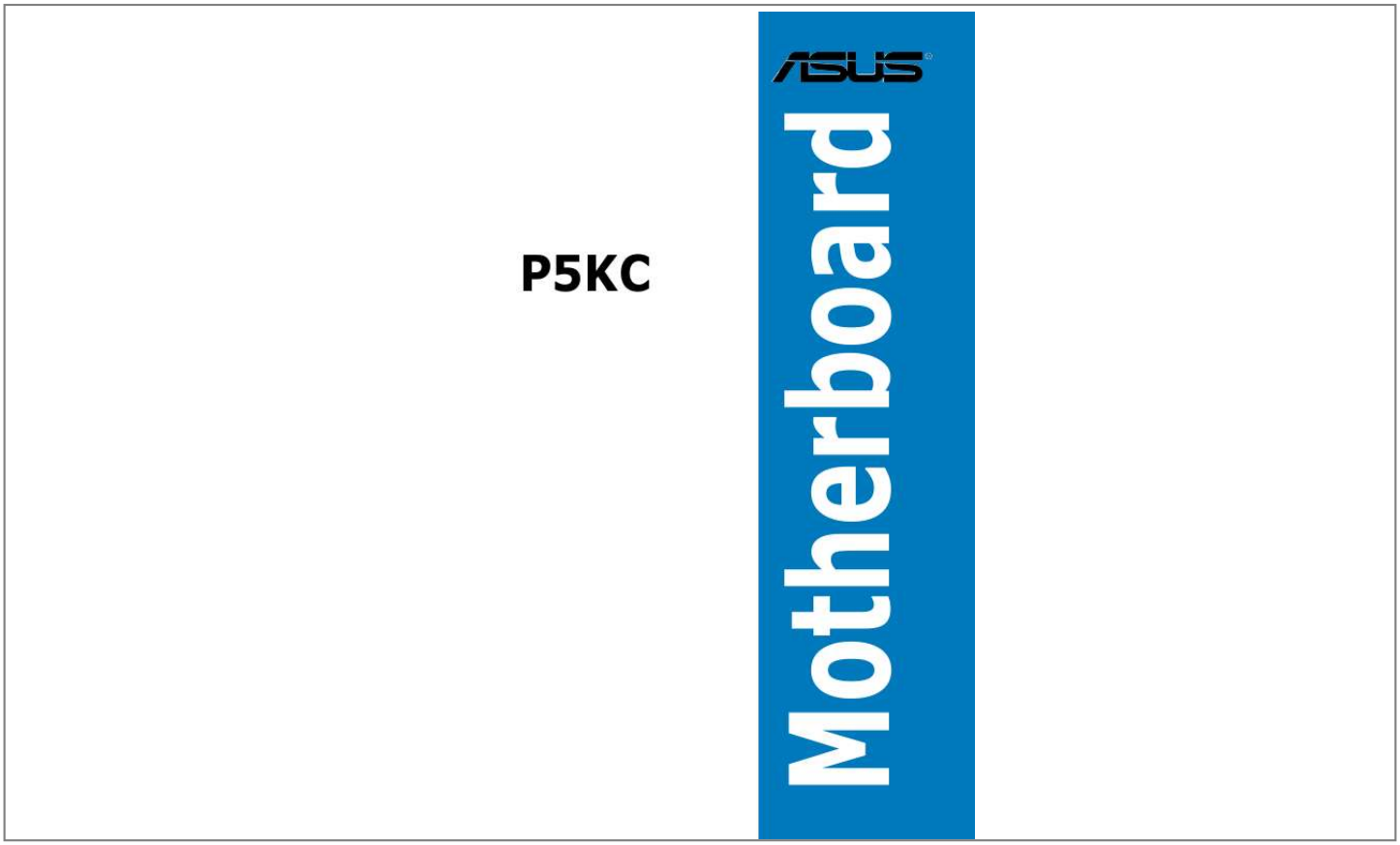

Manual abstract:

@@@@SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT. Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe. ii Contents Notices .....

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.....A-3 ® vi Notices Federal Communications Commission Statement This device complies with Part guide contains the information you need when installing and configuring the motherboard. How this guide is organized This guide contains the following parts: · This chapter describes the features of the motherboard and the new technology it supports. Chapter 2: Hardware information 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. Chapter 3: Powering up This chapter describes the power up sequence and ways of shutting down the system. Chapter 4: BIOS setup This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided. Chapter 5: Software support This chapter describes the contents of the support CD that comes with the motherboard package.
Appendix: CPU features The Appendix describes the CPU features and technologies that the motherboard supports. Chapter 1: Product introduction · · · · · Where to find more information Refer to the following sources for additional information and for product and software updates. 1. The ASUS website provides updated information on ASUS hardware and software products. Refer to the Arts 8-channel audio ports (continued on the next page) ASUS Stylish features ASUS Exclusive Overclocking features Rear panel connectors xii P5KC specifications summary Internal connectors 3 x USB connectors support six additional USB ports 1 x Floppy disk drive connector 1 x IDE connector 5 x Serial ATA connectors 1 x CPU / 2 x Chassis / 1 x Power fan connectors 1 x IEEE1394a connector 1 x COM connector 1 x S/PDIF Out header Chassis intrusion connector Front panel audio connector CD audio in connector 24-pin ATX power connector 4-pin ATX 12 V power connector System panel connector (Q-Connector) 8 Mb Flash ROM, AMI BIOS, PnP, DMI 2.
0, WfM2.0, SM BIOS 2.3, ACPI 2.0a, ASUS EZ Flash 2, ASUS CrashFree BIOS 3 WfM 2.0, DMI 2.0, WOL by PME, WOR by PME, PXE UltraDMA 133/100/66 cable FDD cable SATA cables SATA power cable I/O Shield User's manual 3 in 1 Q-connector Drivers ASUS PC Probe II ASUS Update ASUS AI Suite Anti-virus software (OEM version) ATX form factor: 12 in x 9.6 in (30.5 cm x 24.5 cm) BIOS features Manageability Accessories Support CD contents Form factor *Specifications are subject to change without notice. xiii xiv This chapter describes the motherboard features and the new technologies it supports.

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.... 1-2 1 ASUS P5KC 1.

1 Welcome! Thank you for buying an ASUS® P5KC motherboard! 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 ASUS P5KC Serial ATA power and signal cables for 4 devices 1 x Ultra DMA 133/100/66 cable 1 x Floppy disk drive cable I/O shield 1 x ASUS Q-Connector Kit (USB, 1394, system panel; Retail version only) ASUS motherboard support CD; ASUS Superb Software Library CD User guide Check your motherboard package for the following items. Motherboard Cables Accessories Application CD Documentation If any of the above items is damaged or missing, contact your retailer. ASUS P5KC 1-1 1.3 1.3.1 Special features Product highlights Green ASUS This motherboard and its packaging comply with the European Union's Restriction on the use of Hazardous Substances (RoHS). This is in line with the ASUS vision of creating environment-friendly and recyclable products/packaging to safeguard consumers' health while minimizing the impact on the environment. Intel® CoreTM2 Duo/ Intel® CoreTM2 Extreme CPU support This motherboard supports the latest Intel® CoreTM2 processor in the LGA775 package.

With the new Intel® CoreTM microarchitecture technology and 1333/1066/800 MHz FSB, the Intel® CoreTM2 is one of the most powerful and energy efficient CPUs in the world. Supports This motherboard supports the latest Intel® Quad-core processors in the LGA775 package and Intel®'s next-generation 45nm multi-core processors. It is excellent for multi-tasking, multi-media and enthusiastic gamers with 1333/1066/800 MHz FSB. Intel® Quad-core processor is one of the most powerful CPU in the world. See page 2-7 for details. Intel® Quad-core Processor Ready Intel P35 Chipset The Intel® P35 Express Chipset is the latest chipset designed to support the next generation 45nm CPU and dual-channel DDR2 800/677 MHz or DDR3 1066/800 MHz memory architecture. It also supports 1333/1066/800 FSB (Front Side Bus), PCI Express x16 graphics and multi-core CPUs. DDR2 memory support The motherboard supports DDR2 memory that features data transfer rates of 1066/800/667 MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, eliminating bottlenecks with peak bandwidths of up to 17.05 GB/s.

Furthermore, this motherboard does not restrict the memory size across two channels. Users may install different memory size DIMMs into the two channels and enjoy dual-channel and single-channel functions at the same time. This new feature optimizes the use of available memory size. See page 2-14 for details. 1-2 Chapter 1: Product Introduction DDR3 memory support The motherboard supports DDR3 memory that features data transfer rates of 1333/1066/800 MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications.

The dual-channel DDR3 architecture doubles the bandwidth of your system memory to boost system performance. Furthermore, this motherboard does not restrict the memory size across two channels. Users may install different memory size DIMMs into the two channels and enjoy dual-channel and single-channel functions at the same time. This new feature optimizes the use of available memory size. See page 2-14 for details.

Serial ATA 3.0 Gb/s technology and SATA-On-The-Go This motherboard supports the next-generation hard drives based on the Serial ATA (SATA) 3Gb/s storage specification, delivering enhanced scalability and doubling the bus bandwidth for high-speed data retrieval and saves. The external SATA port located at the back I/O provides smart setup and hot-plug functions. Easily backup photos, videos and other entertainment contents to external devices. See page 2-28, 2-32, and 2-33 for details. IEEE 1394a support The IEEE 1394a interface provides high speed digital interface for audio/video appliances such as digital television, digital video camcorders, storage peripherals & other PC portable devices. See page 2-27 and 2-35 for details. S/PDIF digital sound ready This motherboard provides convenient connectivity to external home theater audio systems via coaxial and optical S/PDIF-out (SONY-PHILIPS Digital Interface) jacks.It allows to transfer digital audio without converting to analog format and keeps the best signal quality. See pages 2-27, 2-29, and 2-34 for details.

High Definition Audio Enjoy high-end sound quality on your PC! The onboard 8-channel HD audio (High Definition Audio, previously codenamed Azalia) CODEC enables high-quality 192KHz/24-bit audio output, jack-sensing feature, retasking functions and multistreaming technology that simultaneously sends different audio streams to different destinations. You can now talk to your partners on the headphone while playing multi-channel network games. See page 2-27 and 2-28 for details. ASUS P5KC 1-3 1.3.2 ASUS AI Lifestyle features ASUS Quiet Thermal Solution ASUS Quiet Thermal solution makes system more stable and enhances the overclocking capability. AI Gear2 AI Gear2 allows you to choose profiles to adjust the CPU frequency and Vcore voltage to minimize system noise and power consumption. You can change the mode in real-time in the operating system to max power saving mode and save up to 50% power when using word processing applications. See page 5-23 for details. AI Nap With AI Nap, the system can continue running at minimum power and noise when you are temporarily away.

To wake the system and return to the OS environment, simply click the mouse or press a key. See page 5-24 for details. Fanless Design - Heat-pipe The Heat Pipe design effectively directs the heat generated by the chipsets to the heatsink near the back IO ports, where it can be carried away by existing airflow from CPU fan or bundled optional fan. The purpose of the innovative heat pipe design on this motherboard is that the groundbreaking fanless design does not have lifetime problems as a chipset fan does. The Heat Pipe design is the most reliable fanless thermal solution to date.

Fanless Design - Stack Cool 2 ASUS Stack Cool 2 is a fan-less and zero-noise cooling solution that lowers the temperature of critical heat generating components. The motherboard uses a special design on the printed circuit board (PCB) to dissipate heat these critical components generate. Q-Fan 2 ASUS Q-Fan2 technology intelligently adjusts both CPU fan and chassis fan speeds according to system loading to ensure quiet, cool and efficient operation. See page 4-28 and 5-26 for details. 1-4 Chapter 1: Product Introduction ASUS Crystal Sound This feature can enhance speech-centric applications like Skype, online game, video conference and recording.

Noise Filter This feature detects repetitive and stationary noises (non-voice signals) like computer fans, air conditioners, and other background noises then eliminates it in the incoming audio stream while recording. ASUS EZ DIY ASUS EZ DIY feature collection provides you easy ways to install computer components, update the BIOS or back up your favorite settings. ASUS Q-Connector ASUS Q-Connector allows you to easily connect or disconnect the chassis front panel cables to the motherboard. This unique module eliminates the trouble of connecting the system panel cables one at a time and avoiding wrong cable connections. See page 2-40 for details. ASUS O.C. Profile The motherboard features the ASUS O.C. Profile that allows users to conveniently store or load multiple BIOS settings.

The BIOS settings can be stored in the CMOS or a separate file, giving users freedom to share and distribute their favorite settings. See page 4-36 for details. ASUS CrashFree BIOS 3 The ASUS CrashFree BIOS 3 allows users to restore corrupted BIOS data from a USB flash disk containing the BIOS file. See page 4-8 for details. ASUS EZ Flash 2 EZ Flash 2 is a user-friendly BIOS update utility. Simply press the predefined hotkey to launch the utility and update the BIOS without entering the OS. Update your BIOS easily without preparing a bootable diskette or using an OS-based flash utility. See page 4-5 and 4-35 for details. ASUS AI Slot Detector When PCIE/PCI devices are installed, you can find out if they are installed successfully via ASUS's innovatively designed on-board LEDs when the power is on. This is an efficient way to identify the correct way to set up PCI(E) devices without entering the operating system. See page 2-25 for details. ASUS P5KC 1-5 1.3.3 ASUS Stylish features ASUS MyLogo2TM This feature allows you to convert your favorite photo into a 256-color boot logo for a more colorful and vivid image on your screen. See page 4-31 for details.
1.3.4 ASUS Intelligent Overclocking features The patented ASUS Non-delay Overclocking SystemTM (AI NOSTM) technology auto-detects the CPU loading and dynamically overclocks the CPU speed when needed. Unlike other dynamic overclocking techniques, AI NOSTM reacts much faster to satisfy your need for speed. See page 4-16 and 5-25 for details.
AI NOSTM (Non-Delay Overclocking System) AI Booster The ASUS AI Booster allows you to overclock the CPU speed in Windows environment without the hassle of booting the BIOS. See page 5-27 for details. Precision Tweaker This feature allows you to fine tune the CPU/memory voltage and gradually increase the memory Front Side Bus (FSB) and PCI Express frequency at 1MHz increment to achieve maximum system performance. See page 4-17 to 4-19 for details. C.P.R. (CPU Parameter Recall) The C.P.R.

feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and the BIOS automatically restores the CPU default setting for each parameter. See page 2-26 for details. 1-6 Chapter 1: Product Introduction This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard. Hardware information 2 Chapter summary 2 2.
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... 2-1 Motherboard overview .....

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..... 2-2 Central Processing Unit (CPU) ..

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.... 2-7 System memory .
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6 2.7 ASUS P5KC 2.1 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 grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
Hold components by the edges to avoid touching the ICs on them. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component. Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components. · · · Onboard LED The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode.
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. ® P5KC SB_PWR P5KC Onboard LED ON Standby Power OFF Powered Off ASUS P5KC 2-1 2.2 Motherboard overview Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components. 2.2.1 Placement direction When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

2.2.2 Screw holes Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis. Do not overtighten the screws! Doing so can damage the motherboard. Place this side towards the rear of the chassis ® P5KC 2-2 Chapter 2: Hardware information 2.2.3 ASUS Stack Cool 2 The motherboard comes with the ASUS Stack Cool 2 cooling solution that lowers the temperature of critical heat generating components. The motherboard uses a special design on the printed circuit board (PCB) to dissipate heat that critical components generate. ASUS P5KC 2-3 2.2.
4 Motherboard layout 24.5cm (9.6in) CPU_FAN KB_USB56 PWR_FAN ATX12V DDR2 DIMM_B1 (64 bit,240-pin module) DDR2 DIMM_A1 (64 bit,240-pin module) DDR3 DIMM_A1 (64 bit,240-pin module) USB34 F_ESATA LAN1_USB12 USB910 ® LAN DET_X16_1 P5KC PCIEX16_1 PCI1 PCI2 PCIEX16_2 PCI3 CR2032 3V Lithium Cell CMOS Power IE1394_2 COM1 USB78 USB1112 BIOS DET_PCI1 SATA_E2 Intel® ICH9 FLOPPY PANEL SATA4 SATA1 JMB363 DET_PCI2 DET_X16_2 CD SATA3 SATA 2 ALC883 VIA VT6308P DET_PCI3 PCIEX1_1 SPDIF_OUT AAFP PRI_EIDE DET_X1_1 CLRTC CHASSIS Super I/O SB_PWR CHA_FAN1 Refer to 2.7 Connectors for more information about rear panel connectors and internal connectors. 2-4 Chapter 2: Hardware information 30.
5cm (12.0in) CHA_FAN2 EATXPWR AUDIO Intel® P35 DDR2 DIMM_A2 (64 bit,240-pin module) DDR2 DIMM_B2 (64 bit,240-pin module) DDR3 DIMM_B1 (64 bit,240-pin module) SPDIF_O12 LGA775 2.

2.5 Slots 1. 2.
3. 4. Jumper 1. Layout contents DDR2 / DDR3 DIMM slots PCI slots PCI Express x1 slot PCI Express x16 slots Page 2-14 2-23 2-23 2-23 Page 2-26 Page 2-27 2-27 2-27 2-27 2-27 2-27 2-27 2-27 2-27 2-27 2-28 2-28 2-28 2-28 2-28 Clear RTC RAM (3-pin CLRTC) Rear panel connectors 1. PS/2 keyboard port (purple) 2. Coaxial S/PDIF Out port 3. IEEE 1394a port 4. LAN (RJ-45) port 5. Center/Subwoofer port (orange) 6. Rear Speaker Out port (black) 7.

Line In port (light blue) 8. Line Out port (lime) 9. 10. 11. 12. 13. 14. 15. Microphone port (pink) Side Speaker Out port (gray) USB 2.0 ports 1 and 2 External SATA port USB 2.
0 ports 3 and 4 Optical S/PDIF Out port USB 2.0 ports 5 and 6 ASUS P5KC 2-5 Internal connectors 1. Floppy disk drive connector (34-1 pin FLOPPY) 2. IDE connector (40-1 pin PRI_EIDE) 3. ICH9 Serial ATA connectors (7-pin SATA1 [red], SATA2 [red], SATA3 [black], SATA4 [black]) 4. JMicron JMB363® Serial ATA RAID connector (7-pin SATA_E2) 5. Digital audio connector (4-pin SPDIF_OUT) 6. USB connectors (10-1 pin USB78, USB910, USB1112) 7. IEEE 1394a port connector (10-1 pin IE1394_2) 8. Optical drive audio connector (4-pin CD) 9. CPU, chassis, and power fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN1, 3-pin CHA_FAN2, 3-pin PWR_FAN) 10. Serial port connector (10-1 pin COM1) 11. Chassis intrusion connector (4-1 pin CHASSIS) 12. Front panel audio connector (10-1 pin AAFP) 13. 14. ATX power connectors (24-pin EATXPWR, 4-pin EATX12V) System panel connector (20-8-pin PANEL) · · · · · System power LED (2-pin PLED) Hard disk drive activity LED (2-pin IDE_LED) System warning speaker (4-pin SPEAKER) ATX power button/soft-off button (2-pin PWR) Reset button (2-pin RESET) Page 2-30 2-31 2-32 2-33 2-34 2-34 2-35 2-35 2-36 2-36 2-37 2-37 2-38 2-39 ASUS Q-connector (system panel) 2-40 2-6 Chapter 2: Hardware information 2.3 Central Processing Unit (CPU) The motherboard comes with a surface mount LGA775 socket designed for the Intel® CoreTM2 Quad / CoreTM2 Extreme / CoreTM2 Duo / Pentium® Extreme / Pentium® D/ Pentium® 4 processors. · · Make sure that all power cables are unplugged before installing the CPU. Connect the chassis fan cable to the CHA_FAN1 connector to ensure system stability. Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent.

Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related. Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket. The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap. · · · ASUS P5KC 2-7 2.3.1 1. Installing the CPU To install a CPU: Locate the CPU socket on the motherboard. ® P5KC P5KC CPU Socket 775 Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.
2. Press the load lever with your thumb (A), then move it to the left (B) until it is released from the retention tab. A Retention tab Load lever PnP cap B This side of the socket box should face you. To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU. 3. Lift the load lever in the direction of the arrow to a 135º angle. 2-8 Chapter 2: Hardware information 4. Lift the load plate with your thumb and forefinger to a 100º angle (A), then push the PnP cap from the load plate window to remove (B). B A Load plate Alignment key 5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket then fit the socket alignment key into the CPU notch.
CPU notch Gold triangle mark The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU! 6. 7. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab. A If installing a dual-core CPU, connect the chassis fan cable to the CHA_FAN2 connector to ensure system stability. B The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel SpeedStep® Technology (EIST), and Hyper-Threading Technology. Refer to the Appendix for more information on these CPU features. ASUS P5KC 2-9 2.3.2 ® Installing the CPU heatsink and fan The Intel LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

· When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan. Your Intel® LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install. If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly. · · Make sure that you have installed the motherboard to the chassis before you install the CPU fan and heatsink assembly. To install the CPU heatsink and fan: 1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard. Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector. Motherboard hole Narrow end of the groove Fastener Make sure to orient each fastener with the narrow end of the groove pointing outward. (The photo shows the groove shaded for emphasis.) 2-10 Chapter 2: Hardware information 2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place. A A B B A B B A 3. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN. CPU_FAN CPU FAN PWM CPU FAN IN CPU FAN PWR GND ® P5KC P5KC CPU fan connector Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.
ASUS P5KC 2-11 2.3.3 Uninstalling the CPU heatsink and fan To uninstall the CPU heatsink and fan: 1. 2. Disconnect the CPU fan cable from the connector on the motherboard.
Rotate each fastener counterclockwise. 3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard. B A B A A B B A 4. Carefully remove the heatsink and fan assembly from the motherboard.

2-12 Chapter 2: Hardware information 5. Rotate each fastener clockwise to ensure correct orientation when reinstalling. Narrow end of the groove The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.) Refer to the documentation in the boxed or stand-alone CPU fan package for detailed information on CPU fan installation.

ASUS P5KC 2-13 2.4 2.4.1 System memory Overview The motherboard comes with two Double Data Rate 3 (DDR3) and four Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets. A DDR3 module has the same physical dimensions as a DDR2/DDR DIMM but is notched differently to prevent installation on a DDR2/DDR DIMM socket, while a DDR3/DDR2 module has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR3 modules are developed for better performance with less power consumption. The figure illustrates the location of the DDR3/DDR2 DIMM sockets: DDR2_A1 DDR2_A2 DDR3_A1 ® P5KC P5KC 240-pin DDR3/DDR2 DIMM sockets DDR3 module installation Channel Channel A Channel B Sockets DDR3_DIMM_A1 DDR3_DIMM_B1 DDR2 module installation Channel Channel A Channel B Sockets DIMM_A1 and DIMM_A2 DIMM_B1 and DIMM_B2 You can only install either DDR2 module(s) or DDR3 module(s) on the motherboard; otherwise, the system will not boot up. 2-14 DDR2_B1 DDR2_B2 DDR3_B1 Chapter 2: Hardware information · This chipset officially supports DDR3 1066/800. With the ASUS Super Memspeed Technology, the motherboard supports up to 1333MHz and provides more ratio setting items than the chipset officially supports. Refer to the table below for details. 1600 1333 1000 800 1333 1111 1000 833 1066 889 1333 1200 FSB DDR3 1600 · This chipset officially supports DDR2-800 MHz. With the ASUS Super Memspeed Technology, this motherboard natively supports up to DDR2-1066 MHz. See the table below. FSB 1333 1333 1333 1066 1066 1066 DDR2 1066 800 667 1066* 800 667 · *If you install a DDR2-1066 memory module whose SPD is DDR2-800, make sure that you set the DRAM Frequency item in BIOS to [DDR2-1066MHz]. See section 4.*
4.1 Jumperfree Configuration for details. 2.4.2 Memory configurations You may install 256 MB, 512 MB, 1 GB, and 2 GB unbuffered non-ECC DDR2 / DDR3 DIMMs into the DIMM sockets.
Recommended Memory Configurations (DDR2) Mode Single-Channel Dual-channel (1) Dual-channel (2) Sockets DIMM_A1 Populated Populated Populated DIMM_A2 Populated DIMM_B1 Populated Populated Populated DIMM_B2 Populated ASUS P5KC 2-15 Recommended Memory Configurations (DDR3) Mode Single-Channel Dual-channel Sockets DDR3_DIMM_A1 Populated Populated DDR3_DIMM_B1 Populated Populated · You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation. Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. This motherboard does not support memory modules made up of 128 Mb chips or double sided x16 memory modules. · · For DDR2 DIMMs: · · For DDR2 DIMMs, due to chipset resource allocation, the system may detect less than 8 GB system memory when you installed four 2 GB DDR2 memory modules. If you install four 1 GB memory modules, the system may detect less than 3 GB of total memory because of address space allocation for other critical functions. This limitation applies to Windows Vista 32-bit/Windows XP 32-bit version operating system since it does not support PAE (Physical Address Extention) mode. If you install Windows Vista 32-bit/Windows XP 32-bit version operating system, we recommend that you install less than 3GB of total memory.

· Notes on memory limitations · Due to chipset limitation, this motherboard can only support up to 8 GB on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot. 64-bit Windows XP Professional x64 Edition Windows Vista x64 Edition 2-16 Chapter 2: Hardware information For DDR3 DIMMs: · If you install two 2 GB memory modules, the system may detect less than 3 GB of total memory because of address space allocation for other critical functions. This limitation applies to Windows Vista 32-bit/Windows XP 32-bit version operating system since it does not support PAE (Physical Address Extention) mode. If you install Windows Vista 32-bit/Windows XP 32-bit version operating system, we recommend that you install less than 3GB of total memory. Some old-version DDR2-800 DIMMs may not match Intel®'s On-Die-Termination (ODT) requirement and will automatically downgrade to run at DDR2-667. If this happens, contact your memory vendor to check the ODT value. Due to chipset limitation, DDR2-800 with CL=4 will be downgraded to run at DDR2-667 by default setting. If you want to operate with lower latency, adjust the memory timing manually. · · · ASUS P5KC 2-17 P5KC Motherboard Qualified Vendors Lists (QVL) DDR3-1333 MHz capability Size 512MB 512MB 1024MB Vendor ELPIDA Qimonda Qimonda Chip No. J5308BASE-DG-E IDSH51-03A1F1C-13H IDSH51-03A1F1C-13H CL 8 9 9 Chip Brand ELPIDA QIMONDA QIMONDA SS/ DS SS SS DS Part No. EBJ51UD8BAFA-DG-E IMSH51U03A1F1C-13H IMSH1GU13A1F1C-13H DIMM support A · · · B* · · · P5KC Motherboard Qualified Vendors Lists (QVL) DDR3-1066 MHz capability Size 1024MB 512MB 512MB Vendor Qimonda NANYA SAMSUNG Chip No. IDSH51-03A1F1C-10F NT5CB64M8AN-BE K4B510846E-ZCG8 CL N/A N/A 8 Chip Brand QIMONDA NANYA SAMSUNG SS/ DS DS SS SS Part No. IMSH1GU13A1F1C-10F NT512C64B88A0NY-BF M378B6573EZ0-CG8 DIMM support A* · · · B* P5KC Motherboard Qualified Vendors Lists (QVL) DDR3-800 MHz capability Size 512MB 512MB 1024MB 512MB 1024MB 1024MB 512MB 512MB 2048MB Vendor SAMSUNG ELPIDA ELPIDA NANYA NANYA Qimonda Qimonda Qimonda Hynix Chip No. K4B510846E-ZCE7 J5308BASE-AC-E J5308BASE-AC-E NT5CB64M8AN-25D NT5CB64M8AN-25D IDSH51-03A1F1C-08E IDSH51-03A1F1C-08D IDSH51-03A1F1C-08E HY5TQ1G831ZNF-S5 CL N/A 6 6 N/A N/A N/A N/A N/A N/A Chip Brand SAMSUNG ELPIDA ELPIDA NANYA NANYA QIMONDA Qimonda Qimonda Hynix SS/ DS SS SS DS SS DS DS SS SS DS Part No. M378B6573EZ0-CE7 EBJ51UD8BAFA-8C-E EBJ11UD8BAFA-8C-E NT512C64B88A0NY-25D NT1GC64B8HA0NY-25D IMSH1GU13A1F1C-08E IMSH51U03A1F1C-08D IMSH51U03A1F1C-08E HYMT125U64ZNF8-S5 DIMM support A* · · · · · · · · · B* SS - Single-sided DS - Double-sided DIMM support: ASupports one module inserted into either slot, in Single-channel memory configuration. BSupports two modules inserted into both the orange slots as Dual-channel memory configuration.*

Visit the ASUS website for the latest DDR3-1333/1066/800 MHz QVL. 2-18 Chapter 2: Hardware information P5KC Motherboard Qualified Vendors Lists (QVL) DDR2-1066 MHz capability Size 1024MB 1024MB 1024MB 1024MB 1024MB Vendor CORSAIR CORSAIR Kingston OCZ OCZ SS/ DS DS DS SS DS DS Part No. XMS8505v1.

1 / 0616126-12 CM2X1024-8500 KHX9600D2 / 1G 9905316-069.A00LF / 2.3-2.35v OCZ2P10002GK/PC2 8000 /1G EL Dual CH/PlatinumXTC OCZ2P10002GK/PC2 8000 /1G EL Dual CH/Gold XTC DIMM support A · · · · · B* · · · · · C* · · · · · If you install a DDR2-1066 memory module whose SPD is DDR2-800, make sure that you set the DRAM Frequency item in BIOS to [DDR2-1066MHz]. See section 4.4.1 Jumperfree Configuration for details. P5KC Motherboard Qualified Vendors Lists (QVL) DDR2-800 MHz capability Size 512MB 1024MB 1024MB 1024MB 256MB 512MB 1024MB 512MB Vendor KINGSTON KINGSTON KINGSTON KINGSTON Qimonda Qimonda Qimonda SAMSUNG Chip No. K4T51083QC Heat-Sink Package Heat-Sink Package V59C1512804QBF25 HYB18T512160BF-25F HYB18T512800BF25F HYB18T512800BF25F ZCE7K4T51083QC CL 5 4-4-4-12 4-4-4-12 N/A 5-5-5 5-5-5 5-5-5 5-5-5 Chip Brand SEC N/A N/A N/A INFINEON N/A N/A SEC SS/ DS SS DS SS DS SS SS DS SS Part No. KVR800D2N5/512 KHX6400D2LL/1G KHX6400D2LLK2/1GN KVR800D2N5/1G HYS64T32000HU-25F-B HYS64T64000HU-25F-B HYS64T128020HU-25F-B M378T6553CZ3-CE7 DIMM support A* · B* · · · · · · · · C* · SS - Single-sided DS - Double-sided DIMM support: ASupports one module inserted into either slot, in Single-channel memory configuration.*

BSupports two modules inserted into either the yellow slots or the black slots as one pair of Dualchannel memory configuration. CSupports four modules inserted into both the yellow slots and the black slots as two pairs of Dualchannel memory configuration. · Visit the ASUS website for the latest DDR2-1066/800 MHz QVL. ASUS P5KC 2-19 2.4.3 Installing a DDR2/DDR3 DIMM Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components. To install a DIMM: 1. 2. 3.

2 3 DIMM notch Unlock a DIMM socket by pressing the retaining clips outward. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket. 1 1 Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated. Unlocked retaining clip · A DDR2/DDR3 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

The DDR3 DIMM sockets on this motherboard are orange-colored and do not support DDR or DDR2 DIMMs. DO NOT install DDR or DDR2 DIMMs to the DDR3 DIMM sockets. The DDR2 DIMM sockets do not support DDR or DDR3 DIMMs. Do not install DDR or DDR3 DIMMs to the DDR2 DIMM sockets. · · 2.

4.4 1. Removing a DIMM 2 DIMM notch To remove a DIMM: 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. 1 1 2. Remove the DIMM from the socket. 2-20 Chapter 2: Hardware information 2.5 Expansion slots In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components. 2.5.1 1. 2. 3. 4. 5. 6.

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. Replace the system cover. 2.5.2 1.

2. 3. 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.

Refer to the table on the next page for details. ASUS P5KC 2-21 2.5.3 IRQ 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Interrupt assignments Priority 1 2 11 12 13 14 3 4 5 6 7 8 9 10 Standard function System timer Keyboard controller Re-direct to IRQ#9 IRQ holder for PCI steering Communications port (COM1)* IRQ holder for PCI steering* Floppy disk controller System CMOS/Real Time Clock IRQ holder for PCI steering* IRQ holder for PCI steering* IRQ holder for PCI steering* PS/2 compatible mouse port* Numeric data processor Primary IDE channel Secondary IDE channel * These IRQs are usually available for PCI devices. IRQ assignments for this motherboard PCI slot 1 PCI slot 2 PCI slot 3 LAN (L1) SATA (363) PCIE x16_1 PCIE x16_2 USB controller 1 USB controller 2 USB controller 3 USB controller 4 USB controller 5 USB 2.0 controller 1 USB 2.0 controller 2 SATA controller 1 SATA controller 2 Azalia A B C D shared shared shared shared shared shared shared shared shared shared shared shared E F G H - shared shared shared shared 2-22 Chapter 2: Hardware information 2.5.4 PCI slots The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed on a PCI slot.*

2.5.5 PCI Express x1 slot This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications.

The following figure shows a network card installed on the PCI Express x1 slot. 2.
5.6 Two PCI Express x16 slots This motherboard supports two ATI CrossFireTM PCI Express x16 graphics cards that comply with the PCI Express specifications. The figure shows two graphics cards installed on the PCI Express x16 slots. ASUS P5KC 2-23 We recommend that you install a VGA card on the primary (blue) PCI Express slot, and install any other PCI Express device on the Universal PCI-E slot (black). Primary PCI Express x16 slot The primary PCI Express x16 slot supports PCI Express x16 graphics cards that comply with the PCI Express specifications.
Universal PCI-E slot (max. x4 mode) This motherboard also supports a Universal PCI-E slot with a maximum speed of 2 GB/s. The operating frequency of this slot changes, depending on the type of PCI Express card you install. Refer to the table below for details. If you install two VGA cards, we recommend that you plug the rear chassis fan cable to the motherboard connector labeled CHA_FAN1 for better thermal environment. See page 2-36 for the connector location. Options for Universal PCI Express slot Auto x4 mode [fast] x1 mode [compatible] · PCI Express operating speed Automatically optimizes performance and functionality according to devices installed. User gets the best performance but this mode disables the PCI Express x1 slot. Always runs at PCI Express x1 speed. Some PCI Express graphics cards cannot operate on x4/x1 mode.

We suggest that you install these cards on the primary PCI Express slot (blue) to increase system stability. Some PCI Express devices cannot operate on x4/x1 mode. · 2-24 Chapter 2: Hardware information 2.5.7 AI Slot Detector This motherboard comes with onboard LEDs that light up when the PCIE/PCI devices are not correctly installed. This is a reminder that you should reinstall these devices. Refer to the figure below for the location of the LEDs. ® P5KC DET_X16_1 DET_PCI1 DET_PCI2 DET_X16_2 DET_PCI3 DET_X1_1 P5KC Slot Detector When the LEDs light up, turn off the power before reinstalling the devices. The PCIEX16_1 slot (blue) is for a PCIE x16 card. The DET_X16_1 LED lights up despite correct installation when you install a x1, x4, or x8 card to this slot.
ASUS P5KC 2-25 2.6 1. Jumper 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: 1. Turn OFF the computer and unplug the power cord. 2. Remove the onboard battery. 3.
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. 4. Reinstall the battery. 5. Plug the power cord and turn ON the computer. 6. 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! Clear RTC RAM (CLRTC) ® P5KC CLRTC 12 23 Clear RTC Normal (Default) P5KC Clear RTC RAM · You do not need to clear the RTC when the system hangs due to overclocking.

For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values. Due to the chipset limitation, AC power off is required prior using C.P.R. function. You must turn off and on the power supply or unplug and plug the power cord before reboot the system.
· 2-26 Chapter 2: Hardware information 2.7 2.7.1 1 Connectors Rear panel connectors 2 3 4 56 7 8 15 14 13 12 11 10 9 2. 3.
4. 1. Coaxial S/PDIF Out port. This port connects an external audio output device via a coaxial S/PDIF cable. IEEE1394a port.
This 6-pin IEEE 1394a port provides high-speed connectivity for audio/video devices, storage peripherals, PCs, or portable devices. PS/2 keyboard port (purple). This port is for a PS/2 keyboard. LAN (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 port LED indications Activity/Link Speed LED Status Description OFF No link ORANGE Linked BLINKING Data activity Status OFF ORANGE GREEN Description 10 Mbps connection 100 Mbps connection 1 Gbps connection ACT/LINK LED SPEED LED 5. 6. 7. 8.

9. Center/Subwoofer port (orange). This port connects the center/subwoofer speakers. Rear Speaker Out port (black). This port connects the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration. Line In port (light blue). This port connects the tape, CD, DVD player, or other audio sources. LAN port 10. Side Speaker Out port (gray). This port connects the side speakers in an 8-channel audio configuration.
Microphone port (pink). This port connects a microphone. Line Out port (lime). This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
ASUS P5KC 2-27 Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration. Audio 2, 4, 6, or 8-channel configuration Port Light Blue Lime Pink Orange Black Gray Headset 2-channel Line In Line Out Mic In 4-channel Line In Front Speaker Out Mic In Rear Speaker Out 6-channel Line In Front Speaker Out Mic In Center/Subwoofer Rear Speaker Ou 8-channel Line In Front Speaker Out Mic In Center/Subwoofer Rear Speaker Out Side Speaker Out 11. USB 2.0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.
0 devices. 12. External SATA port. This port connects an external Serial ATA hard disk drive. To configure a RAID 0, RAID 1, or JBOD set, install an external Serial ATA hard disk drive and an internal Serial ATA hard disk drive connected to the onboard Serial ATA connector labeled SATA_E2. The external SATA port supports external Serial ATA 3.0 Gb/s devices. Longer cables support higher power requirements to deliver signal up to two meters away, and enables improved hotswap function. · Before creating a RAID set using Serial ATA hard disks, make sure that you have connected the Serial ATA signal cable and installed Serial ATA hard disk drives; otherwise, you cannot enter the JMicron RAID utility and SATA BIOS setup during POST. If you intend to create a RAID configuration using this connector, set the J-Micron eSATA/PATA Controller Mode item in the BIOS to [RAID].

Setting this item to [AHCI] supports Native Command Queuing (NCQ) function. See section 4.4.5 Onboard Devices Configuration for details. Refer to section 5.

4 RAID configurations for details about configuring a RAID 0, RAID 1, or JBOD. DO NOT insert a different connector to this port. DO NOT unplug the external Serial ATA box when a RAID 0 or JBOD is configured. · · · · 2-28 Chapter 2: Hardware information 14. Optical S/PDIF Out port.
This port connects an external audio output device via an optical S/PDIF cable. 15. USB 2.0 ports 5 and 6. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.
0 devices. 13. USB 2.0 ports 3 and 4. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.
0 devices. ASUS P5KC 2-29 2.7.2 1. Internal connectors This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive. Pin 5 on the connector is removed to prevent incorrect cable connection when using a FDD cable with a covered Pin 5. Floppy disk drive connector (34-1 pin FLOPPY) PIN 1 FLOPPY ® NOTE: Orient the red markings on the floppy ribbon cable to PIN 1. P5KC P5KC Floppy disk drive connector 2-30 Chapter 2: Hardware information 2. The onboard IDE connector is for the Ultra DMA 133/100/66 signal cable.

There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device. Drive jumper setting Single device Two devices Cable-Select or Master Cable-Select Master Slave · Mode of device(s) Master Slave Master Slave Cable connector Black Black Gray Black or gray IDE connector (40-1 pin PRI_EIDE) Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable. Use the 80-conductor IDE cable for Ultra DMA 133/100/66 IDE devices. · If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting. ® P5KC PRI_EIDE PIN 1 NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1. P5KC EIDE connector ASUS P5KC 2-31 3. ICH9 Serial ATA connectors (7-pin SATA1 [red], SATA2 [red], SATA3 [black], SATA4 [black]) These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives. SATA1 SATA2 RSATA_TXN2 RSATA_TXP2 GND RSATA_TXP4 GND GND RSATA_TXP4 RSATA_TXN4 GND RSATA_RXP4 RSATA_RXN4 GND ® P5KC SATA4 SATA3 GND RSATA_RXN3 RSATA_RXP3 GND GND RSATA_RXN3 RSATA_RXP3 GND RSATA_TXN3 RSATA_TXP3 GND P5KC SATA connectors P5B SATA Connectors SATA3 When using the connectors in Standard IDE mode, connect the primary (boot) hard disk drive to the SATA1/2 connector.
Refer to the table below for the recommended SATA hard disk drive connections. Serial ATA hard disk drive connection Connector SATA 1/2 SATA 3/4 Color Red Black Setting Master Slave Use Boot disk Data disk Connect the right-angle side of SATA signal cable to SATA device. Or you may connect the right-angle side of SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards. right angle side 2-32 Chapter 2: Hardware information RSATA_TXN3 GND RSATA_TXP3 GND RSATA_RXN2 RSATA_RXP2 GND RSATA_TXN2 GND RSATA_RXN4 RSATA_TXP2 RSATA_RXP4 GND GND RSATA_TXN4 GND RSATA_TXP1 RSATA_TXN1 GND RSATA_RXP1 GND RSATA_RXN2 RSATA_RXN1 RSATA_RXP2 GND GND R GND RSATA_RXN1 RSATA_RXP1 GND RSATA_TXN1 RSATA_TXP1 GND P5B SATA1 SATA4 SATA2 4. JMicron JMB363® Serial ATA RAID connector (7-pin SATA_E2) This connector is for a Serial ATA signal cable that supports a Serial ATA hard disk drive.
To configure RAID 0, RAID 1, or JBOD, install an internal Serial ATA hard disk drive to this connector and an external Serial ATA drive to the external SATA port. The JMicron controller mode item in the BIOS is set to [IDE] by default. Setting this item to [RAID] allows you to use the connectors to build a RAID set. See section 5.4.
3 JMicron® RAID Configuration for details. Setting this item to [AHCI] supports Native Command Queuing (NCQ) function. See section 4.4.5 Onboard Devices Configuration for details. ® P5KC SATA_E2 GND RSATA_RXN2 RSATA_RXP2 GND RSATA_TXN2 RSATA_TXP2 GND P5KC SATA connector Before creating a RAID set using Serial ATA hard disks, make sure that you have connected the Serial ATA signal cables and installed Serial ATA hard disk drives; otherwise, you cannot enter the JMicron® JMB363 RAID utility and SATA BIOS setup during POST. ASUS P5KC 2-33 5. This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF Out module cable to this connector, then install the module to a slot opening at the back of the system chassis. Digital audio connector (4-1 pin SPDIF_OUT) SPDIF_OUT P5KC P5KC Digital audio connector The S/PDIF module is purchased separately.

6. These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed. USB connectors (10-1 pin USB78, USB 910, USB1112) ® P5KC USB910 GND USB_P9+ USB_P9USB+5V SPDIFOUT GND NC GND USB_P10+ USB_P10USB+5V ® +5V USB+5V USB_P5USB_P5+ GND USB+5V USB_P7USB_P7+ GND USB78 USB+5V USB_P8USB_P8+ GND NC USB1112 USB+5V USB_P6USB_P6+ GND NC P5KC USB 2.0 connectors Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard! You can connect the USB cable to ASUS Q-Connector (USB, blue) first, and then install the Q-Connector (USB) to the USB connector onboard. The USB module is purchased separately.
2-34 Chapter 2: Hardware information 7. IEEE 1394a port connector (10-1 pin IE1394_2) This connector is for a IEEE 1394a port. Connect the IEEE 1394a module cable to this connector, then install the module to a slot opening at the back of the system chassis. ® P5KC GND +12V TPB1GND TPA1- IE1394_2 P5KC IEEE 1394a connector PIN 1 Never connect a USB cable to the IEEE 1394a connector. Doing so will damage the motherboard! You can connect the 1394 cable to ASUS Q-Connector (1394, red) first, and then install the Q-Connector (1394) to the 1394 connector onboard.
The IEEE 1394 module is purchased separately. +12V TPB1+ GND TPA1+ 8. These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card. Optical drive audio connector (4-pin CD [Black]) ® P5KC CD Right Audio Channel Ground Ground Left Audio Channel P5KC Internal audio connector ASUS P5KC 2-35 9. CPU, chassis, and power fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN1, 3-pin CHA_FAN2, 3-pin PWR_FAN) The fan connectors support cooling fans of 350 mA~2000 mA (24 W max.

) or a total of 1 A~7 A (84 W 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. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors! PWR_FAN CPU_FAN CHA_FAN2 ® CPU_FAN CPU FAN PWM CPU FAN IN CPU FAN PWR GND PWR_FAN Rotation +12V GND P5KC CHA_FAN1 CHA_FAN1 CHA_FAN2 GND +12V Rotation GND +12V Rotation P5KC Fan connectors Only the CPU-FAN and CHA-FAN 1-2 connectors support the ASUS Q-FAN 2 feature. 10. Serial port connector (10-1 pin COM1) This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis. ® COM1 PIN 1 P5KC P5KC COM port connector The serial port module is purchased separately.

2-36 Chapter 2: Hardware information 11. This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event. By default, the pin labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature. Chassis intrusion connector (4-1 pin CHASSIS) GND Chassis Signal +5VSB_MB ® P5KC CHASSIS P5KC Chassis intrusion connector (Default) 12. Front panel audio connector (10-1 pin AAFP) This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC 97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.
AAFP HD Audio-compliant pin definition SENSE1_RETUR PRESENCE# GND SENSE2_RETUR Legacy AC 97 audio pin definition ® NC NC AGND P5KC NC Line out_L NC Line out_R MICPWR MIC2 P5KC Analog front panel connector · · We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability. If you want to connect a high-definition front panel audio module to this connector, set the Front Panel Type item in the BIOS setup to [HD Audio]; if you want to connect an AC'97 front panel audio module to this connector, set the item to [AC'97]. By default, this connector is set to [HD Audio]. See section 4.4.
5 Onboard Devices Configuration for details. PORT2 L SENSE_SEND PORT2 R PORT1 R PORT1 L ASUS P5KC 2-37 13. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V) These connectors are for ATX 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.
ATX12V +12V DC GND +12V DC GND EATXPWR +3 Volts +12 Volts +12 Volts +5V Standby Power OK Ground +5 Volts Ground +5 Volts Ground +3 Volts +3 Volts Ground +5 Volts +5 Volts +5 Volts -5 Volts Ground Ground Ground PSON# Ground -12 Volts +3 Volts ® P5KC P5KC ATX power connectors · · · · For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 400 W. Do not forget to connect the 4-pin ATX12V power plug; otherwise, the system will not boot. 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. The ATX 12 V Specification 2.0-compliant (400W) PSU has been tested to support the motherboard power requirements with the following configuration: CPU: Intel® Pentium® Extreme 3.73GHz Memory: 512 MB DDR2 (x4) Graphics card: ASUS EAX1900XT Parallel ATA device: IDE hard disk drive Serial ATA device: SATA hard disk drive (x2) Optical drive: DVD-RW If you want to use two high-end PCI Express x16 cards, use a PSU with 500W to 600W power or above to ensure the system stability. · 2-38 Chapter 2: Hardware information 14. System panel connector (20-8 pin PANEL) This connector supports several chassis-mounted functions.

*PLED PLED+ PLED- SPEAKER +5V Ground Ground Speaker ® PANEL IDE_LED+ IDE_LEDReset Ground PWR Ground P5KC IDE_LED RESET PWRSW P5KC System panel connector * Requires an ATX power supply. · System power LED (2-pin PLED) This 2-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. Hard disk drive activity LED (2-pin IDE_LED) This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD. 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. ATX 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. 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 P5KC 2-39 Q-Connector (system panel) You can use ASUS Q-Connector to connect / disconnect chassis front panel cables by only a few steps. Directions below shows how to install ASUS Q-Connector.
Step1. Connect correct front panel to ASUS Q-Connector first. You can refer to the marking on Q-Connector itself to know the detail pin definition. Step2. Properly install the ASUS Q-Connector to the System panel connctor.
Step3. Front panel functions are enabled. 2-40 Chapter 2: Hardware information This chapter describes the power up sequence, the vocal POST messages, and ways of shutting down the system. Powering up 3 Chapter summary 3.1 3.2 Starting up for the first time .....

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.. 3-2 3 ASUS P5KC 3.1 1. 2. 3. 4. 5. Starting up for the first time After making all the connections, replace the system case cover. Connect the power cord to the power connector at the back of the system chassis.

Connect the power cord to a power outlet that is equipped with a surge protector.