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You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK P43TWINS1600. You'll find the answers to all your questions on the ASROCK P43TWINS1600 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASROCK P43TWINS1600
User guide ASROCK P43TWINS1600
Operating instructions ASROCK P43TWINS1600
Instructions for use ASROCK P43TWINS1600
Instruction manual ASROCK P43TWINS1600



P43D1600Twins-1394 /
P43D1600Twins /
P43Twins1600

User Manual

Version 1.0
Published May 2008
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Manual abstract:

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ASRock Website: <http://www.asrock.com>

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In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website <http://www.asrock.com> If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp Pack ackage 1.1 P ack age Contents

ASRock P43D1600Twins-1394 / P43D1600Twins / P43Twins1600 Motherboard (ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm) ASRock P43D1600Twins-1394 / P43D1600Twins / P43Twins1600 Quick Installation Guide ASRock P43D1600Twins-1394 / P43D1600Twins / P43Twins1600 Support CD One 80-conductor Ultra ATA 66/100/133 IDE Ribbon Cable One Ribbon Cable for a 3.5-in Floppy Drive Four Serial ATA (SATA) Data Cables (Optional) (P43D1600Twins-1394 / P43D1600Twins) Two Serial ATA (SATA) Data Cables (Optional) (P43Twins1600) One Serial ATA (SATA) HDD Power Cable (Optional) One HDMI_SPDIF Cable (Optional) One "ASRock 1394_SPDIF I/O" I/O Panel Shield (P43D1600Twins-1394) One "ASRock SPDIF I/O" I/O Panel Shield (P43D1600Twins / P43Twins1600) 5 1.
2 Specifications - ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm - All Solid Capacitor design (For P43D1600Twins-1394 / P43D1600Twins Only) - LGA 775 for Intel® Core™ 2 Extreme / Core™ 2 Quad / Core™ 2 Duo / Pentium® Dual Core / Celeron®, supporting Penryn Quad Core Yorkfield and Dual Core Wolfdale processors - Supports FSB1600/1333/1066/800 MHz; (see CAUTION 1) - Supports Hyper-Threading Technology (see CAUTION 2) - Supports Untied Overclocking Technology (see CAUTION 3) - Supports EM64T CPU - Northbridge: Intel® P43 - Southbridge: Intel® ICH10 - Dual Channel DDR3/DDR2 Memory Technology (see CAUTION 4) - 2 x DDR3 DIMM slots - Support DDR3 1333/1066 non-ECC, un-buffered memory (see CAUTION 5) - Max.

capacity of system memory: 4GB (see CAUTION 6) - 4 x DDR2 DIMM slots - Support DDR2 1066/800/667 non-ECC, un-buffered memory (see CAUTION 5)

- Max. capacity of system memory: 16GB (see CAUTION 6) - 1 x PCI Express 2.0 x16 slot (green @ x16 mode) - 3 x PCI Express x1 slots - 3 x PCI slots - 7.1 CH Windows® Vista™ Premium Level HD Audio (ALC888 Audio Codec) - PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Realtek RTL8111B/RTL8111C - Supports Wake-On-LAN P43D1600Twins-1394 ASRock 1394_SPDIF I/O - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 1 x Coaxial SPDIF Out Port - 1 x Optical SPDIF Out Port - 6 x Ready-to-Use USB 2.0 Ports - 1 x eSATAII Port - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) Platform CPU Chipset Memory Expansion Slot Audio LAN Rear Panel I/O 6 Connector BIOS Feature - 1 x IEEE 1394 Port - HD Audio Jack: Side Speaker/Rear Speaker/Central/Bass/ Line in/Front Speaker/Microphone (see CAUTION 7) P43D1600Twins / P43Twins1600 ASRock SPDIF I/O - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 1 x Coaxial SPDIF Out Port - 1 x Optical SPDIF Out Port - 6 x Ready-to-Use USB 2.0 Ports - 1 x eSATAII Port - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) (P43D1600Twins) - 1 x RJ-45 LAN Port (P43Twins1600) - HD Audio Jack: Side Speaker/Rear Speaker/Central/Bass/ Line in/Front Speaker/Microphone (see CAUTION 7) - 6 x SATAII 3.



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0Gb/s connectors, support NCQ, AHCI and "Hot Plug" functions (see CAUTION 8) - 1 x eSATAII 3.0Gb/s connector (shared with 1 SATAII port) (see CAUTION 9) - 1 x ATA133 IDE connector (supports 2 x IDE devices) - 1 x Floppy connector - 1 x DeskExpress Hot Plug Detection header - 1 x COM port header - 1 x HDMI_SPDIF header - 1 x IEEE 1394 header (P43D1600Twins-1394) - CPU/Chassis FAN connector - 24 pin ATX power connector - 8 pin 12V power connector (P43D1600Twins-1394 / P43D1600Twins) - 4 pin 12V power connector (P43Twins1600) - CD in header - Front panel audio connector - 2 x USB 2.0 headers (support 4 USB 2.0 ports) (see CAUTION 10) - 1 x WiFi/E header (see CAUTION 11) - 8Mb AMI BIOS (P43D1600Twins-1394 / P43D1600Twins) - 4Mb AMI BIOS (P43Twins1600) - AMI Legal BIOS - Supports "Plug and Play" - ACPI 1.

1 Compliance Wake Up Events - Supports jumperfree 7 Support CD Unique Feature Hardware Monitor OS Certifications - AMBIOS 2.3.1 Support - CPU, DRAM, NB, SB, VTT Voltage Multi-adjustment - Supports I. O. T. (Intelligent Overclocking Technology) - Drivers, Utilities, AntiVirus Software (Trial Version) - ASRock OC Tuner (see CAUTION 12) - Hybrid Booster: - CPU Frequency Stepless Control (see CAUTION 13) - ASRock U-COP (see CAUTION 14) - Boot Failure Guard (B.F.G.) - CPU Temperature Sensing - Chassis Temperature Sensing - CPU Fan Tachometer - Chassis Fan Tachometer - CPU Quiet Fan - Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore - Microsoft® Windows® 2000 / XP / XP 64-bit / Vista™ / Vista™ 64-bit compliant (see CAUTION 15) - FCC, CE, WHQL * For detailed product information, please visit our website: <http://www.asrock.com>

WARNING Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using the thirdparty overcl users who purchase this motherboard and plan to submit Windows® Vista™ Premium 2008 and Basic logo, please follow below table for minimum hardware requirements. CPU Memory VGA Celeron 420 1GB system memory (Premium) 512MB Single Channel (Basic) DX10 with WDDM Driver with 128bit VGA memory (Premium) with 64bit VGA memory (Basic) * After June 1, 2008, all Windows® Vista™ systems are required to meet above minimum hardware requirements in order to qualify for Windows® Vista™ Premium 2008 logo. 10 1.4 Motherboard Layout (P43D1600Twins wins-1394 P43D1600Twins) (P43D1600Twins -1394 / P43D1600Twins) 1 2 24.

4cm (9.6 in) 3 4 5 6 7 PS2 Keyboard PS2 Mouse 1 PS2_USB_PWR1 40 USB 2.0 T: USB8 B: USB9 Coaxial SPDIF Optical SPDIF ATX12V1 Top: eSATAII DDRII_B1 (64 bit, 240-pin module) DDRII_B2 (64 bit, 240-pin module) DDRII_A1 (64 bit, 240-pin module) DDRII_A2 (64 bit, 240-pin module) FSB1600 USB 2.0 Top: T: USB2 IEEE B: USB3 1394 DDR3_A1 (64 bit, 240-pin module) DDR3_B1 (64 bit, 240-pin module) eSATAII_TOP DDR2 1066 DDR3 1333 39 CPU_FAN1 USB 2.0 Top: T: USB0 RJ-45 B: USB1 IDE1 Dual Channel Quad Core CPU 38 37 36 Super I/O LAN PHY Intel P43 Chipset 30.

5cm (12.0 in) ATXPWR1 Top: SIDE SPK Bottom: CTR BASS Bottom: MIC IN Center: REAR SPK Center: FRONT Top: LINE IN 8 PCIE1/DE PCIE2 PCI Express 2.0 9 CMOS Battery 1 WiFi/E 8Mb BIOS SATAII_5 (Port4) SATAII_3 (Port2) SATAII_1 (Port0) SATAII_6 (Port5) SATAII_4 (Port3) SATAII_2 (Port1) 35 34 33 32 CD1 PCIE3 1 1 FSB3 FSB2 10 11 PCIE4 1 FSB1 31 30 29 28 PCII RoHS Intel ICH10 12 13 14 15 16 PLED PWRBTN AUDIO CODEC 1 HDMI_SPDIF1 PCI2 PCI3 VIA VT6308S 1 HD_AUDIO1 COM1 IR1 1 FLOPPY1 FRONT_1394 CHA_FAN1 CLRCMOS1 1 1 1 SPEAKER1 1 1 USB6_7 1 USB4_5 1 HDLED PANEL1 RESET 27 26 25 24 23 22 2120 19 18 17 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 PS2_USB_PWR1 Jumper CPU Fan Connector (CPU_FAN1) 775-Pin CPU Socket North Bridge Controller 2 x 240-pin DDR2 DIMM Slots (Dual Channel A: DDRII_A1, DDRII_B1; Yellow) 2 x 240-pin DDR2 DIMM Slots (Dual Channel B: DDRII_A2, DDRII_B2; Orange) 2 x 240-pin DDR3 DIMM Slots (Dual Channel C: DDR3_A1, DDR3_B1; Green) IDE1 Connector (IDE1, Blue) FSB2 / FSB3 Jumpers South Bridge Controller SATAII Connector (SATAII_1 (Port0), Red) SATAII Connector (SATAII_2 (Port1), Red) SATAII Connector (SATAII_4 (Port3), Red) SATAII Connector (SATAII_3 (Port2), Red) SATAII Connector (SATAII_6 (Port5), Orange) SATAII Connector (SATAII_5 (Port4), Red) System Panel Header (PANEL1) USB 2.0 Header (USB4_5, Blue) USB 2.0 Header (USB6_7, Blue) Chassis Speaker Header (SPEAKER 1) 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 SPI BIOS Chip Chassis Fan Connector (CHA_FAN1) Front Panel IEEE 1394 Header (FRONT_1394) Clear CMOS Jumper (CLRCMOS1) Floppy Connector (FLOPPY1) DeskExpress Hot Plug Detection Header (IR1) COM Port Header (COM1) PCI Slots (PCII - 3) Front Panel Audio Header (HD_AUDIO1) HDMI_SPDIF Header (HDMI_SPDIF1) Internal Audio Connector: CD1 (Black) WiFi/E Header (WiFi/E) PCI Express x1 Slot (PCIE4) FSB1 Jumper PCI Express x1 Slot (PCIE3) PCI Express 2.0 x16 Slot (PCIE2, Green) PCI Express x1 Slot (PCIE1/DE) ATX Power Connector (ATXPWR1) eSATAII Connector (eSATAII_TOP) ATX 12V Connector (ATX12V1) 11 Layout (P43Twins1600) 1.5 Motherboard L ayout (P43Twins1600) 1 2 24.4cm (9.6 in) 3 4 5 6 7 PS2 Keyboard PS2 Mouse 1 PS2_USB_PWR1 39 USB 2.0 T: USB8 B: USB9 Coaxial SPDIF Optical SPDIF ATX12V1 Top: eSATAII DDRII_B1 (64 bit, 240-pin module) DDRII_B2 (64 bit, 240-pin module) DDRII_A1 (64 bit, 240-pin module) DDRII_A2 (64 bit, 240-pin module) FSB1600 USB 2.

0 T: USB2 B: USB3 DDR3_A1 (64 bit, 240-pin module) DDR3_B1 (64 bit, 240-pin module) eSATAII_TOP DDR2 1066 DDR3 1333 38 CPU_FAN1 USB 2.0 Top: T: USB0 RJ-45 B: USB1 IDE1 P43Twins1600 Dual Channel Quad Core CPU 37 36 35 Super I/O LAN PHY Intel P43 Chipset 30.5cm (12.0 in) ATXPWR1 Top: SIDE SPK Bottom: CTR BASS Bottom: MIC IN Center: REAR SPK Center: FRONT Top: LINE IN 8 PCIE1/DE PCIE2 PCI Express 2.0 9 CMOS Battery 1 WiFi/E 4Mb BIOS SATAII_5 (Port4) SATAII_3 (Port2) SATAII_1 (Port0) SATAII_6 (Port5) SATAII_4 (Port3) SATAII_2 (Port1) 34 33 32 31 30 29 28 27 CD1 PCIE3 1 1 FSB3 FSB2 10 11 PCIE4 1 FSB1 PCII RoHS Intel ICH10 12 13 14 15 16 PLED PWRBTN AUDIO CODEC 1 HDMI_SPDIF1 PCI2 PCI3 VIA VT6308S 1 HD_AUDIO1 COM1 IR1 1 FLOPPY1 CHA_FAN1 CLRCMOS1 SPEAKER1 1 1 USB6_7 1 USB4_5 1 1 1 HDLED PANEL1 RESET 26 25 24 23 22 2120 19 18 17 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 PS2_USB_PWR1 Jumper CPU Fan Connector (CPU_FAN1) 775-Pin CPU Socket North Bridge Controller 2 x 240-pin DDR2 DIMM Slots (Dual Channel A: DDRII_A1, DDRII_B1; Yellow) 2 x 240-pin DDR2 DIMM Slots (Dual Channel B: DDRII_A2, DDRII_B2; Orange) 2 x 240-pin DDR3 DIMM Slots (Dual Channel C: DDR3_A1, DDR3_B1; Green) IDE1 Connector (IDE1, Blue) FSB2 / FSB3 Jumpers South Bridge Controller SATAII Connector (SATAII_1 (Port0), Red) SATAII Connector (SATAII_2 (Port1), Red) SATAII Connector (SATAII_4 (Port3), Red) SATAII Connector (SATAII_3 (Port2), Red) SATAII Connector (SATAII_6 (Port5), Orange) SATAII Connector (SATAII_5 (Port4), Red) System Panel Header (PANEL1) USB 2.



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0 Header (USB4_5, Blue) USB 2.0 Header (USB6_7, Blue) 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 Chassis Speaker Header (SPEAKER 1) SPI BIOS Chip Chassis Fan Connector (CHA_FAN1) Clear CMOS Jumper (CLRCMOS1) Floppy Connector (FLOPPY1) DeskExpress Hot Plug Detection Header (IR1) COM Port Header (COM1) PCI Slots (PC11 - 3) Front Panel Audio Header (HD_AUDIO1) HDMI_SPDIF Header (HDMI_SPDIF1) Internal Audio Connector: CD1 (Black) WiFi/E Header (WIFI/E) PCI Express x1 Slot (PCIE4) FSB1 Jumper PCI Express x1 Slot (PCIE3) PCI Express 2.0 x16 Slot (PCIE2, Green) PCI Express x1 Slot (PCIE1/DE) ATX Power Connector (ATXPWR1) eSATAII Connector (eSATAII_TOP) ATX 12V Connector (ATX12V1) 12 1.6 ASRock (P43D1600Twins ASR ock 1394_SPDIF I/O (P43D1600Twins -1394) 1 2 3 4 5 6 16 15 14 13 12 11 9 10 11 12 13 14 15 16 7 8 9 10

Microphone (Pink) USB 2.0 Ports (USB01) USB 2.

0 Ports (USB23) USB 2.0 Ports (USB89) eSATAII Port Optical SPDIF Out Port Coaxial SPDIF Out Port PS/2 Keyboard Port (Purple) 1 2 *3 4 5 6 7 **8 PS/2 Mouse Port (Green) IEEE 1394 Port LAN RJ-45 Port Side Speaker (Gray) Rear Speaker (Black) Central / Bass (Orange) Line In (Light Blue) Front Speaker (Lime) * There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications. LAN Port LED Indications Status SPEED LED Description Activity/Link LED Status Description SPEED LED ACT/LINK LED Off Orange Green 10Mbps connection 100Mbps connection 1Gbps connection Off No link Orange Linked Blinking Data Activity LAN Port ** If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

TABLE for Audio Output Connection Audio Output Channels Front Speaker Rear Speaker (No. 8) (No. 5) 2 4 6 8 V V V V -V V V Central / Bass (No. 6) --V V Side Speaker (No. 4) ---V To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header.

After restarting your computer, you will find "Mixer" tool on your system. Please select "Mixer ToolBox", click "Enable playback multi-streaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker, Central/Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. 13 1.7 ASRock (P43D1600Twins) ASR ock SPDIF I/O (P43D1600Twins) 1 2 3 4 5 15 14 13 12 11 10 9 10 11 12 13 14 15 6 7 8 9 USB 2.0 Ports (USB01) USB 2.0 Ports (USB23) USB 2.0 Ports (USB89) eSATAII Port Optical SPDIF Out Port Coaxial SPDIF Out Port PS/2 Keyboard Port (Purple) 1 *2 3 4 5 6 **7 8 PS/2 Mouse Port (Green) LAN RJ-45 Port Side Speaker (Gray) Rear Speaker (Black) Central / Bass (Orange) Line In (Light Blue) Front Speaker (Lime) Microphone (Pink) * There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications. LAN Port LED Indications Status SPEED LED Description Activity/Link LED Status Description SPEED LED ACT/LINK LED Off Orange Green 10Mbps connection 100Mbps connection 1Gbps connection Off No link Orange Linked Blinking Data Activity LAN Port ** If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack".

See the table below for connection details in accordance with the type of speaker you use. TABLE for Audio Output Connection Audio Output Channels Front Speaker Rear Speaker (No. 7) (No. 4) 2 4 6 8 V V V V -V V V Central / Bass (No. 5) --V V Side Speaker (No. 3) ---V To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find "Mixer" tool on your system. Please select "Mixer ToolBox", click "Enable playback multi-streaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker, Central/Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. 14 1.

8 ASRock (P43Twins1600) ASR ock SPDIF I/O (P43Twins1600) 1 2 3 4 5 15 14 13 12 11 10 9 10 11 12 13 14 15 6 7 8 9 USB 2.0 Ports (USB01) USB 2.0 Ports (USB23) USB 2.0 Ports (USB89) eSATAII Port Optical SPDIF Out Port Coaxial SPDIF Out Port PS/2 Keyboard Port (Purple) 1 2 3 4 5 6 *7 8 PS/2 Mouse Port (Green) LAN RJ-45 Port Side Speaker (Gray) Rear Speaker (Black) Central / Bass (Orange) Line In (Light Blue) Front Speaker (Lime) Microphone (Pink) * If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

TABLE for Audio Output Connection Audio Output Channels Front Speaker Rear Speaker (No. 7) (No. 4) 2 4 6 8 V V V V -V V V Central / Bass (No. 5) --V V Side Speaker (No. 3) ---V To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header.

After restarting your computer, you will find "Mixer" tool on your system. Please select "Mixer ToolBox", click "Enable playback multi-streaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker, Central/Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. 15 Chapter 2: Installation This is an ATX form factor (12.0" x 9.6", 30.5 x 24.4 cm) motherboard. 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 may cause physical injuries to you and damages to motherboard components. 2.1 Screw Holes Place screws into the holes indicated by circles to secure the motherboard to the chassis. Do not over-tighten the screws! Doing so may damage the motherboard. 2.2 Pre-installation Precautions Take note of the following precautions before you install motherboard components or change any motherboard settings. 1. Unplug the power cord from the wall socket before touching any component. 2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like.

Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components. 3. Hold components by the edges and do not touch the ICs. 4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.



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Before you install or remove any component, ensure that the power 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. 16 2.3 CPU Installation For the installation of Intel 775-LAND CPU, please follow the steps below. 775-Pin Socket Overview Before you insert the 775-LAND CPU into the socket, please check if the CPU surface is unclean or if there is any bent pin on the socket.

Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged. Step 1. Open the socket: Step 1-1. Disengaging the lever by depressing down and out on the hook to clear retention tab. Step 1-2. Rotate the load lever to fully open position at approximately 135 degrees. Step 1-3. Rotate the load plate to fully open position at approximately 100 degrees. Step 2.

Insert the 775-LAND CPU: Step 2-1. Hold the CPU by the edges where are marked with black lines. black line black line Step 2-2. Orient the CPU with IHS (Integrated Heat Sink) up. Locate Pin1 and the two orientation key notches. Pin1 orientation key notch orientation key notch Pin1 alignment key alignment key 775-Pin Socket 775-LAND CPU 17 For proper inserting, please ensure to match the two orientation key notches of the CPU with the two alignment keys of the socket. Step 2-3. Carefully place the CPU into the socket by using a purely vertical motion. Step 2-4. Verify that the CPU is within the socket and properly mated to the orient keys.

Step 3. Remove PnP Cap (Pick and Place Cap): Use your left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from the socket while pressing on center of PnP cap to assist in removal. 1. It is recommended to use the cap tab to handle and avoid kicking off the PnP cap. 2.

This cap must be placed if returning the motherboard for after service. Step 4. Close the socket: Step 4-1. Rotate the load plate onto the IHS. Step 4-2. While pressing down lightly on load plate, engage the load lever. Step 4-3. Secure load lever with load plate tab under retention tab of load lever. 18 2.4 Installation of CPU Fan and Heatsink This motherboard is equipped with 775-Pin socket that supports Intel 775-LAND CPU to dissipate heat. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation. Ensure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU_FAN connector (CPU_FAN1, see page 11/12, No. 2).

For proper installation, please kindly refer to the instruction manuals of your CPU fan and heatsink. Below is an example to illustrate the installation of the heatsink for 775-LAND CPU. Step 1. Apply thermal interface material onto center of IHS on the socket surface. Step 2. Step 3. Step 4. Place the heatsink onto the socket. Ensure fan cables are oriented on side closest to the CPU fan connector on the motherboard (CPU_FAN1, see page 11/12, No. 2).

Align fasteners with the motherboard throughholes. Rotate the fastener clockwise, then press down on fastener caps with thumb to install and lock. Repeat with remaining fasteners. If you press down the fasteners without rotating them clockwise, the heatsink cannot be secured on the motherboard. Step 5.

Step 6. Connect fan header with the CPU fan connector on the motherboard. Secure excess cable with tie-wrap to ensure cable does not interfere with fan operation or contact other components. 19 Memory 2.5 Installation of Memory Modules (DIMM) This motherboard provides four 240-pin DDR2 (Double Data Rate 2) DIMM slots and two 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology.

For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR2/DDR3 DIMM pair in the slots of the same color. In other words, you have to install identical DDR2 DIMM pair in Dual Channel A (DDR2_A1 and DDR2_B1; Yellow slots; see p.11/12 No.5), identical DDR2 DIMM pair in Dual Channel B (DDR2_A2 and DDR2_B2; Orange slots; see p.11/12 No.6), or identical DDR3 DIMM pair in Dual Channel C (DDR3_A1 and DDR3_B1; Green slots; see p.11/12 No.7), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR2 DIMMs for dual channel configuration, and please install identical DDR2 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below.

Dual Channel DDR2 Memory Configurations (DS: Double Side, SS: Single Side) DDR2_A1 (Yellow Slot) SS DS X X SS DS DDR2_A2 (Orange Slot) X X SS DS SS DS DDR2_B1 (Yellow Slot) SS DS X X SS DS DDR2_B2 (Orange Slot) X X SS DS SS DS 2 memory modules 2 memory modules 2 memory modules 2 memory modules 4 memory modules 4 memory modules Dual Channel DDR3 Memory Configurations (DS: Double Side, SS: Single Side) DDR3_A1 (Green Slot) 2 memory modules SS 2 memory modules DS 1. DDR3_B1 (Green Slot) SS DS If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots of the same color. In other words, install them in the set of green slots (DDR3_A1 and DDR3_B1), in the set of yellow slots (DDR2_A1 and DDR2_B1), or in the set of orange slots (DDR2_A2 and DDR2_B2). 20 2. If only one memory module or three memory modules are installed in the DDR2 DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology. If only one memory module is installed in the DDR3 DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology. If a pair of memory modules is NOT installed in the same Dual Channel, for example, installing a pair of memory modules in DDR2_A1 and DDR2_B2, it is unable to activate the Dual Channel 4. Memory Technology . It is not allowed to install a DDR3 memory module into DDR2 slot or install a DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged.

5. DDR2 and DDR3 memory modules cannot be installed on this motherboard at the same time. Installing a DIMM Please make sure to disconnect power supply before adding or removing DIMMs or the system components. Step 1. Step 2.

Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot. notch break notch break The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. Step 3.

Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated. 21 2.



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6 Expansion Slots (PCI and PCI Express Slots) There are 3 PCI slots and 4 PCI Express slots on this motherboard. PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface. PCIE slots: PCIE1/DE (PCIE x1 slot; White) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card and ASRock PCIE_DE card. PCIE2 (PCIE x16 slot; Green) is used for PCI Express cards with x16 lane width graphics cards. PCIE3 / PCIE4 (PCIE x1 slot; White) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card, etc. If you want to use ASRock DeskExpress function on this motherboard, please install ASRock PCIE_DE card on PCIE1/DE slot. Installing an expansion card Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged.

Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation. Remove the bracket facing the slot that you intend to use. Keep the screws for later use. Align the card connector with the slot and press firmly until the card is completely seated on the slot. Fasten the card to the chassis with screws. Step 2. Step 3. Step 4. 22 2.7 Jumpers Setup The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins. Jumper Setting PS2_USB_PWR1 2_3 1_2 Description Short pin2, pin3 to enable (see p.11/12 No.

1) +5VSB (standby) for PS/2 +5V +5VSB or USB wake up events. Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply. Clear CMOS Jumper (CLRCMOS1) (see p.11, No. 24 or p.

12, No. 23) 1_2 2_3 Default Clear CMOS Note: CLRCMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clearCMOS action. FSB1 Jumper (FSB1, 3-pin jumper, see p.11 No. 34 or p.

12, No. 33) 1_2 FSB2 Jumper (FSB2, 5-pin jumper, see p.11/12 No. 9) FSB3 FSB2 1_2 FSB1 Default 1_2 FSB3 Jumper (FSB3, 5-pin jumper, see p.11/12 No. 9) When you mount a FSB800 or FSB1066 CPU, and try to overclock to FSB1333 or FSB1600 (by BIOS setting) you may face the problem, that DRAM frequency will beoverclocked very high. Please use jumper to force NB to be strapped at higherfrequency, so the DRAM can work at lower frequency. 23 If you want to overclock the CPU you adopt to FSB1066 on this motherboard, you need to adjust the jumpers. Please short pin4, pin5 for FSB2 jumper and pin4, pin5 for FSB3 jumper. Otherwise, the CPU may not work properly on this motherboard.

Please refer to 4_5 below jumper settings. FSB3 FSB2 4_5 FSB1 1_2 If you want to overclock the CPU you adopt to FSB1333 on this motherboard, you need to adjust the jumpers. Please short pin3, pin4 for FSB2 jumper and pin4, pin5 for FSB3 jumper. Otherwise, the CPU may not work properly on this motherboard. Please refer to below jumper settings.

4_5 FSB3 FSB2 3_4 FSB1 1_2 If you want to overclock the CPU you adopt to FSB1600 on this motherboard, you need to adjust the jumpers. Please short pin3, pin4 for FSB2 jumper and pin3, pin4 for FSB3 jumper. Otherwise, the CPU may not work properly on this motherboard. Please refer to below jumper settings. 3_4 FSB3 FSB2 3_4 FSB1 1_2 2.

8 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard! FDD connector (33-pin FLOPPY1) (see p.11 No. 25 or p.12 No. 24) Pin1 FLOPPY1 the red-striped side to Pin1 Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector. 24 Primary IDE connector (Blue) (39-pin IDE1, see p.11/12 No. 8) PIN1 IDE1 connect the blue end to the motherboard connect the black end to the IDE devices 80-conductor ATA 66/100/133 cable Note: Please refer to the instruction of your IDE device vendor for the details.

Serial ATAII Connectors see p.11/12, No. 11) (SATAII_2 (Port1): see p.11/12, No. 12) (SATAII_3 (Port2): see p.11/12, No. 13) (SATAII_4 (Port3): see p.11/12, No. 14) (SATAII_5 (Port4): see p.11/12, No.

16) (SATAII_6 (Port5): see p.11/12, No. 15) SATAII_1 (Port0) SATAII_2 (Port1) (SATAII_1 (Port0): SATAII_3 (Port2) SATAII_6 (Port5) connector can be used for internal storage device or be connected to eSATAII connector to support eSATAII device. Please read "eSATAII Interface Introduction" on page 31 for details about eSATAII and eSATAII installation procedures. eSATAII Connector (eSATAII_TOP: see p.

11, No. 39 or p.12 No. 38) eSATAII_TOP SATAII_5 (Port4) SATAII_6 (Port5) SATAII_4 (Port3) These six Serial ATAII (SATAII) connectors support SATA data cables for internal storage devices. The current SATAII interface allows up to 3.

0 Gb/s data transfer rate. This eSATAII connector supports SATA data cable for external SATAII function. The current eSATAII interface allows up to 3.0 Gb/s data transfer rate. Either end of the SATA data cable can be connected to the SATA / SATAII hard disk or the SATAII connector on this motherboard. You can also use the SATA data cable to connect SATAII_6 (Port5) connector and eSATAII connector. Serial ATA (SATA) Data Cable (Optional) 25 Serial ATA (SATA) Power Cable (Optional) connect to the SATA HDD power connector connect to the power supply Please connect the black end of SATA power cable to the power connector on each drive. Then connect the white end of SATA power cable to the power connector of the power supply. Besides six default USB 2.0 ports on the I/O panel, there are two USB 2.

0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports. USB 2.0 Headers (9-pin USB6_7) (see p.11/12 No. 19) 1 USB_PWR P-7 P+7 GND DUMMY GND P+6 P-6 USB_PWR (9-pin USB4_5) (see p.11/12 No. 18) USB_PWR P-5 P+5 GND DUMMY 1 GND P+4 P-4 USB_PWR WiFi/E Header (15-pin WIFI/E) (see p.

11 No. 32 or p.12, No. 31) 1 PexCLK GND1 PexCLK# D0- D0+ PME# USB+5V_1 USB+5V_2 TXN TXP GND2 PCIE_RST# +3SVB RXN RXP This header supports WiFi+AP function with ASRock WiFi-802.11g or WiFi-802.

11n module, an easy-to-use wireless local area network (WLAN) adapter. It allows you to create a wireless environment and enjoy the convenience of wireless network connectivity.



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If you don't plan to use WiFi+AP function on this motherboard, this header can be used as a 4-Pin USB 2.0 header to support one USB 2.0 port. To connect the 4-Pin USB device cable to this header, please refer to this picture for proper installation. DeskExpress Hot Plug Detection Header (5-pin IR1) (see p.11 No. 26 or p.12, No. 25) 1 IRTX +5VSB Hotplug# This header supports the Hot Plug detection function for ASRock DeskExpress. GND IRRX 26 Internal Audio Connectors (4-pin CD1) (CD1: see p.11 No. 31 or p.12, No.

30) CD-L GND GND CD-R CD1 This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card. This is an interface for front panel audio cable that allows convenient connection and control of audio devices. Front Panel Audio Header (9-pin HD_AUDIO1) (see p.11 No. 29 or p.12, No. 28) 1 GND PRESENCE# MIC_RET OUT_RET OUT2_L J_SENSE OUT2_R MIC2_R MIC2_L 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system. 2.

If you use AC'97 audio panel, please install it to the front panel audio header as below: A. Connect Mic_IN (MIC) to MIC2_L. B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L. C.

Connect Ground (GND) to Ground (GND). D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel. E.

Enter BIOS Setup Utility. Enter Advanced Settings, and then select Chipset Configuration. Set the Front Panel Control option from [Auto] to [Enabled]. F. Enter Windows system. Click the icon on the lower right hand taskbar to enter Realtek HD Audio Manager. For Windows® 2000 / XP / XP 64-bit OS: Click "Audio I/O", select "Connector Settings", choose "Disable front panel jack detection", and save the change by clicking "OK". For Windows® Vista™ / Vista™ 64-bit OS: Click the right-top "Folder" icon, choose "Disable front panel jack detection", and save the change by clicking "OK". G. To activate the front mic.

For Windows® 2000 / XP / XP 64-bit OS: Please select "Front Mic" as default record device. If you want to hear your voice through front mic, please deselect "Mute" icon in "Front Mic" of "Playback" portion. For Windows® Vista™ / Vista™ 64-bit OS: Go to the "Front Mic" Tab in the Realtek Control panel. Click "Set Default Device" to make the Front Mic as the default record device. 27 System Panel Header (9-pin PANEL1) (see p.11/12 No. 17) 1 PLED+ PLEDPWRBTN# GND This header accommodates several system front panel functions. DUMMY RESET# GND HDLEDHDLED+ Chassis Speaker Header (4-pin SPEAKER 1) (see p.11/12 No. 20) 1 SPEAKER DUMMY DUMMY +5V Please connect the chassis speaker to this header.

Chassis Fan Connector (3-pin CHA_FAN1) (see p.11/12 No. 22) GND +12V CHA_FAN_SPEED Please connect a chassis fan cable to this connector and match the black wire to the ground pin. Please connect a CPU fan cable to this connector and match the black wire to the ground pin. CPU Fan Connector (4-pin CPU_FAN1) (see p.

11/12 No. 2) FAN_SPEED_CONTROL CPU_FAN_SPEED +12V GND 4 3 2 1 Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3. Pin 1-3 Connected 3-Pin Fan Installation ATX Power Connector (24-pin ATXPWR1) (see p.11, No.

38 or p.12, No. 37) 13 1 Please connect an ATX power supply to this connector. 24 12 Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13. 13 1 20-Pin ATX Power Supply Installation 24 12 ATX 12V Power Connector (8-pin ATX12V1) (see p.11 No. 40) 5 1 Please connect an ATX 12V power supply to this connector. 8 4 28 Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.

5 1 4-Pin ATX 12V Power Supply Installation 8 4 ATX 12V Power Connector (4-pin ATX12V1) (see p.12 No. 39) Please connect an ATX 12V power supply to this connector. Besides one default IEEE 1394 port on the I/O panel, there is one IEEE 1394 header (FRONT_1394) on this motherboard. This IEEE 1394 header can support one IEEE 1394 port. This COM1 header supports a serial port module. IEEE 1394 Header (9-pin FRONT_1394) (see p.11 No. 23) 1 RXPAM_0 GND RXPBM_0 +12V GND +12V RXPBP_0 GND RXPAP_0 Serial port Header (9-pin COM1) (see p.11 No.

27 or p.12 No.26) 1 RRRXD1 DDTR#1 DDSR#1 CCTS#1 RRI#1 RRTS#1 GND TTXD1 DDCD#1 HDMI_SPDIF Header (3-pin HDMI_SPDIF1) (see p.11 No. 30 or p.

12 No.29) 1 GND SPDIFOUT +5V HDMI_SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/projector/LCD devices. Please connect the HDMI_SPDIF connector of HDMI VGA card to this header. Please connect the black end (A) of HDMI_SPDIF cable to the HDMI_SPDIF header on the motherboard. Then connect the white end (B or C) of HDMI_SPDIF cable to the HDMI_SPDIF connector of HDMI VGA card.

C. white end (3-pin) SPDIFOUT GND blue black HDMI_SPDIF Cable (Optional) C B A A. black end +5V SPDIFOUT GND blue black B. white end (2-pin) SPDIFOUT GND blue black 29 2.9 HDMI_SPDIF Header Connection Guide HDMI (High-Definition Multi-media Interface) is an all-digital audio/video specification, which provides an interface between any compatible digital audio/ video source, such as a set-top box, DVD player, A/V receiver and a compatible digital audio or video monitor, such as a digital television (DTV). A complete HDMI system requires a HDMI VGA card and a HDMI ready motherboard with a HDMI_SPDIF header. This motherboard is equipped with a HDMI_SPDIF header, which provides SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/projector/LCD devices. To use HDMI function on this motherboard, please carefully follow the below steps. · Step 1. Install the HDMI VGA card to the PCI Express Graphics slot on this motherboard.

For the proper installation of HDMI VGA card, please refer to the installation guide on page 22. Connect the black end (A) of HDMI_SPDIF cable to the HDMI_SPDIF header (HDMI_SPDIF1, yellow, see page 11, No. 30 or page 12, No. 29) on the motherboard. Make sure to correctly connect the HDMI_SPDIF cable to the motherboard and the HDMI VGA card according to the same pin definition.



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For the pin definition of HDMI_SPDIF header and HDMI_SPDIF cable connectors, please refer to page 29. For the pin definition of HDMI_SPDIF connectors on HDMI VGA card, please refer to the user manual of HDMI VGA card vendor. @@(There are two white ends (2-pin and 3-pin) on HDMI_SPDIF cable. @@Otherwise, the motherboard and the VGA card may be damaged. @@@@2. @@@@3. @@@@SAMSUNG 7 8 5 6 3 4 1 2 If pin 3 and pin 4 are shorted, SATA 1.5Gb/s will be enabled. On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 3 and pin 4.

HITACHI Please use the Feature Tool, a DOS-bootable tool, for changing various ATA features. Please visit HITACHI's website for details: <http://www.hitachigst.com/hdd/support/download.htm> The above examples are just for your reference.

For different SATAII hard disk products of different vendors, the jumper pin setting methods may not be the same. Please visit the vendors' website for the updates. 34 AT (SAT AT (SAT 2 . 1 2 Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation This motherboard adopts Intel® ICH10 south bridge chipset that supports Serial ATA (SATA) / Serial ATAII (SATAII) hard disks. You may install SATA / SATAII hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATAII hard disks. STEP 1: Install the SATA / SATAII hard disks into the drive bays of your chassis. STEP 2: Connect the SATA power cable to the SATA / SATAII hard disk. STEP 3: Connect one end of the SATA data cable to the motherboard's SATAII connector. STEP 4: Connect the other end of the SATA data cable to the SATA / SATAII hard disk.

It is not recommended to switch the "Configure SATAII as" setting after OS installation. Function SAT SAT eSAT 2.13 Hot Plug Function for SATA / SATAII HDDs and eSATAII Devices This motherboard supports Hot Plug function for SATA / SATAII / eSATAII Devices in AHCI mode. Intel® ICH10 south bridge chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed thru a joint industry effort. NOTE What is Hot Plug Function? If the SATA / SATAII HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATAII HDDs while the system is still power-on and in working condition. However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA / SATAII HDD. @@For example, with eSATAII interface, you may simply plug your eSATAII devices to the eSATAII ports instead of opening your chassis to exchange your SATAII hard disk. 35 SAT SAT Feature 2.14 SATA / SATAII HDD Hot Plug Feature and Operation Guide This motherboard supports Hot Plug feature for SATA / SATAII HDD in AHCI mode. Please read below operation guide of SATA / SATAII HDD Hot Plug feature carefully.

Before you process the SATA / SATAII HDD Hot Plug, please check below cable accessories from the motherboard gift box pack. A. 7-pin SATA data cable B. SATA power cable with SATA 15-pin power connector interface A. SATA data cable (Red) B.

SATA power cable SATA 7-pin connector The SATA 15-pin power connector (Black) connect to SATA / SATAII HDD 1x4-pin conventional power connector (White) connect to power supply Caution 1. Without SATA 15-pin power connector interface, the SATA / SATAII Hot Plug cannot be processed. 2. Even some SATA / SATAII HDDs provide both SATA 15-pin power connector and IDE 1x4-pin conventional power connector interfaces, the IDE 1x4-pin conventional power connector interface is definitely not able to support Hot Plug and will cause the HDD damage and data loss. Points of attention, before you process the Hot Plug: 1.

Below operation procedure is designed only for our motherboard, which supports SATA / SATAII HDD Hot Plug. * The SATA / SATAII Hot Plug feature might not be supported by the chipset because of its limitation, the SATA / SATAII Hot Plug support information of our motherboard is indicated in the product spec on our website: www.asrock.com 2. Make sure your SATA / SATAII HDD can support Hot Plug function from your dealer or HDD user manual. The SATA / SATAII HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation. 3. Please make sure the SATA / SATAII driver is installed into system properly. The latest SATA / SATAII driver is available on our support website: www.asrock.com.

com 4. Make sure to use the SATA power cable & data cable, which are from our motherboard package. 5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss. 36 How to Hot Plug a SATA / SATAII HDD: Points of attention, before you process the Hot Plug: Please do follow below instruction sequence to process the Hot Plug, improper procedure will cause the SATA / SATAII HDD damage and data loss. Step 1 Please connect SATA power cable 1x4-pin end (White) to the power supply 1x4-pin cable. Step 2 Connect SATA data cable to the motherboard's SATAII connector. SATA power cable 1x4-pin power connector (White) Step 3 Connect SATA 15-pin power cable connector (Black) end to SATA / SATAII HDD. Step 4 Connect SATA data cable to the SATA / SATAII HDD. How to Hot Unplug a SATA / SATAII HDD: Points of attention, before you process the Hot Unplug: Please do follow below instruction sequence to process the Hot Unplug, improper procedure will cause the SATA / SATAII HDD damage and data loss.

Step 1 Unplug SATA data cable from SATA / SATAII HDD side. Step 2 Unplug SATA 15-pin power cable connector (Black) from SATA / SATAII HDD side. 37 2 . 1 5 Driver Installation Guide To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page.

Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly. 2 . 1 6 Installing Windows ® 2000 / XP / XP 64-bit / Vista TM / Vista TM 64-bit Without RAID Functions If you want to install Windows® 2000 / XP / XP 64-bit / VistaTM / VistaTM 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below procedures according to the OS you install. Since Windows® 2000 AHCI driver is not provided by the chipset vendor, AHCI function is not supported under Windows® 2000.

2.16.1 Installing Windows ® 2000 / XP / XP 64-bit Without Functions Without RAID Functions If you want to install Windows® 2000 / XP / XP 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below steps. Using SATA / SATAII HDDs and eSATAII devices with NCQ function STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen IDE Configuration. B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [AHCI].



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STEP 2: Make a SATA / SATAII driver diskette. A.

Insert the Support CD into your optical drive to boot your system. B. During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device. C. When you see the message on the screen, "Do you want to generate Serial ATA driver diskette [YN]?", press <Y>. D. Then you will see these messages, Please insert a diskette into the floppy drive. WARNING! Formatting the floppy diskette will lose ALL data in it! Start to format and copy files [YN]? Please insert a floppy diskette into the floppy drive, and press <Y>. E.

The system will start to format the floppy diskette and copy SATA / SATAII drivers into the floppy diskette. 38 STEP 3: Install Windows® XP / XP 64-bit OS on your system. (Windows® 2000 is not supported.) After making a SATA / SATAII driver diskette, you can start to install Windows® XP / XP 64-bit on your system. At the beginning of Windows® setup, press F6 to install a thirdparty AHCI driver.

When prompted, insert the SATA / SATAII driver diskette containing the Intel® AHCI driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the mode you choose and the OS you install. You may select: "Intel(R) ICH10 SATA AHCI Controller (Desktop - Windows XP)" for Windows® XP or "Intel(R) ICH10 SATA AHCI Controller (Desktop - Windows XP64)" for Windows® XP 64-bit. Using SATA / SATAII HDDs and eSATAII devices without NCQ function STEP 1: Set up BIOS.

A. Enter BIOS SETUP UTILITY Advanced screen IDE Configuration. B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [IDE]. STEP 2: Install Windows® 2000 / XP / XP 64-bit OS on your system. 2.16.2 Installing Windows® Vista™ / Vista™ 64-bit Without Functions Without RAID Functions If you want to install Windows® Vista™ / Vista™ 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below steps. Using SATA / SATAII HDDs and eSATAII devices with NCQ function STEP 1: Set up BIOS. A.

Enter BIOS SETUP UTILITY Advanced screen IDE Configuration. B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [AHCI]. STEP 2: Install Windows® Vista™ / Vista™ 64-bit OS on your system. Insert the Windows® Vista™ / Vista™ 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows® Vista™ / Vista™ 64-bit OS on your system. When you see "Where do you want to install Windows?" page, please insert the ASRock Support CD into your optical drive, and click the "Load Driver" button on the left on the bottom to load the Intel® AHCI drivers. Intel® AHCI drivers are in the following path in our Support CD: ..\I386 (For Windows® Vista™ OS) ..

\AMD64 (For Windows® Vista™ 64-bit OS) After that, please insert Windows® Vista™ / Vista™ 64-bit optical disk into the optical drive again to continue the installation. 39 Using SATA / SATAII HDDs and eSATAII devices without NCQ function STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen IDE Configuration. B.

Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [IDE]. STEP 2: Install Windows® Vista™ / Vista™ 64-bit OS on your system. Technology 2 . 1 7 Untied Overclocking Technology This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter "Overclock Mode" option of BIOS setup to set the selection from [Auto] to [Manual].

Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment. Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology. 40 Chapter 3: BIOS

SETUP UTILITY 3.1 Introduction This section explains how to use the BIOS SETUP UTILITY to configure your system. The BIOS FWH chip on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> during the Power-On-Self-Test (POST) to enter the BIOS SETUP UTILITY, otherwise, POST will continue with its test routines. If you wish to enter the BIOS SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on. Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 BIOS Menu Bar The top of the Main Advanced H/W Monitor Boot screen has a menu bar with the following selections: To set up the system time/date information To set up the advanced BIOS features To display current hardware status To set up the default system device to locate and load the Operating System Security To set up the security features Exit To exit the current screen or the BIOS SETUP UTILITY Use < > key or < > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. 41 3 . 1 . 2 Navigation Keys Please check the following table for the function description of each navigation key. Navigation Key(s) // +/<Enter> <F1> <F9> <F10> <ESC> Function Description Moves cursor left or right to select Screens Moves cursor up or down to select items To change option for the selected items To bring up the selected screen To display the General Help Screen To load optimal default values for all the settings To save changes and exit the BIOS SETUP UTILITY To jump to the Exit Screen or exit the current screen 3 .

2 Main Screen When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview. P43D1600Twins-1394 BIOS SETUP UTILITY H/W Monitor Boot Main Advanced Security Exit System Overview System Time System Date BIOS Version Processor Type : : [14:00:09] [Wed 04/30/2008] P43D1600Twins-1394 P1.00 Intel (R) Core(TM)2 Duo CPU E7300 @ 2.

66GHz (64bit) 2666MHz 10676/60B 3072KB Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time. Processor Speed : Microcode Update : Cache Size : Total Memory DDRIII DDRII2 DDRI3 DDRI4 DDR3_1 DDR3_2 : 1024MB Single-Channel Memory Mode : 1024MB/333MHz (DDR2 1066) : None : None : None : None : None +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.



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54 (C) Copyright 1985-2005, American Megatrends, Inc. System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date. 42 P43D1600Twins BIOS SETUP UTILITY H/W Monitor Boot Main Advanced Security Exit System Overview System Time System Date BIOS Version Processor Type : : [14:00:09] [Wed 04/30/2008] P43D1600Twins P1.00 Intel (R) Core(TM)2 Duo CPU E7300 @ 2.66GHz (64bit) 2666MHz 10676/60B 3072KB Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time.

Processor Speed : Microcode Update : Cache Size : Total Memory DDRIII DDRII2 DDRI3 DDRI4 DDR3_1 DDR3_2 : 1024MB Single-Channel Memory Mode : 1024MB/333MHz (DDR2 1066) : None : None : None : None : None +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date. P43Twins1600 Main Advanced BIOS SETUP UTILITY H/W Monitor Boot Security Exit System Overview System Time System Date [14:00:09] [Wed 04/30/2008] : P43Twins1600 P1.00 : Intel (R) Core(TM)2 Duo CPU E7300 @ 2.66GHz (64bit) Processor Speed : 2666MHz Microcode Update : 10676/60B Cache Size : 3072KB BIOS Version Processor Type Total Memory DDRIII DDRII2 DDRI3 DDRI4 DDR3_1 DDR3_2 : 1024MB Single-Channel Memory Mode : 1024MB/333MHz (DDR2 1066) : None : None : None : None Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time. +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc.

System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date. 43 3 . 3 Advanced Screen In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, IDE Configuration, PCIPnP Configuration, Floppy Configuration, SuperIO Configuration, and USB Configuration. Main Advanced BIOS SETUP UTILITY H/W Monitor Boot Security Configure CPU Exit Advanced Settings WARNING : Setting wrong values in below sections may cause system to malfunction. CPU Configuration Chipset Configuration ACPI Configuration IDE Configuration PCIPnP Configuration Floppy Configuration SuperIO Configuration USB Configuration Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. Setting wrong values in this section may cause the system to malfunction. 3 . 3 .

1 CPU Configuration BIOS SETUP UTILITY Advanced CPU Configuration Overclock Mode CPU Frequency (MHz) PCIE Frequency (MHz) Boot Failure Guard Spread Spectrum Ratio Status Ratio Actual Value [Auto] [266] [100] [Enabled] [Auto] Select the over clock mode. Unlocked (Min: 06, Max: 08) 8 [Disabled] [Enabled] [Enabled] [Disabled] [Enabled] [Auto] [Disabled] Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit Enhanced Halt State Intel (R) Virtualization tech. CPU Thermal Throttling No-Excute Memory Protection Hyper Threading Technology Intel (R) SpeedStep(tm) tech. Intel (R) C-STATE tech. +F1 F9 F10 ESC v02.

54 (C) Copyright 1985-2005, American Megatrends, Inc. Overclock Mode Use this to select Overclock Mode. Configuration options: [Auto], [Manual] and [I.O.T.]

J. The default value is [Auto]. If you select [Manual], Untied Overclocking function is enabled. Please refer to page 40 for the details of Untied Overclocking Technology. If you select [I.O.T.] (Intelligent Overclocking Technology), you are allowed to adjust the CPU frequency and PCIE frequency in the following two items. Therefore, the system will automatically enable the overclocking function when your CPU is heavy loaded. 44 CPU Frequency (MHz) Use this option to adjust CPU frequency.

PCIE Frequency (MHz) Use this option to adjust PCIE frequency. Boot Failure Guard Enable or disable the feature of Boot Failure Guard. Spread Spectrum This item should always be [Auto] for better system stability. Ratio Status This is a read-only item, which displays whether the ratio status of this motherboard is "Locked" or "Unlocked". If it shows "Unlocked", you will find an item Ratio CMOS Setting appears to allow you changing the ratio value of this motherboard. Ratio Actual Value This is a read-only item, which displays the ratio actual value of this motherboard. Enhance Halt State All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches. Intel (R) Virtualization tech.

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel (R) Virtualization Technology. CPU Thermal Throttling You may select [Enabled] to enable P4 CPU internal thermal control mechanism to keep the CPU from overheated. No-Excute Memory Protection No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute code.

This option will be hidden if the current CPU does not support No-Excute Memory Protection. Hyper Threading Technology To enable this feature, it requires a computer system with an Intel Pentium® 4 processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® XP. Set to [Enabled] if using Microsoft® Windows® XP, or Linux kernel version 2.4.18 or higher.

This option will be hidden if the installed CPU does not support Hyper-Threading technology. 45 Intel (R) SpeedStep(tm) tech. Intel (R) SpeedStep(tm) tech. is Intel's new power saving technology. Processor can switch between multiple frequency and voltage points to enable power savings. The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows® XP and select [Auto], you need to set the "Power Schemes" as "Portable/Laptop" to enable this function. If you install Windows® Vista™ and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel (R) SpeedStep(tm) tech.

. Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issue with some power supplies.



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