAID card Follow the steps below to install an optional ASUS PIKE RAID card on your motherboard. 1. Locate the PIKE RAID card slot on the motherboard. 2.

Align the golden fingers of the PIKE RAID card with the PIKE RAID card slot. aSUS Z9PE-D16 Series 2-19 3. Insert the PIKE RAID card into the PIKE RAID card slot. Ensure that it is completely seated on the PIKE RAID card slot. For details about the installing the SAS HDD for PIKE, please refer to 2. 8 Installing ASMB6 management board Follow the steps below to install an optional ASMB6 management board on your motherboard. 1. Locate the ASMB6 header on the motherboard. 2. Orient and press the ASMB6 management card in place.

Jumpers 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 onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords. To erase the RTC RAM: Turn OFF the computer and unplug the power cord. Clear RTC RAM (CLRTC1) Move the jumper cap from pins 1Â2 (default) to pins 2Â3.

Keep the cap on pins 2Â3 for about 5Â10 seconds, then move the cap back to pins 1Â 2. 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 CLRTC jumper default position. removing the cap will cause system boot failure! If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.

Plug the power cord and turn ON the computer. 2-22 Chapter 2: Hardware information 2. This jumper allows you to enable or disable the onboard VGA controller. LAN controller setting (3-pin LAN_SW1) These jumpers allow you to enable or disable the onboard Intel® I350 Gigabit LAN controllers. This jumper allows you to select the PCH SATA RAID mode to use LSI MegaRAID software or Intel® Rapid Storage Technology enterprise 3. 0 RAID. Place the jumper caps over pins 1Â2 if you want to use the LSI MegaRAID software RAID Utility (default); otherwise, place the jumper caps to pins 2Â3 to use the Intel® Rapid Storage Technology Enterprise Option ROM Utility. lSI MegaRAID or Intel RSTe selection jumper (3-pin RAID_SEL1) 5. This jumper allows you to force Intel Management Engine (ME) boot from recovery mode when ME become corrupted. mE firmware force recovery setting (3-pin ME_RCVR1) 2-24 Chapter 2: Hardware information 6.

This jumper allows you to enable/disable DDR3 DIMM thermal sensing event pin. dDR3 thermal event setting (3-pin DIMMTRIP1) 7. This jumper allows you to select PSU PMBus version, Set to pins 1-2 for PMBus, set to pins 2-3 for Others. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub for dedicated BMC Mamagement function. Refer to the table below for the DM_LAN1 and LAN port LED indications. lAN 1 (RJ-45) port. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. lAN 2 (RJ-45) port. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

Refer to the table below for the LAN port LED indications. pS/2 mouse port (green). This port is for a PS/2 mouse. lAN 3 (RJ-45) port (Z9PE-D16 only). This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

Refer to the table below for the LAN port LED indications. lAN 4 (RJ-45) port (Z9PE-D16 only). This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.

This port is for a PS/2 keyboard. video Graphics Adapter port. This port is for a VGA monitor or other VGAcompatible devices. 0 Gb/s connectors (7-pin SATA6G_1-2 [Blue]) (7-pin SATA3G_3-6 [black]) 7-pin 3-6 Supported by the Intel® 602 Chipset, these connectors are for the Serial ATA signal cables for Serial ATA hard disk drives that allows up to 6Gb/s of data transfer rate. If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, RAID 10, or RAID 5 configuration. The actual data transfer rate depends on the speed of SATA hard disks installed. sATA connector -- ISAS connectors 2-28 Chapter 2: Hardware information 3. This LED connector is for the storage add-on card cable connected to the SATA or SAS add-on card. The read or write activities of any device connected to the SATA or SAS add-on card causes the front panel LED to light up. hard disk activity LED connector (4-pin HDLED1) 4.

SAS connector - PSAS connectors are for the SAS signal cables for SAS hard disk drives that allows up to 6Gb/s of data transfer rate. If you installed SAS hard disk drives, you can create a RAID 0, RAID 1, RAID 10, or RAID 5 configuration. SAS connector -- PSAS connectors The actual data transfer rate depends on the speed of SAS hard disks installed. aSUS Z9PE-D16 Series 2-29 5. These connectors are for USB 2. 0 ports. Connect the USB module cables to connectors USB34 and USB56, then install the modules to a slot opening at the back of the system chassis.

These USB connectors comply with USB 2. CPU, front and rear fan connectors (4-pin CPU_FAN1-2, FRNT_FAN1Â4, REAR_FAN1-2) The fan connectors support cooling fans. Connect the fan cables to the fan connectors on the motherboard, ensuring 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. Insufficient air flow inside the system may damage the motherboard components. Serial General Purpose Input/Output connectors (8-1 pin PSGPIO 1/2, ISGPIO1, SGPIO1) The SGPIO 1 connectors are used for the Intel Rapid Storage Technology Enterprise SGPIO interface that controls the LED pattern generation, device information and general purpose data. The PSGPIO 1/2 connectors are used for PIKE card. 8.

These connectors are for the serial (COM) ports. Connect the serial port module cable to one of these connectors, then install the module to a slot opening at the back of the system chassis. serial port connectors (10-1 pin COM1/COM2) 2-32 Chapter 2: Hardware information 9. This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. EATX power connectors (24-pin EATXPWR1, 8-pin EATX12V1/EATX12V2, PSUSMB1) These connectors are for an EATX power supply plugs.

The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit. DO NOT forget to connect the 24+8+8-pin power plugs; otherwise, the system will not boot up. Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate. Ensure that your power supply unit (PSU) can provide at least the minimum power required by your system. This connector supports several chassis-mounted functions. System panel connector (20-1 pin PANEL1) (1) System power LED (3-pin PLED) This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

(2) Message LED (2-pin MLED) This 2-pin connector is for the message LED cable that connects to the front message LED. the message LED is controlled by Hardware monitor to indicate an abnormal event occurance. (3) System warning speaker (4-pin SPEAKER) This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings. (4) Hard disk drive activity LED (2-pin HDDLED) This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HDD LED lights up or flashes when data is read from or written to the HDD. (5) Power button/soft-off button (2-pin PWRSW) This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

(6) Reset button (2-pin RESET) This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power. aSUS Z9PE-D16 Series 2-35 12. Auxiliary panel connector (20-2 pin AUX_PANEL1) This connector is for additional front panel features including front panel SMB, locator LED and switch, chassis intrusion, and LAN LEDs. (1) Front panel SMB (6-1 pin FPSMB) These leads connect the front panel SMBus cable. (2) LAN activity LED (2-pin LAN13_LED, LAN24_LED) These leads are for Gigabit LAN activity LEDs on the front panel.

(3) Chassis intrusion (4-1 pin CHASSIS) These leads are for the intrusion detection feature for chassis with intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to these leads to record a chassis intrusion event. The default setting is short CASEOPEN and GND pin by jumper cap to disable the function. (4) Locator LED (2-pin LOCATORLED1 and 2-pin LOCATORLED2) These leads are for the locator LED1 and LED2 on the front panel. Connect the Locator LED cables to these 2-pin connector.

The LEDs will light up when the Locator button is pressed. (5) Locator Button/Swich (2-pin LOCATORBTN) These leads are for the locator button on the front panel. This button queries the state of the system locator. DIMM warning LED (ERR_DIMMA1/2; ERR_DIMMB1/2; ERR_DIMMC1/2; ERR_DIMMD1/2; ERR_DIMME1/2; ERR_DIMMF1/2; ERR DIMMG1/2; ERR DIMMH1/2) The DIMM warning LEDs light up to indicate an impending failure of the corresponding DIMMs. The warning LEDs function only when you install the ASUS ASMB6. aSUS Z9PE-D16 Series 2-37 2. BMC LED (BMC_LED1) The green heartbeat LED blinks per second to indicate that the ASMB6 is working normally. The heartbeat LED functions only when you install the ASUS ASMB6 Everytime after the AC power is replugged, you have to wait for about 30 seconds for the system to power up. 3. CPU warning LED (ERR_CPU1, ERR_CPU2) The CPU warning LEDs light up to indicate an impending failure of the corresponding CPU.

The warning LEDs function only when you install the ASUS ASMB6. 2-38 Chapter 2: Hardware information 4. CATT LED The CATT LED indicates that the system has experienced a fatal or catastrophic error and cannot continue to operate. 5. Q-Code LEDs The Q-Code LED provides you a 2-digit display that shows the system status. Refer to the Q-Code table below for more details. aSUS Z9PE-D16 Series 2-39 Q-Code table Action Normal boot PHASE Security Phase POST CODE 01 02 03 06 PEI(Pre-EFI initialization) phase 04 10 15 19 78~00 A1 A3 A7 A8 A9 AA AB AC AD AE AF 2F B0 B1 B4 B2 B3 B5 B6 B7 B8 B9 BA BB BF 5A 31 32 34 36 4F BC AF TYPE Progress Progress Progress Progress Progress Progress Progress Progress Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress MRC Progress Progress Progress Progress Progress Progress DESCRIPTION First post code(POWER_ON_POST_CODE) Load BSP microcode(MICROCODE_POST_CODE) CPU Early init. (CPU_EARLY_INIT_POST_CODE) initializes South bridge for PEI preparation PEI Core Entry NB initialize before installed memory SB initialize before installed memory QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization QPI initialization Memory Init. After RC end Memory already installed. NVRAM configuration reset BIOS Setup Utility password verify BIOS Setup Utility start Ready to boot event Legacy boot event BIOS Setup Utility input wait AD Operating system 17 phase 18 19 20 21 22 23 24 25 ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ME event for Node Manager ASUS Z9PE-D16 Series 2-41 2-42 Chapter 2: Hardware information This chapter describes the power up sequence, and ways of shutting down the system.

2 Starting up for the first time . Starting up for the first time After making all the connections, replace the system case cover. Be sure that all switches are off. Connect the power cord to the power connector at the back of the system chassis. Connect the power to a power outlet that is equipped with a surge protector. Turn on the devices in the following order: a. Monitor External storage devices (starting with the last device on the chain) System power 6. After applying power, the system power LED on the system front panel case lights up. For systems with ATX power supplies, the system LED lights up when you press the ATX power button. If your monitor complies with "green" standards or if it has a "power standby" feature, the monitor LED may light up or switch between orange and green after the system LED turns on.

The system then runs the power-on self-test or POST. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance. 7. At power on, hold down the <Del> key to enter the BIOS Setup. Powering off the computer Using the OS shut down function If you are using Windows® 2008 Server: Click the Start button, move the cursor to the triangle on the right of Log off, and then click Shut Down. From the Shutdown Event Tracker, select the option that best describes why you want to shut down the computer. Ensure that the Planned check box is checked. If necessary, key in comments.

2 Using the dual function power switch While the system is ON, pressing the power switch for less than four seconds puts the system to sleep mode or to soft-off mode, depending on the BIOS setting. 3-4 Chapter 3: Powering up This chapter tells you how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided. 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 CrashFree BIOS 3 (Recovers the BIOS using a bootable USB flash disk drive when the BIOS file fails or gets corrupted.) ASUS EZ Flash 2 (Updates the BIOS using a USB flash disk.) BUPDATER utility (Updates the BIOS in DOS mode using a bootable USB flash disk drive.) Save a copy of the original motherboard BIOS file to a bootable USB flash disk drive in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the BUPDATER utility. Refer to the corresponding sections for details on these utilities.

1 ASUS CrashFree BIOS 3 utility The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using a USB flash drive that contains the updated BIOS file. Prepare a USB flash drive containing the updated motherboard BIOS before using this utility. Recovering the BIOS from a USB flash drive To recover the BIOS from a USB flash drive: 1. 2.

Insert the USB flash drive with the original or updated BIOS file to one USB port on the system. The utility will automatically recover the BIOS. It resets the system when the BIOS recovery is finished. DO NOT shut down or reset the system while recovering the BIOS! Doing so would cause system boot failure! The recovered BIOS may not be the latest BIOS version for this motherboard. 2 ASUS EZ Flash 2 Utility The ASUS EZ Flash 2 Utility feature allows you to update the BIOS without having to use a DOS-based utility.

Before you start using this utility, download the latest BIOS from the ASUS website at www. To update the BIOS using EZ Flash 2 Utility 1. 2. Insert the USB flash disk that contains the latest BIOS file into the USB port. enter the BIOS setup program. Go to the Tool menu then select ASUS EZ Flash 2 Utility. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, then press <Enter>. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done. This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.

DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure! The actual BIOS screen displays may not be the same as shown. The BUPDATER utility allows you to update the BIOS file in the DOS environment using a bootable USB flash disk drive with the updated BIOS file. To update the BIOS file using the BUPDATER utility: Visit the ASUS website at www. asus. Com and download the latest BIOS file for the motherboard. Exe) from the ASUS support website at support. asus. Com to the bootable USB flash disk drive you created earlier. Boot the system in DOS mode, then at the prompt, type: BUPDATER /i[filename]. ROM where [filename] is the latest or the original BIOS file on the bootable USB flash disk drive, then press <Enter>.

The utility verifies the file, then starts updating the BIOS file. Do not turn off power during flash BIOS Update ROM BOARD: Z9PE-D16 VER: 0206 DATE: 09/30/2011 Note Writing BIOS: DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure! 5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive. 2 BIOS setup program This motherboard supports a programmable firmware chip that you can update using the provided utility described in section 5.

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 can change the configuration of your computer in the future. For example, you can enable the security password feature or change 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 firmware chip. The firmware chip 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 <Del> 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. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

â· The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance.

If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. press <F5> and select Yes to load the BIOS default settings. The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen. Com) to download the latest BIOS file for this motherboard. 9 0306 x64 01/16/2012 [Tue 01/17/2012] [15:07:28] Administrator 2048 MB (DDR3) 2600 MHz 1 MAC MAC MAC MAC 00:E0:18:10:14:00 00:E0:18:10:14:01 00:E0:18:10:14:02 00:E0:18:10:14:03 Set the Date, Use Tab to switch between Data elements. 2 Main Menu bar For changing the basic system configuration For changing the Server Mgmt settings For changing the event log settings For changing the advanced system settings The menu bar on top of the screen has the following main items: Advanced Server Mgmt Event Logs Monitor Security Boot Tool Exit For changing the security settings For displaying the system temperature, power status, and changing the fan settings For changing the system boot configuration For selecting the exit options For configuring options for special functions To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted. 3 Menu items The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items. The other items (Event Logs, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items. 4 Submenu items A solid triangle before each item on any menu screen means that the item has a submenu. To display the submenu, select the item then press <Enter>. 5 Navigation keys At the bottom right corner of a menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings. 7 General help Configuration fields At the top right corner of the menu screen is a brief description of the selected item. These fields show the values for the menu items.

If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable. A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options. 8 Pop-up window Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

9 Scroll bar A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen. aSUS Z9PE-D16 Series 4-9 4. 3 Main menu When you enter the BIOS Setup program, the Main menu screen appears. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings. 9 0306 x64 01/16/2012 [Tue 01/17/2012] [15:07:28] Administrator 2048 MB (DDR3) 2600 MHz 1 MAC MAC MAC MAC 00:E0:18:10:14:00 00:E0:18:10:14:01 00:E0:18:10:14:02 00:E0:18:10:14:03 Set the Date, Use Tab to switch between Data elements. 2 Allows you to set the system date. System Date [Day xx/xx/xxxx] System Time [xx:xx:xx] Allows you to set the system time. 4-10 Chapter 4: BIOS setup 4. 4 Advanced menu The Advanced menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction. Hyper Threading [Enabled] Allows you to enable or disable the Intel® Hyper-Threading Technology function. When disabled, only one thread per activated core is enabled. Configuration options: [Disabled] [Enabled] Active Processor Cores [All] Configuration options: [All] [1] [2] [3] [4] [5] [6] [7] Limit CPUID Maximum [Disabled] Setting this item to [Enabled] allows legacy operating system to boot even without support for CPUs with extended CPUID functions. Configuration options: [Disabled] [Enabled] Execute Disable Bit [Enabled] XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9. Configuration options: [Enterprise] [High Performance(HPC)] [Custom] Hardware Prefetcher [Enabled] This Item allows you to turn on/off the mid level cache(L2) streamer prefetcher. Configuration options: [Disabled] [Enabled] 4-12 Chapter 4: BIOS setup Adjacent Cache Line Prefetch [Enabled] This Item allows you to turn on/off prefetching of adjacent cache lines. Configuration options: [Disabled] [Enabled] DCU Streamer Prefetcher [Enabled] This Item allows you to enable or disable prefetcher of next L1 data line. Configuration options: [Disabled] [Enabled] DCU IP Prefetcher [Enabled] This Item allows you to enable or disable prefetch of next L1 line based upon sequential load history. Configuration options: [Disabled] [Enabled] Intel® Virtualization Technology [Enabled] When this item is enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Otherwise, use xAPIC mode. XAPIC will disable CPUs with APIC IDs greater than 254. Some OS do not support x2APIC mode. Advanced This item allows you to enabled power management features. CPU Power Management Confguration Power Technology [Custom] EIST [Enabled] Turbo Mode [Enabled] P-STATE Coordination [HW_ALL] CPU C3 Report [Disabled] CPU C6 Report [Enabled] CPU C7 Report [Disabled] Package C State limit [C6] Energy Performance [Balanced Performance] Factory long duration power limit 115 Watts Long duration power limit 0 Factory long duration maintained 1000 ms : Select Screen Long duration power limit 0 Recommended short duration power1 1. Power Technology [Custom] This item allows you to enable power management features. Configuration options: [C0] [C2] [C6] [C7] [No Limit] Energy Performance [Balanced Performance] This item allows you to optimize between performance and power savings. Windows 2008 and later operating systems override this value according to this power plan. Configuration options: [Performance] [Balanced Performance] [Balanced Energy] [Energy Efficient] Factory long duration power limit Long duration power limit Allows you to set long duration power limit in watts. Use the number keys to set the value. 0 115 Watts Factory long duration maintained Long duration power limit Allows you to set time window which the long duration power is maintained. Use the number keys to set the value. 0 1000 ms Recommended short duration power limitation Short duration power limit 0 1. 2 * Long Duration Allows you to set short duration power limit in watts. Use the number keys to set the value.

Advanced Current QPI Link Speed Current QPI Link Freq Isoc QPI Link Speed Mode QPI Link Frequency Select QPI Link0s QPI Link0p QPI Link1 Slow Unknown [Enabled] [Fast] [Auto] [Disabled] [Disabled] [Enabled] Enable/disable Isoc Isoc [Enabled] Configuration options: [Disabled] [Enabled] QPI Link Speed Mode [Fast] This item allows you to select the QPI link speed as either the fast mode or slow mode. Configuration options: [Slow] [Fast] QPI Link Frequency Select [Auto] This item allows for selecting the QPI link frequency Configuration options: [Auto] [6. Advanced Compatibility RID Memory Configuration Total Memory Current Memory Mode Currently Memory Speed Mirroring Sparing Memory Mode DDR Speed Channel Interleaving Rank Interleaving Patrol Scrub Demand Scrub Data Scrambling Device Tagging Thermal Throtting OLTT Peak BW Enable High Temp Allow 2x Refresh Altitude Memory HOT Sensor support DIMM Information 2048 MB (DDR3) Independent 1333 MHz Supported Not Possible [Independent] [Auto] [Auto] [Auto] [Disabled] [Enabled] [Enabled] [Disabled] [CLTT] 50 [Disabled] [Enabled] [300 M] [Enabled] [Enabled] Support for compatibility Revision ID(CRID) Functionality mentioned in Sandybridge bios spec. Configuration options: [Enabled] [Disabled] Memory Mode [Independent] Select the mode for memory initializaton.

Configuration options: [Enabled] [Disabled] Thermal Throtting [CLTT] Configuration options: [Disabled] [OLTT] [CLTT] Enable High Temp [Disabled] Allow 2x Refresh [Enabled] Altitude [300 M] Configuration options: [Disabled] [Enabled] Configuration options: [Disabled] [Enabled] The system altitude above the sea level in meters. Configuration options: [Disabled] [Enabled] DCA Support [Enabled] Allows you to enable or disable the direct cache access support. Configuration options: [Disabled] [Enabled]] VGA Priority [offboard] Allows you to prioritize between onboard and 1st offboard video device found. Configuration options: [Disabled] [Enabled] Deep Sx [Disabled] Configuration options: [Disabled] [Enabled in S5] [Enabled in S4 and S5] Mobile platforms support deep S4/S5 in DC only and desktop platforms support deep S4/S5 in AC only. Configuration options: [Enabled] [Disabled] The following item appears only when you set Intel(R) VT-d to [Enabled]. coherency Support [Disabled] Allows you to enable/disable VT-d Engine Coherency support. Configuration options: [Disabled] [Enabled] ATS Support [Disabled] Allows you to enable/disable VT-d Engine address translation services (ATS) support. ASUS Z9PE-D16 Series 4-21 SATA Mode [AHCI Mode] Allows you to set the SATA configuration. If you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices, set this item to [IDE Mode]. If you want the Serial ATA hard disk drives to use the Advanced Host Controller Interface (AHCI), keep the default setting [AHCI Mode].

The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands. If you want to create RAID sets with LSI MegaRAID utility, or Intel® Rapid Storage Technology Enterprise from the Serial ATA hard disk drives, set this item to [RAID Mode]. â· SATA Controller 1 [Enhanced] This item appears only when you set the SATA Mode item to [IDE Mode]. Up to four SATA devices are supported under these operating systems. Configuration options: [Disabled] [Enhanced] [Compatible] SATA Controller 2 [Enhanced] This item appears only when you set the SATA Mode item to [IDE Mode].

When read/write of your hard disk errors occur, this feature allows the hard disk to report warning messages during the POST. Advanced Intel ISR10a Intel ISR10a Intel ISR10a Intel ISR10a Intel ISR10a Intel ISR10a Intel ISR10a Intel ISR10a [Disabled] Sata only RAID5 Device1 Device2 Device3 Device4 Device5 Device6 Device7 Device8 Sata only RAID5 Patsburg B/D sku only : Select Screen : Select Item Enter: Select Item +/-: Change Opt. Configuration options: [Legacy ROM] [EFI Compatible ROM] PCI Latency Timer [32 PCI Bus Clocks] Value to be programmed into PCI latency timer register Configuration options: [32 PCI Bus Clocks] [64 PCI Bus Clocks] [96 PCI Bus Clocks] [128 PCI Bus Clocks] [160 PCI Bus Clocks] [192 PCI Bus Clocks] [224 PCI Bus Clocks] [248 PCI Bus Clocks] ASUS Z9PE-D16 Series 4-23 VGA Palette Snoop [Disabled] Allows you to enable or disable VGA pallette registers snooping. Advanced PCI Express Link Register Settings ASPM Support [Disabled] WARNING: Enabling ASPM may cause PCI-E device to fail Allows you to enable or disablePCI Express Device Relaxed Ordering. PCI Express Link Register Settings ASPM Support [Disabled] Allows you to set the ASPM level.

Advanced Legacy OpROM Support Launch Storage 0pROM PCIE1 Option Rom PCIE2 Option Rom PCIE3 Option Rom PCIE4 Option Rom PCIE5 Option Rom PCIE6 Option Rom PIKE Option Rom [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] Allows you to enable or disable boot option for legacy mass storage device with option ROM. Launch Storage OpROM [Enabled] Allows you to enable or disable boot option for legacy mass storage device with option ROM. Configuration options: [PXE] [iSCSI] The following item appears only when you set Intel LAN Support to [Enabled]. Auto option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Configuration options: [Enabled] [Disabled] [Auto] EHCI Hand-off [Disabled] This is a workaround for 0ses without EHCI. Advanced Allows you to enable or disable BIOS support for security device. TCG EFI protocol and INT1A interface will not be Configuration TPM Support Current Status Information No Security Device Found [Enabled] TPM Support [Enabled] Allows you to enable or disable the TPM support. Configuration options: [Disabled] [Enabled] The following item appears only when you set Enabled ACPI Auto Configuration to [Disabled]. Enable Hibernation [Enabled] Allows you to enable or disable system ability to Hibernate (OS/S4 sleep state).

This option may be not effective with some OS. Configuration options: [Disabled] [Enabled] ACPI Sleep State [S1 (CPU Stop Clock)] Allows you to set the ACPI Sleep State. WHEA Support [Enabled] WHEA Support [Enabled] Allows you to enable or disable the Windows Hardware Error Architecture support. Advanced [Last State] [Disabled] [Disabled] Specify what state to go to when power is re-applied after a power failure (G3 state). Restrore AC Power Loss Power On By PCIE Power On By RTC Restore AC Power Loss [Last State] When set to [Power Off], the system goes into off state after an AC power loss. When set to [Power On], the system will reboot after an AC power loss. When set to [Last State], the system goes into either off or on state, whatever the system state was before the AC power loss. Configuration options: [Power Off] [Power On] [Last State] Power On By PCIE [Disabled] [Disabled] [Enabled] [Disabled] [Enabled] Disables the PCIE devices to generate a wake event.

Enables the PCIE devices to generate a wake event. disables RTC to generate a wake event.

When set to [Enabled], the items RTC Alarm Date (Days) and Hour/Minute/Second will become user-configurable with set values. COM1 Console Redirection [Disabled] Allows you to enable or disable the console redirection feature. @@Console Redirection Settings This item becomes configurable only when you enable the Console Redirection item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Terminal Type [VT-UTF8] Allows you to set the terminal type. [VT100] ASCII char set. [VT100+] Extends VT100 to support color, function keys, et. [VT-UTF8] Uses UTF8 encoding to map Unicode chars onto 1 or more bytes [ANSI] Extended ASCII char set Bits per second [57600] Selects serial port transmission speed. The speed must be matched on the other side.

Long or noisy lines may require lower speeds. Configuration options: [9600] [19200] [38400] [57600] [115200] 4-32 Chapter 4: BIOS setup Data Bits [8] Configuration options: [7] [8] Parity [None] A parity bit can be sent with the data bits to detect some transmission errors. [Mark] and [Space] parity do not allow for error detection. [None] None [Even] parity bit is 0 if the num of 1's in the data bits is even [Odd] parity bit is 0 if num of 1's in the data bits is odd [Mark] parity bit is always 1 [Space] parity bit is always 0 Stop Bits [1] Stop bits indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit. @@@@@@ hardware flow control uses two wires to send start/stop signals.

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@It takes around 30 seconds to initialize Host to BMC interfaces. @@@@@@@@ not available if O/S Boot Watchdog Timer is disabled. @@@@@@@@@@@Erase SEL [No] Allows you to choose options for erasing SEL. @@@@@@@@The Event Logs allows you to change or view the event log settings.

@@Smbios Event Log Standard Settings Log System Boot Event [Disabled] MECI 1 METW 60 Custom Option Log OEM Codes [Enabled] Convert OEM Codes [Disabled] Note: @@@@Enabling/Disabling Options Smbios Event Log [Enabled] Change this to enable or disable all features of Smbios Event Logging during boot. configuration options: [Disabled] [Enabled] 4-40 Chapter 4: BIOS setup Erasing Settings Erase Event Log [No] Choose options for erasing Smbios Event Log. Erasing is done prior to any logging activation during reset. Configuration options: [No] [Yes, Next reset] [Yes, Every reset] When Log is Full [Do Nothing] Allows you to choose options for reactions to a full Smbios Event Log. Configuration options: [Do Nothing] [Erase Immediately] Smbios Event Log Standard Settings Log System Boot Event [Disabled] Allows you to choose options to enable/disable logging of System boot event. configuration options: [Enabled] [Disabled] MECI [1] Mutiple Event Count Increment (MECI). The number of occurrences of a duplicate event that must pass before the multiplt-event counter associated with the log entry is updated, specified as a numeric value in the range 1 to 255. mETW [60] Mutiple Event Time Windows (METW). The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.

Custom Option Log OEM Codes [Enabled] Enable or disable the logging of EFI Status Codes as OEM Codes (if not already converted to legacy). Configuration options: [Disabled] [Enabled] Convert OEM Codes [Disabled] Enable or disable the converting of EFI Status Codes to Standard Smbios Types (Not all may be translated). F1: General Help F2: Previous Values F5: Optimized Defaults F10: Save & Exit ESC: Exit Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting. The Boot menu items allow you to change the system boot options.

Setup Prompt Timeout [xx] Use the <+> and <-> keys to adjust the number of seconds to wait for setup activation key. Bootup NumLock State [On] Allows you to select the power-on state for the NumLock. Configuration options: [Off] [On] Full Screen Logo [Enabled] Allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled] Set this item to [Enabled] to use the ASUS MyLogo2TM feature. GateA20 Active [Upon Request] [Upon Request] GA20 can be disabled using BIOS services.

[Always] Do not allow disable GA20; this option useful when any RT code is executed above 1MB. Option ROM Messages [Force BIOS] Allows you to set the display mode for Options ROM. configuration options: [Force BIOS] [Keep Current] 4-42 Chapter 4: BIOS setup Interrupt 19 Capture [Enabled] Allows Option ROMs to trap interrupt 19. Configuration options: [Disabled] [Enabled] Boot Device Seeking [Endless PXE] [Endless PXE] Continuous seek remote boot image until boot image found or user abort (press Ctrl+Alt+Del). Configuration options: [Disabled] [Enabled] Boot Option Priorities These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. @@@Set the booting order of network devices. @@ aSUS Z9PE-D16 Series 4-43 4. @@@@@@If the fan is not connected to the motherboard, the field shows N/A. @@@@@@@@@ see section 2.

6 Jumpers for information on how to erase the RTC RAM. The Administrator or User Password items on top of the screen show the default Not Installed. After you set a password, these items show Installed. ASUS Z9PE-D16 Series 4-45 Administrator Password If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program. From the Create New Password box, key in a password, then press <Enter>. Confirm the password when prompted. To change an administrator password: From the Enter Current Password box, key in the current password, then press <Enter>. From the Create New Password box, key in a new password, then press <Enter>. Confirm the password when prompted.

select the Administrator Password item and press <Enter>. To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the Administrator Password item on top of the screen shows Not Installed. User Password If you have set a user password, you must enter the user password for accessing the system. The User Password item on top of the screen shows the default Not Installed.

After you set a password, this item shows Installed. From the Create New Password box, key in a password, then press <Enter>. Confirm the password when prompted. To change a user password: From the Enter Current Password box, key in the current password, then press <Enter>.

From the Create New Password box, key in a new password, then press <Enter>.
Confirm the password when prompted. select the User Password item and press <Enter>. 4-46 Chapter 4: BIOS setup To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the User Password item on top of the screen shows Not Installed. 4. 10 Tool menu The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu. main Aptio Setup Utility - Copyright (C) 2011 American Megatrends , Inc. Advanced Server Mgmt Event Logs Boot Monitor Security Tool Exit Be used to update BIOS ASUS EZ Flash 2 Utility ASUS EZ Flash 2 Utility Allows you to run ASUS EZ Flash BIOS ROM Utility when you press <Enter>. Advanced Server Mgmt Event Logs Boot Monitor Security Tool Exit Exit system setup without saving any changes.

The Exit menu items allow you to save or discard your changes to the BIOS items. Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit. aSUS Z9PE-D16 Series 4-47 Boot Override These items displays the available devices. The device items that appears on the screen depends on the number of devices installed in the system. Efi) from one of the available filesystem devices. Discard Changes & Exit This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. select Yes to discard changes and exit. Save Changes & Reset Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved.

When you select this option or if you press <F10>, a confirmation window appears. select Yes to save changes and exit. Discard Changes & Reset This option allows you to reset the Setup program without saving your changes. When you select this option, a confirmation window appears. select Yes to discard changes and reset.

Restore Defaults This option allows you to restore/load defaults values for all the setup options. When you select this option, a confirmation window appears. select Yes to load optimized defaults. 4-48 Chapter 4: BIOS setup This chapter provides instructions for setting up, creating, and configuring RAID sets using the available utilities. Setting up RAID The motherboard supports the following SATA RAID solutions: LSI MegaRAID software RAID Configuration Utility with RAID 0, RAID 1, and RAID 10 support (for both Linux and Windows OS).

Intel Rapid Storage Technology enterprise SCU / SATA Option ROM Utility with RAID 0, RAID 1, RAID 10, and RAID 5 support (for Windows OS only). 1 RAID 0 (Data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup. RAID 1 (Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive. RAID 1E (Enhanced RAID 1) has a striped layout with each stripe unit having a secondary (or alternate) copy stored on a different disk.

You can use three or more hard disk drives for this configuration. RAID 10 is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. With the RAID 10 configuration you get all the benefits of both RAID 0 and RAID 1 configurations. Use four new hard disk drives or use an existing drive and three new drives for this setup. RAID 5 stripes both data and parity information across three or more hard disk drives. Among the advantages of RAID 5 configuration include better HDD performance, fault tolerance, and higher storage capacity. The RAID 5 configuration is best suited for transaction processing, relational database applications, enterprise resource planning, and other business systems. Use a minimum of three identical hard disk drives for this setup. â· If you want to boot the system from a hard disk drive included in a created RAID set, copy first the RAID driver from the support DVD to a floppy disk before you install an operating system to the selected hard disk drive. Please refer to chapter 2 for how to select the RAID configuration utility.

Move the jumper to choose between LSI MegaRAID and Intel® Rapid RAID. For optimal performance, install identical drives of the same model and capacity when creating a disk array. To install the SATA hard disks for RAID configuration: 1. Install the SATA hard disks into the drive bays following the instructions in the system user guide. Connect a SATA signal cable to the signal connector at the back of each drive and to the SATA connector on the motherboard.

Connect a SATA power cable to the power connector on each drive. 3 Setting the RAID item in BIOS You must set the RAID item in the BIOS Setup before you can create a RAID set from SATA hard disk drives attached to the SATA connectors supported by Intel® C602 chipset. Enter the BIOS Setup during POST. Set SATA Mode to [RAID Mode] Go to the Advanced Menu > PCH SATA Configuration, then press <Enter>. Press <F10> to save your changes and exit the BIOS Setup.

Refer to Chapter 4 for details on entering and navigating through the BIOS Setup. 4 RAID configuration utilities Depending on the RAID connectors that you use, you can create a RAID set using the utilities embedded in each RAID controller. For example, use the LSI Logic Embedded SATA RAID Setup Utility or the Intel® Rapid Storage Technology if you installed Serial ATA hard disk drives on the Serial ATA connectors supported by the Intel® C602 chipset. Refer to the succeeding section for details on how to use the RAID configuration utility. 5-4 Chapter 5: RAID configuration 5. 2 LSI Software RAID Configuration Utility The LSI MegaRAID software RAID configuration utility allows you to create RAID 0, RAID 1, or RAID 10 set(s) from SATA hard disk drives connected to the SATA connectors supported by the motherboard southbridge chip. During POST, the LSI MegaRAID software RAID configuration utility automatically detects the installed SATA hard disk drives and displays any existing RAID set(s). 10 09231523R LSI SATA RAID Found at PCI Bus No:00 Dev No:1F Device present at Port 0 ST3160812AS 152114MB Device present at Port 1 ST3160812AS 152114MB Device present at Port 2 ST3160812AS 152114MB Device present at Port 3 ST3160812AS 152114MB Press Ctrl-M or Enter to run LSI Software RAID Setup Utility.