ADVANTECH

AIMB-781 LGA1155 Intel® Core™i7/i5/i3/Pentium® ATX with DVI/VGA, Dual Gigabit LAN, DDR3, SATA III Startup Manual

Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

- 1 AIMB-781 Startup Manual
- 1 Driver CD (user's manual is included)
- 2 Serial ATA HDD data cables
- 2 Serial ATA HDD power cables
- 1 I/O port bracket
- 1 Warranty card

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Note: Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: www.adobe.com/Products/acrobat/readstep2.html (Acrobat is a trademark of Adobe)

Specifications

Standard Functions

- **CPU:** LGA1155 Intel® Core™ i7/i5/i3/Pentium®
- **BIOS:** AMI 64 Mb SPI BIOS
- **Chipset:** Intel® Q67 (QG2 SKU) and B65 (QVG SKU) Chipset
- **System memory:** Up to 32 GB with four 240-pin non-ECC DIMM sockets. Supports dual channel DDR3 1066/1333 SDRAM.
- **Note:** Due to the inherent limitations of PC architecture, the system may not fully detect 32 GB RAM when 32 GB RAM is installed.

For more information on this and other Advantech products, please visit our website at:

http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and service, please visit our support website at:

http://www.advantech.com/support

This manual is for the AIMB-781 series Rev. A1.

Specifications (cont.)

- **SATA interface:** Two/One on-board Serial ATAIII connector(s) support(s) data transmission rate up to 600 MB/s, and four/five on-board Serial ATAII connectors support data transmission rate up to 300 MB/s. All six SATAIII/II ports support Advanced Host Controller Interface (AHCI) technology.
- **LPC interface:** Advantech-designed LPC connector supports TPM module, or RS232 module, or RS422/485 module.
- **Serial ports:** Six serial ports: COM1, COM2 and COM4 ~ 6 are RS-232; COM3 is RS-232/422/485 with auto flow control support.
- **Parallel port:** One parallel port, which supports SPP/EPP/ECP modes.
- **Keyboard/mouse connector:** Supports standard PS/2 keyboard and mouse.
- **Watchdog timer:** 255 timer level intervals
- **USB 2.0:** Supports up to fourteen USB 2.0 ports (QG2 version).

VGA Interface

- **Chipset:** CPU integrated graphics controller
- **Display Memory:** 1 GB maximum shared memory with 2 GB and above system memory installed
- **Resolution:** Supports DVI up to 1920 x 1200 resolution @ 60 Hz refresh rate (QG2 version) Supports RGB up to 2048 x 1536 resolution @ 75 Hz refresh rate

Ethernet interface

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel® 82579LM; LAN2: Intel® 82583V (QG2 version only)

Mechanical and Environmental

- **Dimensions (L x W):** 304.8 x 244 mm (12" x 9.6")
- **Power supply voltage:** +3.3 V, +5 V, +12 V, 5 Vsb
- **Power consumption:** Maximum: +5 V at 2.89 A, +3.3 V at 1.02 A, +12 V at 5.88 A, +5 VSB at 0.5 A (Intel® i5 2400 3.1 GHz processor, 4 x 4 GB DDR3 Memory)
- **Operating temperature:** 0 ~ 60° C (depending on CPU)
- **Weight:** 0.5 kg (weight of board)

Jumpers and Connectors

The board has a number of jumpers that allow you to configure your system to suit your application. The table below lists the function of each jumper and connector.

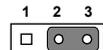| Connector / Jumper List	
Label	**Function**
JWDT1	Watchdog Reset
LPC1	Low pin count connector for Advantech designed LPC modules
LPT1	Parallel port supports SPP/ EPP/ECP mode
LAN1_USB12	LAN1 / USB port 1, 2
LAN2_USB34	LAN2 / USB port 3, 4
VGA1	VGA connector
DVI1	DVI connector (QG2 version only)
COM1 COM2 COM4 COM5 COM6	Serial port: RS-232
COM3	Serial port: COM3; RS-232/422/485 (9-pin connector)
JSETCOM3	COM3 RS-232/422/485 Jumper Setting
KBMS1	PS/2 Keyboard and Mouse connector
KBMS2	External Keyboard and Mouse PS/2 connector (6-pin)
JIR1	Infrared connector
JFP3	Keyboard Lock and Power LED Suspend: Fast flash (ATX/ AT) System On: ON (ATX/ AT) System Off: OFF (AT) System Off: Slow flash (ATX)
JFP2	External speaker / HDD LED connector / SM Bus connector
JFP1	Power Switch / Reset connector
JCASE1	Case Open
PSON1	AT(1-2) / ATX(2-3)
VOLT1	Voltage Display
JOBS1	Close: Enable OBS Alarm Open: Disable OBS Alarm
CPUFAN1	CPU FAN connector (4-pin)
SYSFAN1	System FAN connector (3-pin)
SYSFAN2	System FAN connector (3-pin)
LANLED1	LAN1/2 LED extension connector
AUDIO1 AUDIO2	Audio connector

Jumpers and Connectors

FPAUD1	HD Audio Front Panel Pin Header
USB56	USB port 5, 6
USB78	USB port 7, 8 (QG2 version only)
USB910	USB port 9, 10
USB1112	USB port 11,12
USB1314	USB port 13,14
SATA1	Serial ATA1
SATA2	Serial ATA2
SATA3	Serial ATA3
SATA4	Serial ATA4
SATA5	Serial ATA5
SATA6	Serial ATA6
ATX12V1	ATX 12V Auxiliary power connector (for CPU)
EATXPWR1	ATX 24 Pin Main power connector (for System)
SPDIF_OUT1	SPDIF Audio output pin header
SPI_CN1	SPI flash card pin header
JCMOS1	CMOS and ME clear
JME1	Intel ME Disable Jumper
JUSBPWR1	USB port 1~4 power source switch between +5V_DUAL and +5 V
JUSBPWR2	USB port 5/6/7/8/11/12 power source switch between +5V_DUAL and +5 V
JUSBPWR3	USB port 9/10/13/14 power source switch between +5V_DUAL and +5 V
GPIO1	8 bit GPIO from super I/O
SMBUS1	SM Bus from PCH

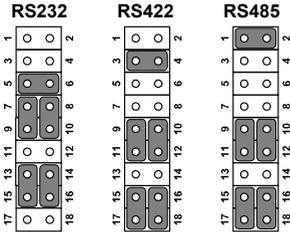| JCMOS1: CMOS and ME clear function	
Pins	**Result**
1-2	Keep CMOS and ME data*
2-3	Clear CMOS and ME data
* Default	

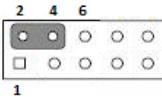*Keep CMOS data   Clear CMOS data

Jumpers and Connectors

JSETCOM3: COM3 RS-232/422/485 Mode Selector

Users can use JSETCOM3 to select RS-232, RS-422 or RS-485 mode for COM3. The default setting is RS-232.
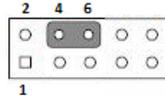

RS232	RS422	RS485

JWDT1: Watchdog timer output option

Closed Pins	Result
2-4	NC
4-6	System reset*
* Default	

NC 2-4 Closed   *System Reset 4-6 Closed

PSON1: ATX, AT mode selector

Closed Pins	Result
1-2	AT Mode
2-3	ATX Mode*
* Default	

AT Mode 1-2 closed   *ATX Mode 2-3 closed

Software Installation

The CD disc contains a driver installer program that will lead you through the installation of various device drivers needed to take full advantage of your motherboard.

Caution! The computer is supplied with a battery-powered realtime clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to manufacturer's instructions.
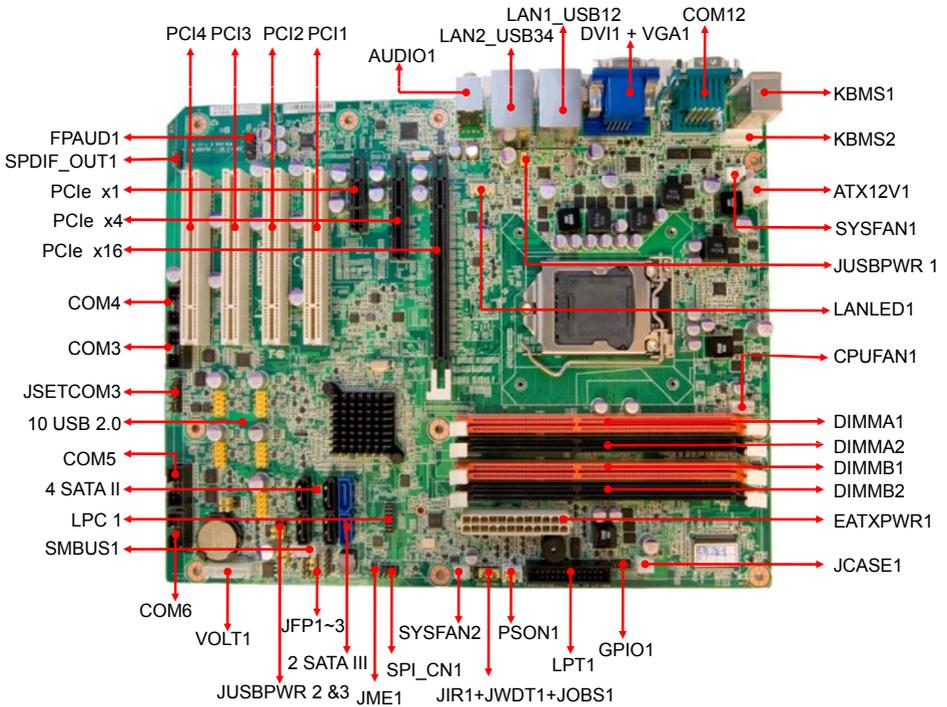
Declaration of Conformity

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

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

Board Layout

Labels (left side, top to bottom):
PCI4 PCI3 PCI2 PCI1
AUDIO1
LAN2_USB34
LAN1_USB12
DVI1 + VGA1
COM12

FPAUD1
SPDIF_OUT1
PCIe x1
PCIe x4
PCIe x16
COM4
COM3
JSETCOM3
10 USB 2.0
COM5
4 SATA II
LPC 1
SMBUS1
COM6
VOLT1
JFP1~3
2 SATA III
JUSBPWR 2 &3
JME1
SPI_CN1
SYSFAN2
PSON1
JIR1+JWDT1+JOBS1
LPT1
GPIO1

KBMS1
KBMS2
ATX12V1
SYSFAN1
JUSBPWR 1
LANLED1
CPUFAN1
DIMMA1
DIMMA2
DIMMB1
DIMMB2
EATXPWR1
JCASE1

Figure 1: Board Layout: Jumper and Connector Locations

JFP1 & JPF2	3	6	9	12
	2	5	8	11
	1	4	7	10

JFP3	1	2	3	4	5

PWRSW	RESET
HDDLED	SNMP SM_BUS
SPEAKER	

PWRLED & KEYLOCK