Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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mATX

AIMB-763 Series

Intel® Pentium® D / Pentium® 4 / Celeron® / Core™ 2 Duo ATX Main Board

User Manual

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning! *The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.*

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

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 in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

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

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.*

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

- Chapter 1: Product introduction

  This chapter describes the features of the motherboard and the new technology it supports. This chapter also 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.

- Chapter 2: BIOS setup

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. Advantech websites

   The Advantech website provides updated information on Advantech hardware and software products. Refer to the Advantech contact information.

2. Optional documentation

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Typography

Bold text	Indicates a menu or an item to select
Italics	Used to emphasize a word or a phrase
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key Example: <Enter> means that you must press the Enter or Return key
<Key1>+<Key2>+<Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+) Example: <Ctrl>+<Alt>+<D>

`Command`	Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets
	Example: At the DOS prompt, type the command line:
	`afudos /i[filename]`
	`afudos /iP5P800VM.ROM`

Contents

CHAPTER 1

Product Introduction

This chapter describes the motherboard features and the new technologies it supports.

Sections include:

- Welcome
- Package features
- Special features
- Before you proceed
- Motherboard overview
- Central Processing Unit (CPU)
- System memory
- Expansion slots
- Jumpers
- Connectors

Chapter 1 Product Introduction

This chapter describes the motherboard features and the new technologies it supports.

1.1 Welcome

Thank you for buying an Advantech® AIMB-763 motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of quality motherboards!

Before you start installing the motherboard and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	AIMB-763
Cables	2 x Serial ATA signal cable 2 x Serial ATA power cable 1 x Floppy disk drive cable
Accessory	I/O shield
Application CD	Motherboard support CD
Documentation	Startup Manual

Notes

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

1.3 Special features

1.3.1 Product highlights

Latest processor technology

The motherboard comes with a 775-pin surface mount Land Grid Array (LGA) socket designed for the Intel® Pentium® D, Pentium® 4, Celeron® or Core™ 2 Duo processor in the 775-land package. The motherboard supports the Intel® Pentium® 4, Intel® Pentium® D or Core™ 2 Duo processor with 1066/800/533 MHz Front Side Bus (FSB). The motherboard also supports the Intel® Hyper-Threading Technology and is fully compatible with Intel® PCG 04B/04A and 05B/05A processors.

Intel® 65nm Dual-Core Technology CPU support

This motherboard supports Intel® Pentium® D/Pentium® 4/Celeron® / Core™ 2 Duo processors built on the 65-nanometer (nm) process technology with copper interconnect.

Dual-core processors contain two physical CPU cores with dedicated L2 cachesto meet demands for more powerful processing. Intel®'s 65nm process is the most advanced chip manufacturing technology, delivering breakthrough performance, enhanced media experience, and low power consumption. Intel® 65nm dual-core processors utilize the latest package technologies for a thinner, lighter design without compromising performance.

Intel® 945G chipset

The Intel® 945G graphics memory controller hub (GMCH) and the ICH7 DH I/O controller hub provide the vital interfaces for the motherboard.

The GMCH features the Intel® Graphics Media Accelerator 950, an integrated graphics engine for enhanced 3D, 2D, and video capabilities. The GMCH provides the interface for a processor in the 775-land package with 533/800/1066 MHz front side bus (FSB), dual channel DDR2 at speeds of up to 667 MHz, and PCI Express x16 graphics card.

The Intel® ICH7 DH Southbridge represents the seventh generation I/O controller hub that provides the interface for PCI Express and 8-channel high definition audio.

Intel® Viiv™ Technology support

Intel® Viiv™ Technology transforms your PC into an entertainment center, allowing you to enjoy and share digital multi-media content like never before. With Intel® Viiv™ Technology-based computers, you can record, playback, organize, and edit digital media content easily. Enjoy the entertainment experience even more with sharp graphics, flawless video playback, and support for up to 7.1 channel surround sound. To enable Intel® Viiv™ Technology, make sure you enable the Quick Resume function called Energy Lake in the BIOS. You also need to install the Intel® Viiv™ Technology driver and software.

Enabling Intel Viiv platform also requires:

- Intel® Pentium® D processor, Intel® Pentium® processor Extreme Edition or Intel® Core™ 2 Duo
- Native Command Queuing (NCQ) SATA hard drive
- Microsoft Windows XP Media Center Edition Update Rollup 2
  Refer to www.Intel.com for more information.

DDR2 memory support

The motherboard supports DDR2 memory which features data transfer rates of 600 MHz (FSB 800) or 533 MHz (FSB 1066/800) 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 8.5 GB/s.

PCI Express™ interface

The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clock-speeds by carrying data in packets. This high speed interface is software compatible with existing PCI specifications.

64-bit CPU support

The motherboard supports 64-bit processors that provides high-performance computing and faster memory access required for memory and data intensive applications.

Serial ATA technology

The motherboard supports the Serial ATA technology through the Serial ATA interfaces and the Intel® ICH7 DH chipset. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, and up to 300 MB/s data transfer rate.

8-channel high definition audio

The onboard Realtek® ALC888 8-channel high-definition audio CODEC provides 192 KHz/ 24-bit audio output, jack-sensing and restasking functions. With the 8-channel audio ports and S/PDIF interfaces, you can connect your computer to home theater decoders to produce crystal-clear digital audio.

S/PDIF digital sound ready

The motherboard supports the S/PDIF Out function through the S/PDIF interfaces at midboard. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems.

Temperature, fan, and voltage monitoring

The CPU temperature is monitored by the ASIC (integrated in the Winbond Super I/O) to prevent overheating and damage. The system fan rotations per minute (RPM) is monitored for timely failure detection. The ASIC monitors the voltage levels to ensure stable supply of current for critical components.

1.4 Before you proceed

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

Caution!

- *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 otherboard component. The illustration below shows the location of the onboard LED.

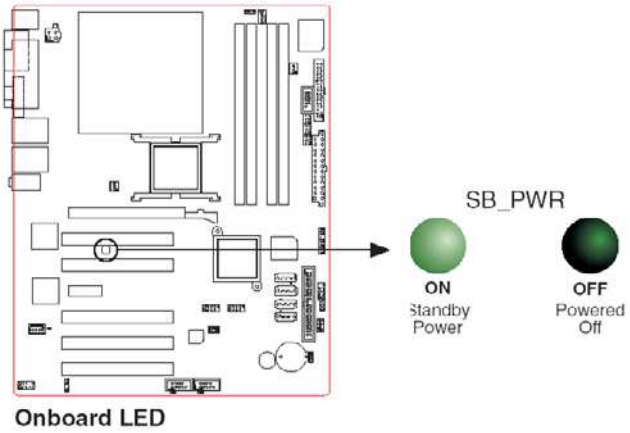

Figure 1.1: Onboard LED

1.5 Motherboard overview

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

Warning! *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.*

1.5.1 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.

1.5.2 Screw holes

Place eight (10) screws into the holes indicated by circles to secure the motherboard to the chassis.

Caution! *Do not overtighten the screws! Doing so can damage the motherboard.*

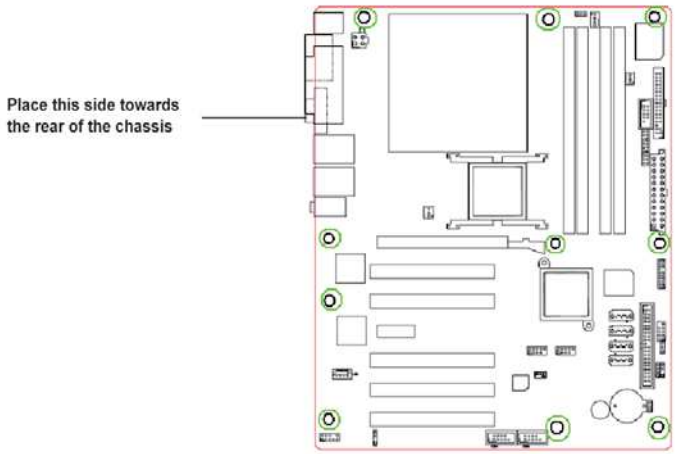

Figure 1.2: Screw holes

1.5.3 AIMB-763G2 Motherboard layout

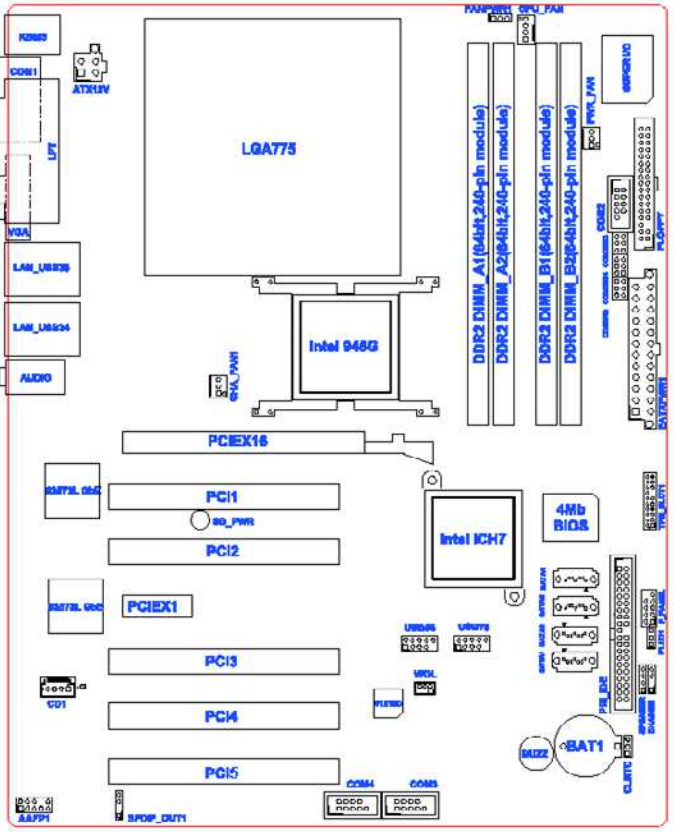

Figure 1.3: AIMB-763G2 Motherboard layout

1.5.4 AIMB-763VG Motherboard layout

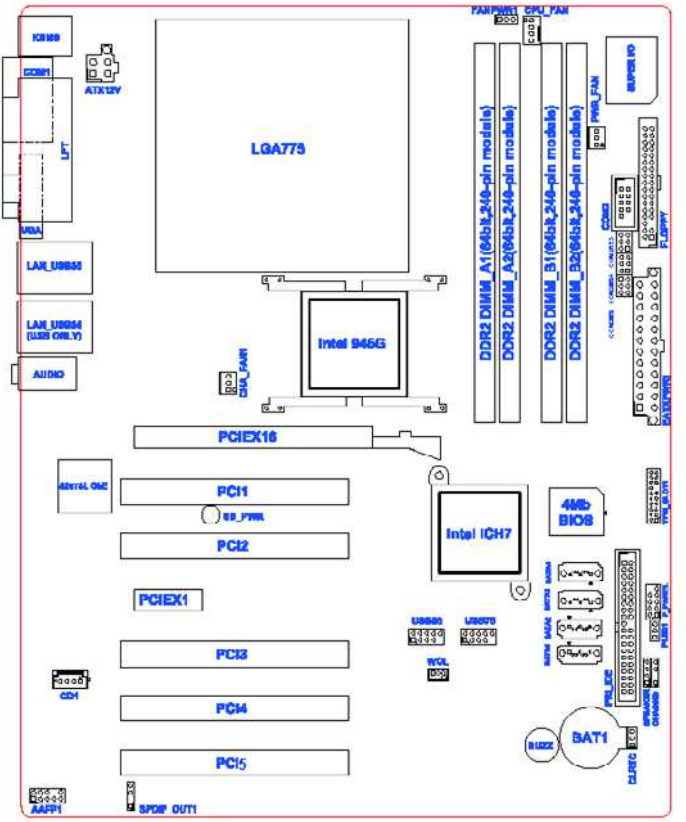

Figure 1.4: AIMB-763VG Motherboard layout

1.6 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA775 socket designed for the Intel® Pentium® D / Pentium® 4 / Celeron® / Core™ 2 Duo processor in the 775-land package.

Caution!

- *Your boxed Intel® Pentium® D / Pentium® 4 / Celeron® / Core™ 2 Duo LGA775 processor package should come with installation instructions for the CPU, fan and heatsink assembly. If the instructions in this section do not match the CPU documentation, follow the latter.*
- *Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket pins are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket pins/motherboard components. Advantech will shoulder the cost of repair only if the damage is shipment/transit-related.*
- *Keep the cap after installing the motherboard. Advantech 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 pins resulting from incorrect CPU installation/ removal, or misplacement/loss/incorrect removal of the PnP cap.*

1.6.1 Installing the CPU

To install a CPU:

1. Locate the CPU socket on the motherboard.

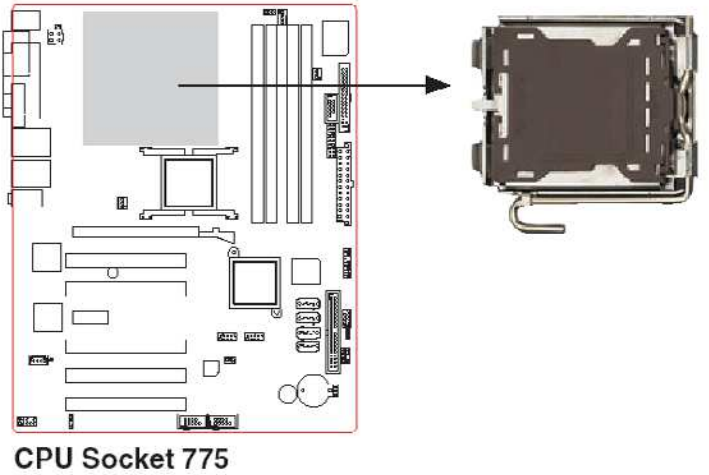

Figure 1.5: Locate the CPU socket on the motherboard

Notes

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) and move it to the left (B) until it is released from the retention tab.

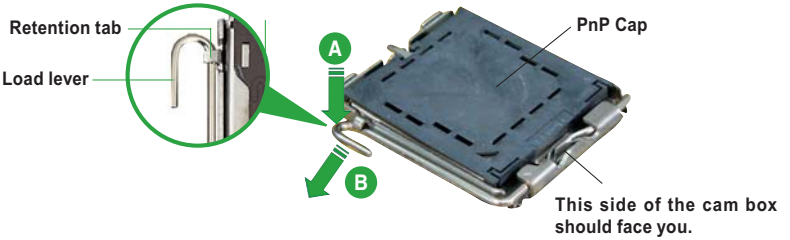

Figure 1.6: Release the load lever

Caution! *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 135° angle.

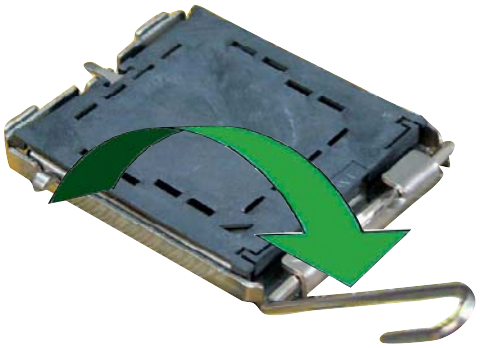

Figure 1.7: Lift the load lever

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).

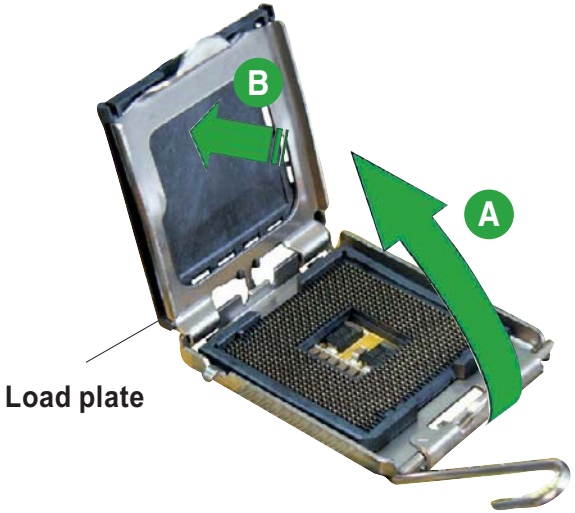

Figure 1.8: Lift the load plate