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User Manual

AIMB-566

**Intel® Q35 LGA775 socket for
Intel® Core™ 2 Quad/
Core™ 2 Duo/
Pentium® Dual Core/Celeron®
Micro ATX Motherboard**

Trusted ePlatform Services

ADVANTECH

Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage for your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

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

Caution! *The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.*



Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance. Visit the Advantech website for FAQ, technical guide, BIOS updates, driver updates, and other information:

<http://support.advantech.com.tw/Support/default.aspx>

Memory Compatibility

Brand	Size	Speed	Type	ECC	Vendor PN	Advantech PN	Memory
Apacer (RoHS)	512MB	DDR2 667	DDR2	N	78.91G92.420	NA	ELPIDA E5108AG-6E-E (64x8)
	1GB	DDR2 800	DDR2	N	78.01G91.404	NA	SEC 746 ZCE7 K4T51083QE
	1GB	DDR2 667	DDR2	N	78.01G92.420	NA	ELPIDA E5108AGBG-6E-E (64x8)
	2GB	DDR2 667	DDR2	N	78.A1G90.404	96D2-2G667-AP	SEC K4T1G08400 (128x8)
DSL	1GB	DDR2 667	DDR2	N	NA	NA	ELPIDA E5108AGBG-6E-E (64x8)
	2GB	DDR2 667	DDR2	N	NA	NA	ELPIDA E1108ACSE-6E-E (128x8)
	1GB	DDR2 800	DDR2	N	NA	NA	ELPIDA E5108AHSE-8E-E (64x8)
	2GB	DDR2 800	DDR2	N	NA	NA	ELPIDA E1108ACBG-8E-E (128x8)
Kingston (RoHS)	2GB	DDR2 667	DDR2	N	KVR667D2N5/2G	NA	Micron 7KE12 D9HNL (128x8)
	1GB	DDR2 800	DDR2	N	KVR800D2N5/1G	NA	ELPIDA E5108AHSE-8E-E (64x8)
Transcend (RoHS)	512MB	DDR2 667	DDR2	N	"TS6QNJ22850-6S/TS64MLQ64V6J"	96D2-512M667NN-TR	SAMSUNG K4T51083QC ZCE6 (64x8)
	1GB	DDR2 667	DDR2	N	TS2QNJ23450-6S/TS128MLQ64V6J"	96D2-1G667NN-TR	SEC K4T51083QE ZCE6 (64x8)
	1GB	DDR2 667	DDR2	N	"TS2QNJ23450-6S/TS128MLQ64V6J"	96D2-1G667NN-TR	SEC K4T51083QG HCE6 (64x8)
	2GB	DDR2 667	DDR2	N	TS5QNU23451-6S	96D2-2G667-TR	SAMSUNG K4T1G084QD-ZCE6 (128x8)
	2GB	DDR2 667	DDR2	N	TS256MLQ64V6U	NA	Micron 7HE12 D9HNL (128x8)
Transcend (RoHS)	1GB	DDR2 800	DDR2	N	TS128MLQ64V8J	NA	ProMOS V59C1512804QBF25 (64x8)
	2GB	DDR2 667	DDR2	N	TS256MLQ64V6U	NA	SAMSUNG K4T1G084QA-ZCE6 (128x8)

Product warranty

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, type of PC, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x AIMB-566 Micro ATX Main board
- 1 x CD-ROM contains the followings:
 - User's manual (this manual in PDF file)
 - Drivers
- 1 x IDE HDD Cable
- 1 x Floppy Cable
- 2 X Serial ATA HDD data cable
- 1 x DVI-to-VGA dongle (PN: AIMB-566VG-TKA1E only)
- 2 x Serial ATA power cable
- 1 x Startup Manual (PN: AIMB-566VG-00A1E only)
- 1 x Rear IO Bracket (PN: AIMB-566VG-00A1E only)

If any of the above items is damaged or missing, please contact your retailer.

Contents

Chapter 1	Product Introduction	1
1.1	Before you Proceed	2
1.2	Motherboard Overview	3
1.2.1	Placement Direction	3
1.2.2	Screw Holes	3
1.3	Motherboard Layout	4
	Figure 1.1 AIMB-566VG-00A1E Motherboard Layout	4
	Figure 1.2 AIMB-566VG-TKA1E Motherboard Layout	5
1.3.1	Layout Content List	6
	Table 1.1: Slots	6
	Table 1.2: Jumpers	6
	Table 1.3: Rear Panel Connector	6
	Table 1.4: Internal Connector	6
1.4	Central Processing Unit (CPU)	7
1.4.1	Installing the CPU	8
1.4.2	Installing the CPU Heatsink and Fan	10
1.4.3	Uninstalling the CPU Heatsink and Fan	12
1.5	System Memory	14
1.5.1	DIMM Sockets Location	14
1.5.2	Memory Configurations	15
1.5.3	Installing a DDR2 DIMM	15
1.5.4	Removing a DDR2 DIMM	16
1.6	Expansion Slots	16
1.6.1	Installing an Expansion Card	17
1.6.2	Configuring an Expansion Card	17
1.6.3	Standard Interrupt Assignments	17
1.6.4	PCI Slots	18
1.6.5	PCI Express X4 Slot	18
1.7	Jumpers	18
1.7.1	Clear CMOS (CMOS1)	18
	Table 1.5: CMOS1	19
1.7.2	Chassis Intrusion Connector (JCASE1)	19
1.7.3	ATX/AT mode selector (PSON1)	20
	Table 1.6: ATX/AT mode selector (PSON1)	20
1.7.4	Watchdog timer output (JWDT1)	20
	Table 1.7: Watchdog timer output (JWDT1)	20
1.7.5	PCI Express Selector (PCIEX_SET1)	21
	Table 1.8: PCI Express Selector (PCIEX_SET1)	21
1.8	Connectors	22
1.8.1	Rear Panel Connectors	22
	Figure 1.3 IO View: AIMB-566VG-00A1E	22
	Figure 1.4 IO View: AIMB-566VG-TKA1E	22
1.8.2	Front Panel Audio Connector (FPAUD1)	24
	Table 1.9: FPAUD1	24
1.8.3	ATX Power Connector (ATX12V1, EATXPWR1)	25
1.8.4	Chassis Fan Connector (SYSFAN1)	26
1.8.5	Power Fan Connector (SYSFAN2)	26
1.8.6	CPU Fan Connector (CPUFAN1)	27
1.8.7	Floppy Disk Drive Connector (FDD1)	27
1.8.8	System Panel Connector (F_PANEL1) (AIMB-566VG-TKA1E only)	28
1.8.9	Front Panel Connectors (JFP1, JFP2, JFP3) (AIMB-566VG-00A1E only)	29

1.8.10	Power LED and keyboard lock connector (JFP3 /PWR_LED&KEY LOCK)	31
	Table 1.10: ATX power supply LED status (No support for AT power).....	31
1.8.11	Primary EIDE (RAID) Connector (IDE1).....	32
1.8.12	Serial ATA Connector (SATA1~6).....	33
1.8.13	SPI Pin Header (SPI_CN1).....	34
1.8.14	USB 2.0 Connector (USB56, USB78, USB910, USB1112).....	35
1.8.15	LVDS Connector (LVDS1) (AIMB-566VG-TKA1E only)	36
1.8.16	Backlight enabler (INV1)(AIMB-566VG-TKA1E only).....	36

Chapter 2 BIOS Operation 37

	Figure 2.1 Setup program initial screen.....	38
2.1	Entering Setup.....	39
	Figure 2.2 Press Del to run Setup	39
2.2	Main Setup.....	40
	Figure 2.3 Main setup screen	40
2.2.1	System time / System date	40
2.3	Advanced BIOS Features Setup.....	41
	Figure 2.4 Advanced BIOS features setup screen	41
2.3.1	CPU Configuration.....	42
	Figure 2.5 CPU Configuration Setting (AIMB-566VG-00A1E)...	42
	Figure 2.6 CPU Configuration Setting (AIMB-566VG-TKA1E) ..	42
2.3.2	IDE Configuration	43
	Figure 2.7 IDE Configuration (AIMB-566VG-00A1E)	43
	Figure 2.8 IDE Configuration (AIMB-566VG-TKA1E).....	43
2.3.3	Super I/O Configuration	44
	Figure 2.9 Super I/O Configuration.....	44
2.3.4	Hardware Health Configuration	45
	Figure 2.10 Hardware health configuration	45
2.4	ACPI Settings.....	46
	Figure 2.11 ACPI Settings	46
2.4.1	General ACPI Configuration	46
	Figure 2.12 General ACPI Configuration	46
2.4.2	Advanced ACPI Configuration	47
	Figure 2.13 Advanced ACPI Configuration.....	47
2.4.3	South Bridge ACPI Configuration	48
	Figure 2.14 South Bridge ACPI Configuration.....	48
2.5	APM Configuration.....	48
	Figure 2.15 APM Configuration	48
2.6	Configure Remote Access Type and parameters	49
	Figure 2.16 Configure Remote Access type and parameters.....	49
2.7	Advanced PCI/PnP Settings	50
	Figure 2.17 PCI/PNP Setup (top)	50
2.7.1	Clear NVRAM	50
2.8	Boot Settings.....	50
	Figure 2.18 Boot Setup Utility	50
2.8.1	Boot settings Configuration.....	51
	Figure 2.19 Boot Setting Configuration (AIMB-566VG-00A1E)...	51
	Figure 2.20 Boot Setting Configuration (AIMB-566VG-TKA1E) ..	51
2.9	Security Setup.....	52
	Figure 2.21 Password Configuration	52
2.10	Advanced Chipset Settings.....	53
	Figure 2.22 Advanced Chipset Settings	53
2.10.1	North Bridge Chipset Configuration	53
	Figure 2.23 North Bridge Configuration	53
	Figure 2.24 Video function configuration	54
2.10.2	South Bridge Chipset Configuration	54

	Figure 2.25 South Bridge Configuration	55
	Figure 2.26 South Bridge Chipset Configuration	55
2.10.3	ME Subsystem Configuration	56
2.11	Exit Option.....	56
	Figure 2.27 Exit Option	56
2.11.1	Save Changes and Exit	56
2.11.2	Discard Changes and Exit	56
2.11.3	Load Optimal Defaults	57
2.11.4	Load Fail-Safe Defaults	57
Chapter 3	Chipset Software Installation Utility	59
3.1	Before you begin	60
3.2	Introduction	60
3.3	Windows XP Driver Setup	61
Chapter 4	VGA Setup.....	65
4.1	Introduction	66
4.2	Windows Vista/XP/2000 Driver Setup	66
Chapter 5	LAN Configuration.....	71
5.1	Introduction	72
5.2	Features	72
5.3	Installation	72
5.4	Win XP Driver Setup (LAN).....	73
Chapter 6	Audio Setup	77
6.1	Audio Setup.....	78
Chapter 7	AMT Setup (AIMB-566VG-00A1E only)	81
7.1	Intel AMT Overview.....	82
7.2	Windows XP Intel® ME (Management Engine) HECI Setup	82
7.3	Windows XP AMT ME LMS_SOL Driver Setup	86
Chapter 8	Utility Setup.....	89
8.1	RAID Driver setup (AIMB-566VG-00A1E only)	90
8.2	Hardware Doctor OBS Utility setup	92
Appendix A	Specifications Summary	97
A.1	Specifications Summary.....	98
A.2	Block Diagram.....	100
	Figure A.1 Block Diagram	100

Appendix B Programming the Watchdog Timer.... 101

B.1	Watchdog timer overview.....	102
B.2	Programming the Watchdog Timer	102
	Table B.1: Watchdog timer registers	104
B.2.1	Example Programs	104

Chapter 1

Product Introduction

This chapter describes the main board features and the new technologies it supports.

1.1 Before you Proceed

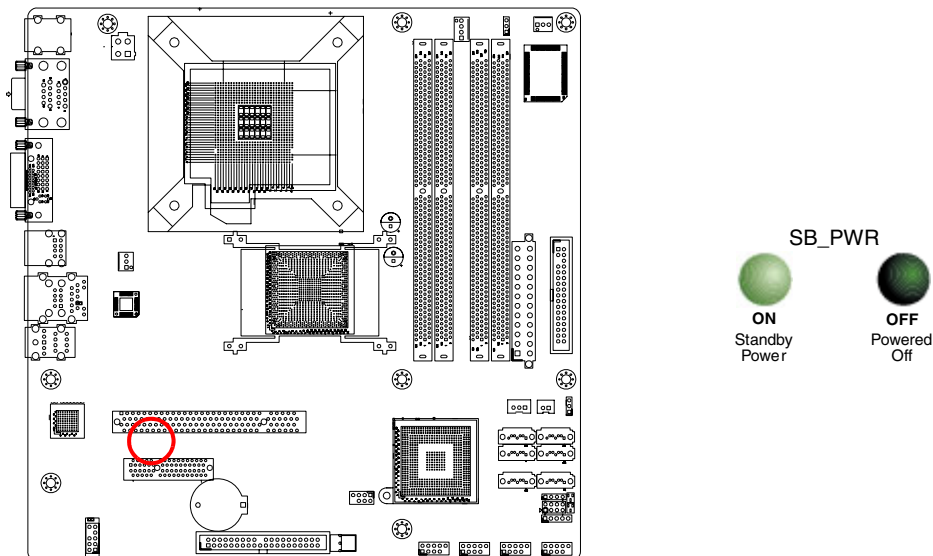
Take note of the following precautions before you install motherboard components or change any motherboard settings.



- Caution!**
1. *Unplug the power cord from the wall socket before touching any component.*
 2. *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 with electrostatic discharge.*
 3. *Hold components by the edges to avoid touching the ICs on them.*
 4. *Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.*
 5. *Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.*

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.



1.2 Motherboard Overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Refer to the chassis documentation before installing the motherboard.

Warning! Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injury and/or damage to motherboard components.



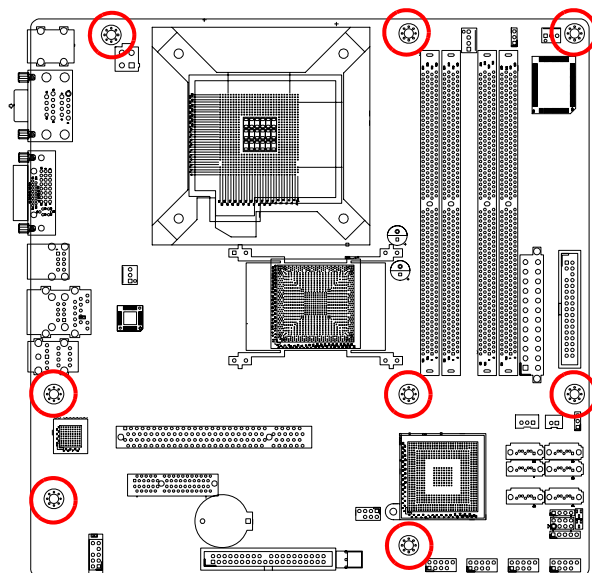
1.2.1 Placement Direction

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.

1.2.2 Screw Holes

Place eight (8) screws into the holes indicated by circles to secure the motherboard to the chassis.

Caution! Do not over tighten the screws! Doing so can damage the motherboard.



Place this side toward the rear of the chassis.

1.3 Motherboard Layout

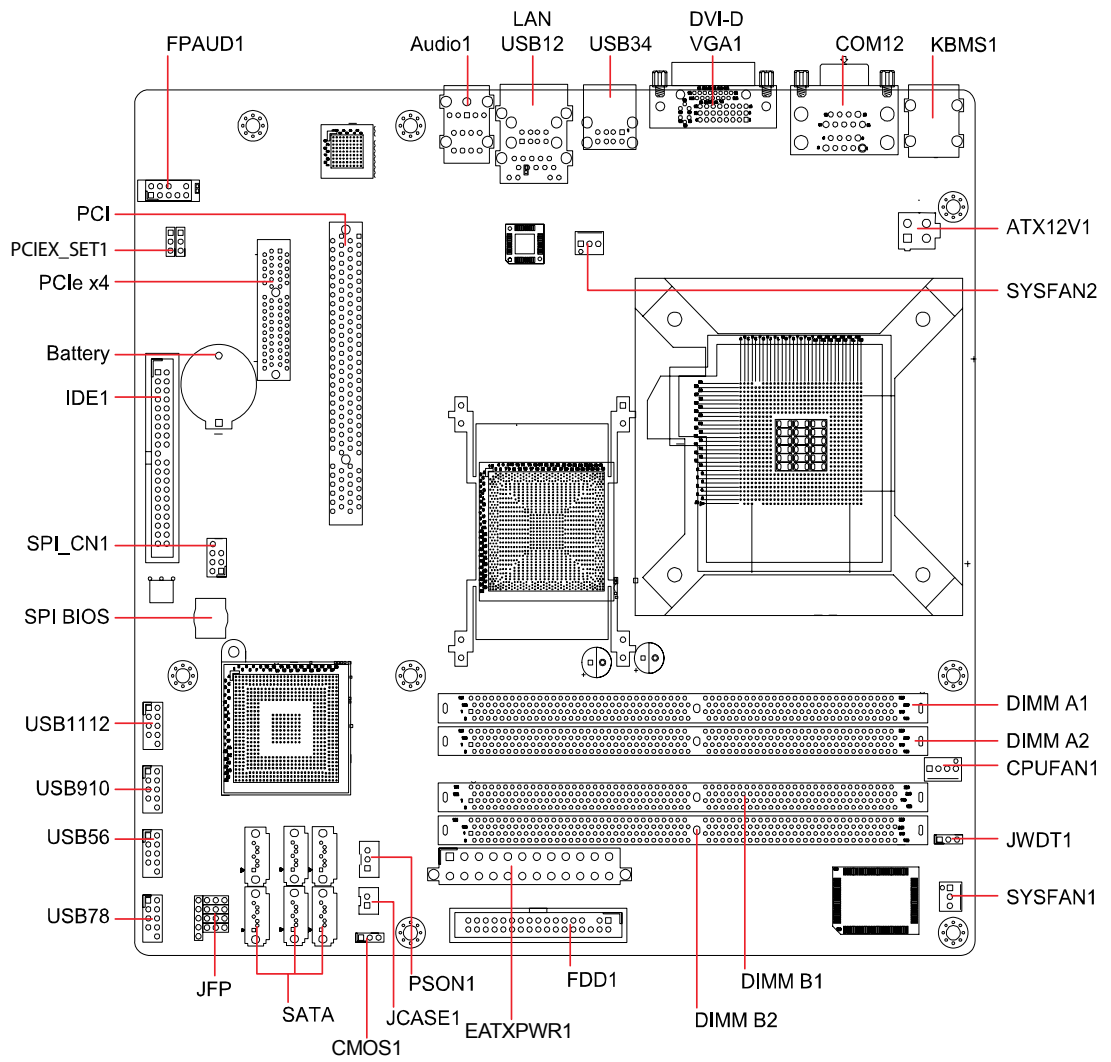


Figure 1.1 AIMB-566VG-00A1E Motherboard Layout

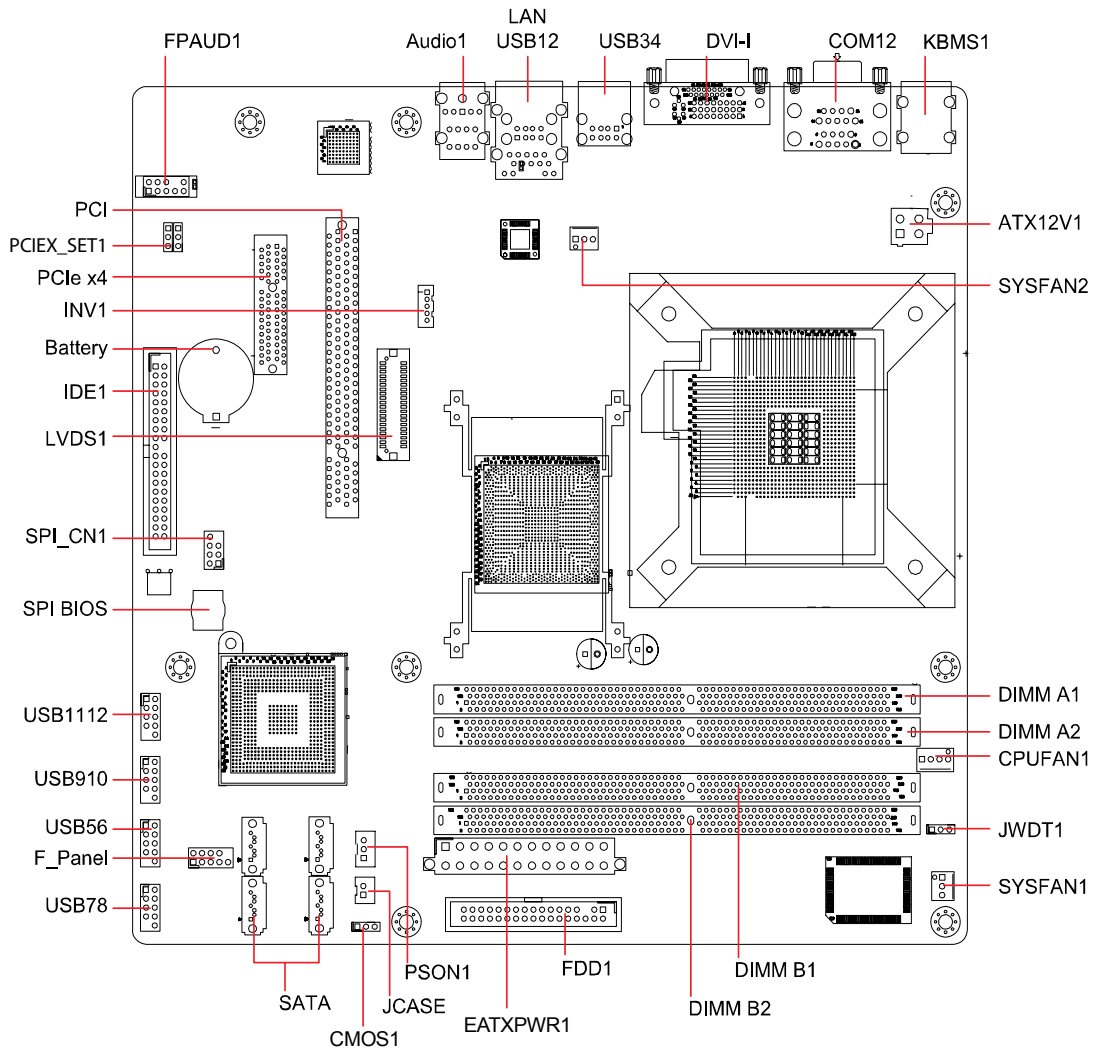


Figure 1.2 AIMB-566VG-TKA1E Motherboard Layout

1.3.1 Layout Content List

Table 1.1: Slots

Label	Function
DIMM_A1	240-pin SODIMM slot 1
DIMM_A2	240-pin SODIMM slot 2
DIMM_B1	240-pin SODIMM slot 3
DIMM_B2	240-pin SODIMM slot 4
PCIEX4	PCI express x 4 slot
PCI1	PCI slot

Table 1.2: Jumpers

Label	Function	Note
CMOS1	Clear CMOS	3 x 1 header, pitch 2.54 mm
JCASE	Chassis Intrusion Connector	2 x 1 header, pitch 2.54 mm
PSON_1	Power ATX/AT Selector	3 x 1 header, pitch 2.54 mm
JWDT1	Watchdog Timer Output	3 x 1 header, pitch 2.54 mm
PCIEX_SET1	One PCIe x4 or four PCIe x1 selector	2 X 3 header, pitch 2.54 mm

Table 1.3: Rear Panel Connector

Label	Function	Note
KBMS1	PS/2 keyboard and mouse	6-pin Mini-Din
COMD1	Serial Port Connector 1 & 2	Dual D-sub 9-pin, male
VGA1	VGA Connector (AIMB-566VG-00A1E only)	D-sub 15-pin, female
DVI1	DVI-D Connector	DVI connector, female
	DVI-I Connector (AIMB-566VG-TKA1E only)	DVI connector, female
USB34	USB Connector x 2	
LAN_USB12	RJ-45 Ethernet Connector x 1	
AUDIO1	Line-in Port, Line-out Port, Microphone Port,	5.1 Channel Audio I/O (3 jacks)

Table 1.4: Internal Connector

Label	Function	Note
FPAUD1	Front Panel Audio Connector	5 x 2 header, pitch 2.54 mm
ATX12V1	ATX Power Connector	2 x 2 header
SYSFAN1	Chassis Fan Connector	3 x 1 wafer, pitch 2.54 mm
SYSFAN2	Power Fan Connector	3 x 1 wafer, pitch 2.54 mm
CPUFAN1	CPU Fan Connector	4 x 1 wafer, pitch 2.54 mm
EATXPWR1	ATX Power Connector	12 x 2 header
FDD1	Floppy Disk Drive Connector	17 x 2 header, pitch 2.54 mm
F_Panel1	System Panel Connector (AIMB-566VG-TKA1E only)	2 X 5 header, pitch 2.54 mm
JFP	System Panel Connector	4 x 3 and 5 x 1 header, pitch 2.54 mm

Table 1.4: Internal Connector

IDE1	Primary EIDE(RAID) Connector	20 x 2 header, pitch 2.54 mm
SATA1~6	Serial ATA Connectors 1~6 [red]	7-pin header
SPI_CN1	SPI pin header	4 x 2 header, pitch 2.54 mm
USB5 ~ 12	USB 2.0 Connector	5 x 2 header, pitch 2.54 mm
LVDS1	LVDS connector (AIMB-566VG-TKA1E only)	40-pin DF13 connector female
INV1	Backlight enabler (AIMB-566VG-TKA1E only)	1 X 4 header, pitch 2.54 mm

1.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA775 socket designed for the Intel® LGA775 Core™2 Quad/Core™2 Extreme/Core™2 Duo/Pentium® Extreme/ Pentium® D/Pentium® 4 CPU processors.

Note!



1. Make sure the AC power is off before you install the CPU.
2. If installing a dual-core CPU, connect the CPU fan cable to the **CPU_FAN1** connector to ensure system stability.

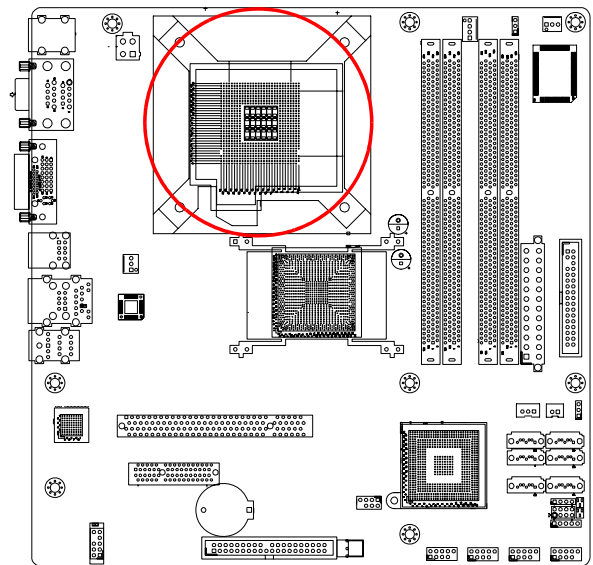
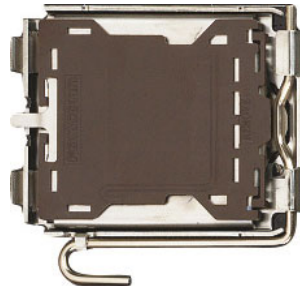
Caution!



1. Your boxed Intel® LGA775 Core™2 Quad / Core™2 Extreme / Core™2 Duo / Pentium® Extreme / Pentium® D / Pentium® 4 CPU processor package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.
2. 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. Your place of purchase or local distributor will shoulder the cost of repair only if the damage is shipment/transit-related.
3. Keep the cap after installing the motherboard. Your place of purchase or local distributor will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket.
4. 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.

1.4.1 Installing the CPU

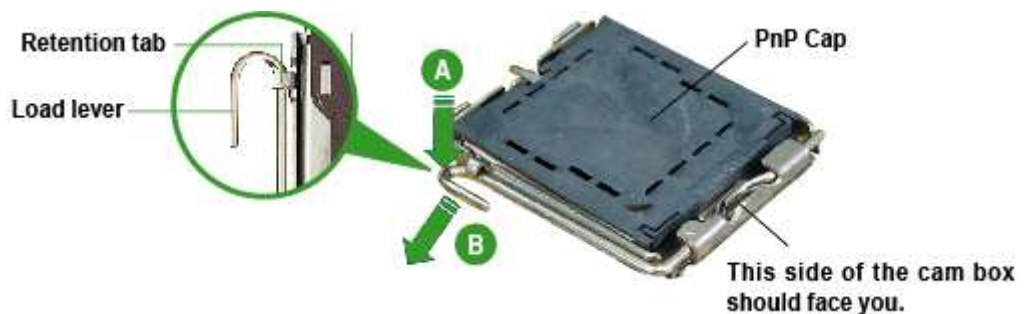
1. Locate the CPU socket on the motherboard.



Note! Before installing the CPU, make sure that the socket box is facing towards you.



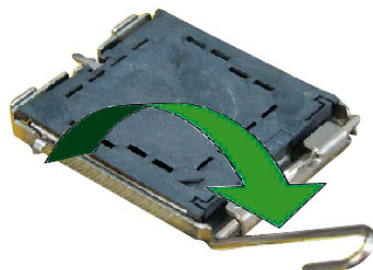
2. Press the load lever with your thumb (A), then move it outwards (B) until it is released from the retention tab.



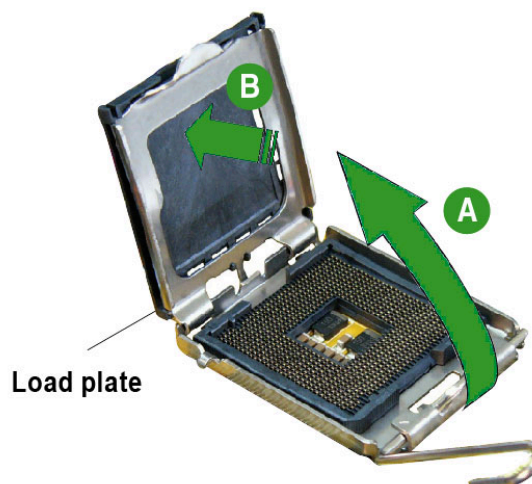
Caution! To prevent damage to the socket pins, do not remove the PnP (Pick and Place) cap unless you are installing a CPU.



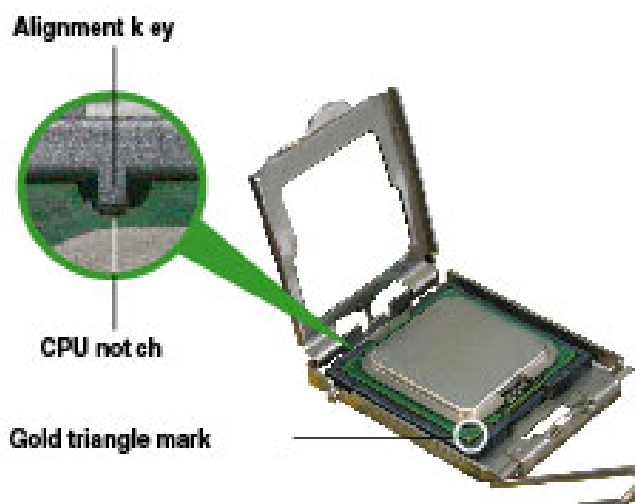
3. Lift the load lever in the direction of the arrow to a 135° angle.



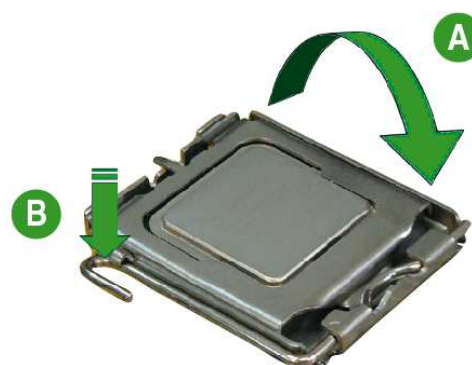
4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



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 CPU notch to the socket alignment key.



6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.
7. If installing a dual-core CPU, connect the chassis fan cable to the CHA_FAN1 connector to ensure system stability.



Caution! The CPU fits only in one correct orientation. DO NOT force the CPU into the socket or you may bend the connectors on the socket and/or damage the CPU!



Note! *The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel Speed-Step® Technology (EIST), and Hyper-Threading Technology.*



Note! *After installation, make sure to plug-in the ATX power cable into the motherboard.*



1.4.2 Installing the CPU Heatsink and Fan

The Intel® LGA775 Core™2 Quad/Core™2 Extreme/Core™2 Duo/Pentium® Extreme/Pentium® D/Pentium® 4 CPU processors require a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

Note! ■ *Install the motherboard to the chassis before you install the CPU fan and heatsink assembly.*

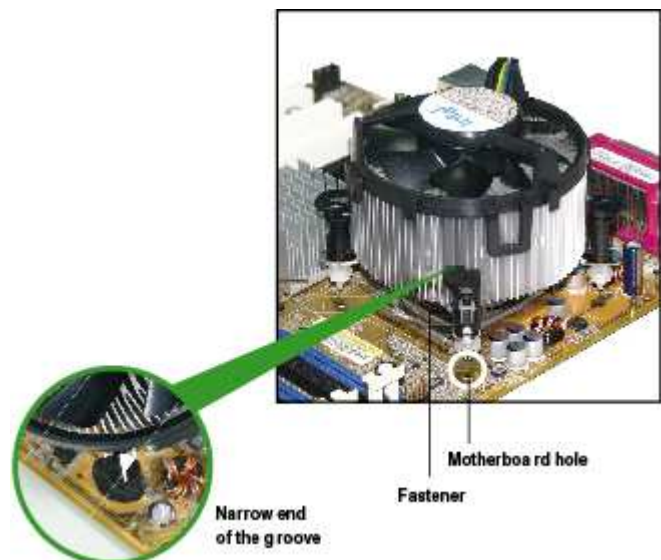


■ *When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.*

Caution! *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.*



1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.



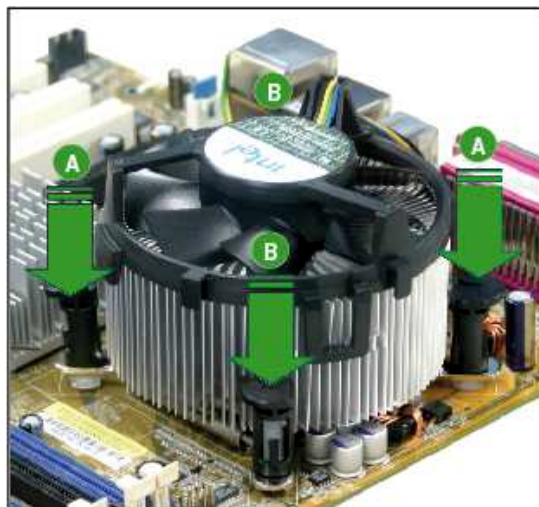
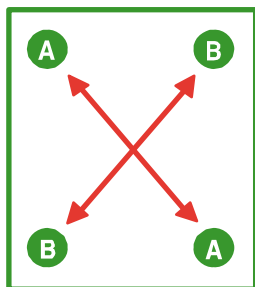
Note! *Orient the heatsink and fan assembly so that the CPU fan cable is as close as possible to the CPU fan connector.*



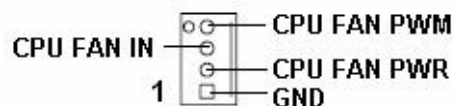
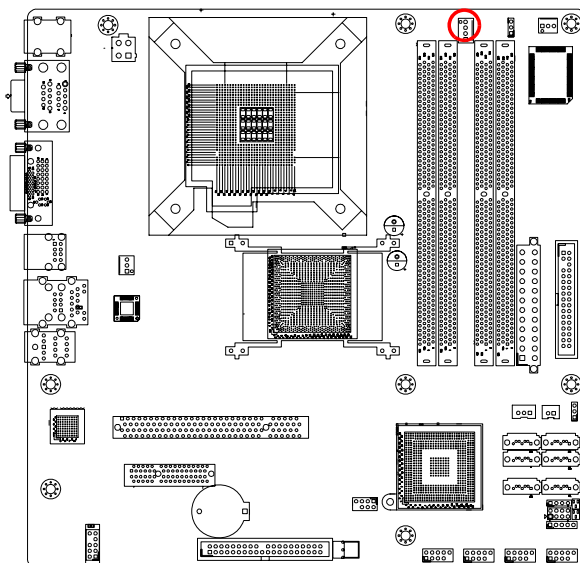
Note! Make sure each fastener is oriented as shown, with the narrow groove directed outward.



2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.



3. Connect the CPU fan cable to the connector on the motherboard labeled **CPU_FAN1**.



- Caution!**
1. Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
 2. These are not jumpers! DO NOT place jumper caps on the fan connectors.

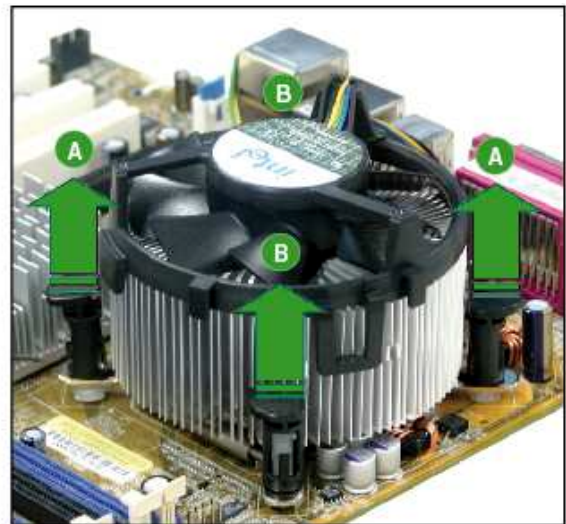
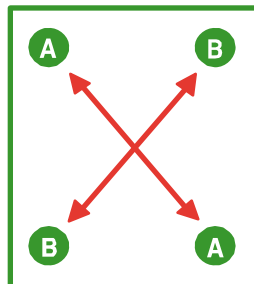


1.4.3 Uninstalling the CPU Heatsink and Fan

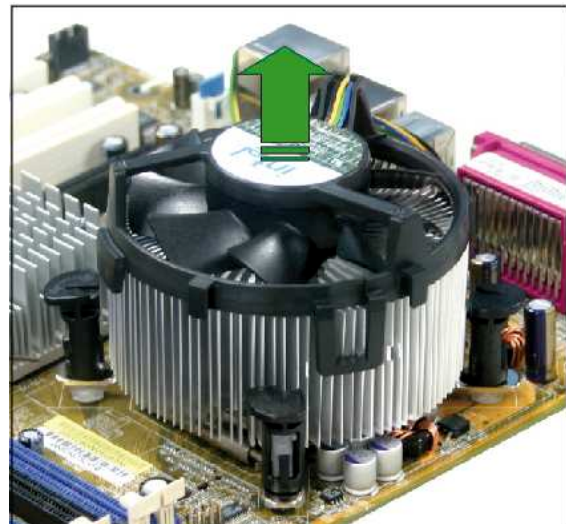
1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counter-clockwise.



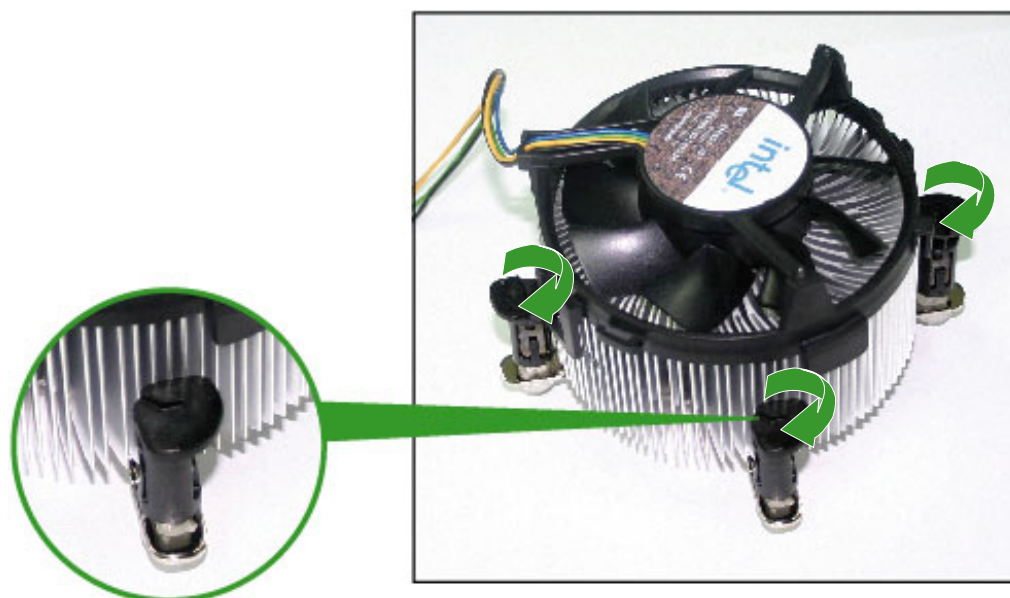
3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.



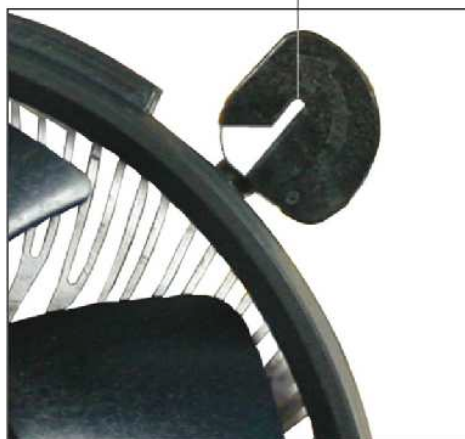
4. Carefully remove the heatsink and fan assembly from the motherboard.



5. Rotate each fastener clockwise to ensure correct orientation when reinstalling.



Narrow end of the groove



Note! *The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.)*



Note! *Refer to the documentation in the boxed or stand-alone CPU fan package for detailed information on CPU fan installation.*

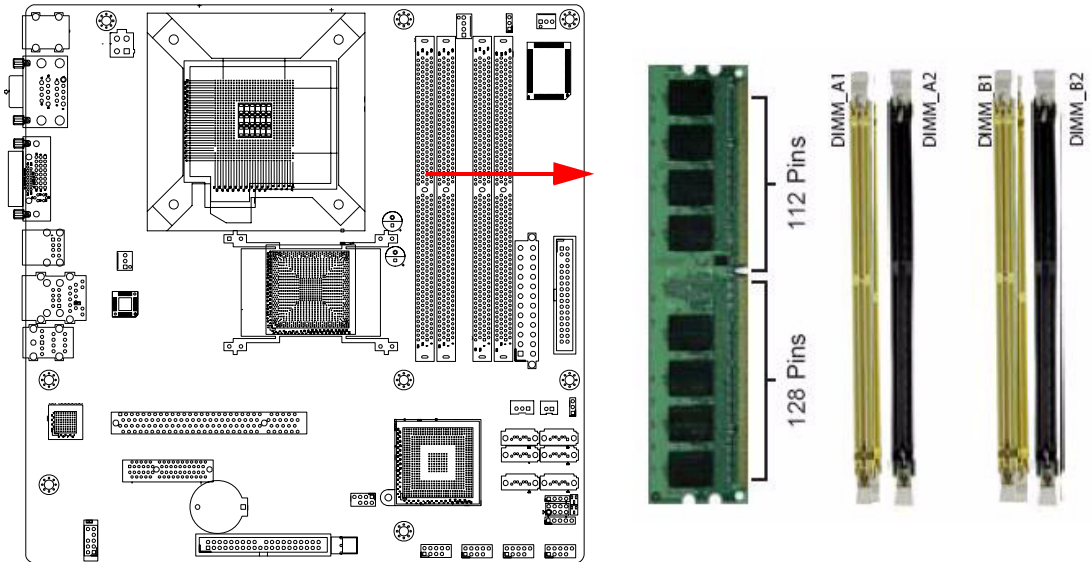


1.5 System Memory

1.5.1 DIMM Sockets Location

The motherboard comes with four 240-pin Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket. The following figure illustrates the location of the sockets:



Note! Intel AMT support is for AIMB-566VG-00A1E only. To enable the AMT feature, a memory module must be installed on DIMM_A1, so that "Intel AMT support" option will appear on BIOS menu. For details please see "South Bridge Chipset Configuration" on page 54.



1.5.2 Memory Configurations

You can install 128 MB, 256 MB, 512 MB, 1 GB and 2 GB DDR2 SDRAM DIMMs into the SODIMM sockets using the memory configurations in this section.

Note!



1. *Installing DDR2 DIMM other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations.*
2. *For dual-channel configuration, the total size of memory module(s) installed per channel must be the same (DIMM1 = DIMM2).*
3. *Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.*
4. *Due to chipset resource allocation, the system may detect less than 1 GB system memory when you installed one 1 GB DDR2 memory modules.*
5. *This motherboard does not support memory modules made up of 128 Mb chips or double-sided x16 memory modules.*

Make sure that the memory frequency matches the CPU FSB (Front Side Bus). Refer to the Memory frequency/CPU FSB synchronization table.

Note!



1. *Recommended memory configuration*

Channel	Socket
Channel A	DIMM_A1 and DIMM_A2
Channel B	DIMM_B1 and DIMM_B2

2. *Memory frequency/CPU FSB synchronization*

CPU FSB	DDR2 DIMM Type	Single Ch.Peak Bandwidth	Dual Ch.Peak Bandwidth
800/1066/1333MHz	533	4.25GB/s	8.5GB/s
	667	5.32GB/s	10.6GB/s
	800	6.4GB/s	12.8GB/s

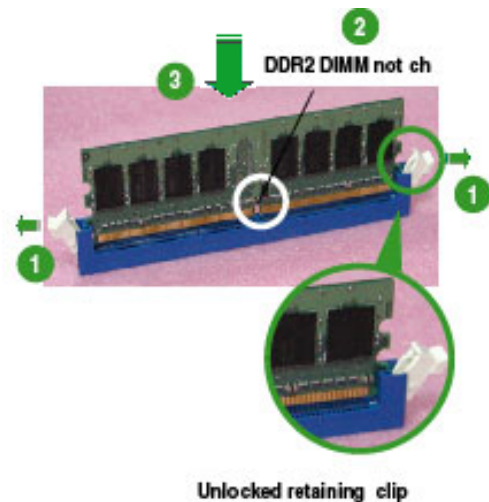
1.5.3 Installing a DDR2 DIMM


Caution!



Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

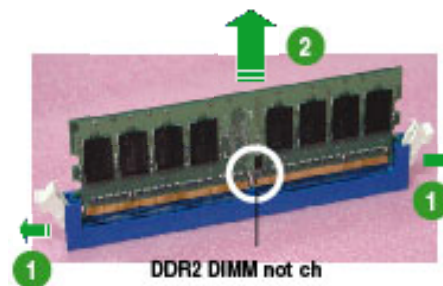
1. Unlock a DIMM socket by pressing the retaining clips outward
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM.




- Caution!**  1. A DDR2 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.
2. The DDR2 DIMM sockets do not support DDR DIMMs. DO NOT install DDR DIMMs to the DDR2 DIMM socket.

1.5.4 Removing a DDR2 DIMM


1. Simultaneously press the retaining clips outward to unlock the DIMM.
2. Remove the DIMM from the socket.



- Caution!**  Support the DIMM lightly with your fingers when pressing the ejector tabs. The DIMM might get damaged when it flips out with extra force.

1.6 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.

- Warning!**  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.

1.6.1 Installing an Expansion Card

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.6.2 Configuring an Expansion Card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings if any.
2. Assign an IRQ to the card if needed. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

1.6.3 Standard Interrupt Assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	-	Redirect to IRQ#9
3	11	IRQ holder for PCI steering*
4	12	Communications Port (COM1)*
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT)*
8	3	System CMOS/Rear Time
9	4	IRQ holder for PCI steering*
10	5	IRQ holder for PCI steering*
11	6	IRQ holder for PCI steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

* There IRQs are usually available for ISA or PCI device.