

## AIMB-785 LGA1151 Intel® Core™ i7/i5/i3 ATX with Triple Display, DDR4, SATA III Startup Manual

### Packing List

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

- 1 AIMB-785 motherboard
- 1 AIMB-785 Startup Manual
- 2 Serial ATA HDD data cables
- 2 Serial ATA HDD power cables
- 1 I/O port bracket

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](http://www.adobe.com/Products/acrobat/readstep2.html) (Acrobat is a trademark of Adobe)

### Specifications

#### Standard Functions

- **CPU:** LGA1151 6th and 7th Gen Intel® Core™ i7/i5/i3 and Celeron®/Pentium® processors
- Note:** Only 6th Gen Intel® processors can support Windows 7.
- **BIOS:** AMI 128 Mb SPI BIOS
  - **Chipset:** Intel® Q170 chipset
  - **System memory:** Up to 64 GB with four 288-pin DIMM sockets, supporting dual-channel DDR4 1866/2133 SDRAM. AIMB-785 supports non-ECC unbuffered DIMMs and does not support any memory configuration that mixes non-ECC with ECC unbuffered DIMMs.
- Note:** Due to the inherent limitations of PC architecture, the system may not fully detect 64 GB RAM when 64 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-785 series Rev. A1.

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### Specifications (Cont.)

- **SATA interface:** Four on-board Serial ATA 3.0 connectors support data transmission rates of up to 600 MB/s. All four SATA 3.0 ports support Advanced Host Controller Interface (AHCI) technology.
- **PCIe and PCI slots:** 1 PCIe x16 expansion slot, 3 PCIe x4 expansion slots, 3 PCI slots 32-bit/33 MHz PCI 2.2 compliant
- **LPC interface:** Advantech-designed LPC connector supports dTPM 2.0 module
- **Serial ports:** Six serial ports: COM1, COM2 and COM4 ~ 6 are RS-232; COM3 is RS-232/422/485 with BIOS menu options
- **Keyboard/mouse connector:** An external keyboard and mouse connector on the motherboard is supported. No PS/2 keyboard/mouse connector is supported in the rear I/O.
- **Watchdog timer:** 255 sec timer intervals
- **USB 3.0/2.0:** Thirteen USB ports: 1/2/3/4/13/14 are USB 3.0; others are USB 2.0.

#### Graphics 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. Supports VGA up to 1920 x 1200 resolution @ 60 Hz refresh rate.

#### Ethernet Interface

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel® I219LM; LAN2: Intel® I210AT

#### 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:**  
Intel® Core™ Intel® I7-6700 3.4 GHz; DDR4 8 G x 4  
Maximum: +3.3 V at 1.02 A, +5 V at 1.96 A, +12 V at 1.14 A, +5 Vsb at 0.08 A, -5 V at 0.03 A, -12 V at 0.06 A
- **Operating temperature:** 0 ~ 60°C (depending on CPU)
- **Weight:** 0.7 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 dTPM 2.0 and RS232 modules
LAN1_USB12	LAN1 / USB 3.0 port 1, 2
LAN2_USB34	LAN2 / USB 3.0 port 3, 4
VGA1+COM1	VGA connector / COM connector
DVI1+DVI2	Dual DVI-D connectors
COM1	Serial port: RS-232 (DB-9 connector)
COM2 COM4 COM5 COM6	Serial port: RS-232 (9-pin header)
COM3	Serial port : RS-232/422/485 (9-pin header)
KBMS1	Keyboard and mouse connector (6-pin)
JFP3	Keyboard lock and power/sleep LED Suspend: fast flash (ATX/ AT) System on: ON (ATX/ AT) System off: OFF (AT/ATX)
JFP2	External speaker / HDD LED connector SNMP / SM Bus connector
JFP1	Power switch / reset connector
JCASE1	Case open connector
PSON1	AT/ATX mode selector
VOLT1	Alarm board power connector
JOBS1	Close: Enable OBS alarm Open: Disable OBS alarm
CPUFAN1	CPU FAN connector (4-pin)
SYSFAN1	System FAN power connector (4-pin)
SYSFAN2	System FAN power connector (4-pin)
LANLED1	Front panel LAN indicator connector
AUDIO1 AUDIO2	Audio connector (Line-Out, Mic-In)
FPAUD1	Front panel audio pin header
USB56	USB port 5, 6
USB78	USB port 7, 8
USB910	USB port 9, 10
USB11	USB11 (Type-A)

## Jumpers and Connectors (Cont.)

USB1314	USB 3.0 13, 14
SATA2	Serial ATA3
SATA3	Serial ATA4
SATA4	Serial ATA5
SATA5	Serial ATA6
ATX12V1	ATX 12V auxiliary power connector (for CPU)
EATXPWR1	ATX 24-pin main power connector (for system)
SPDIF_OUT1	Digital audio output pin header
SPI_CN1	SPI flash card pin header
JCMOS1	Clear CMOS
JME1	Intel® ME Enable/Disable jumper
JPCCLK1	PCI Clock selection (1-2): 33/66 MHz auto-detected (default) (2-3): 33 MHz
JUSB_1	USB power source switch between +5V and +5V_DUAL for Rear USB ports
JUSB_2	USB power source switch between +5V and +5V_DUAL for On-board USB ports
GPIO1	8-bit digital I/O connector
SMBUS1	SMBus connector

### JCMOS1: CMOS and ME Clear Function

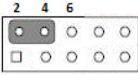
Pins	Result
1-2	Keep CMOS data*
2-3	Clear CMOS data
* Default	



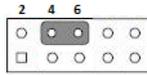
## Jumpers and Connectors (Cont.)

### 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

### PSO1: 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

### JUSB

Closed Pins	Result
1-2	*USB +5V_DUAL Power
2-3	USB +5V Power
* Default	



\*USB +5 V\_DUAL Power



USB +5 V Power

## Declaration of Conformity

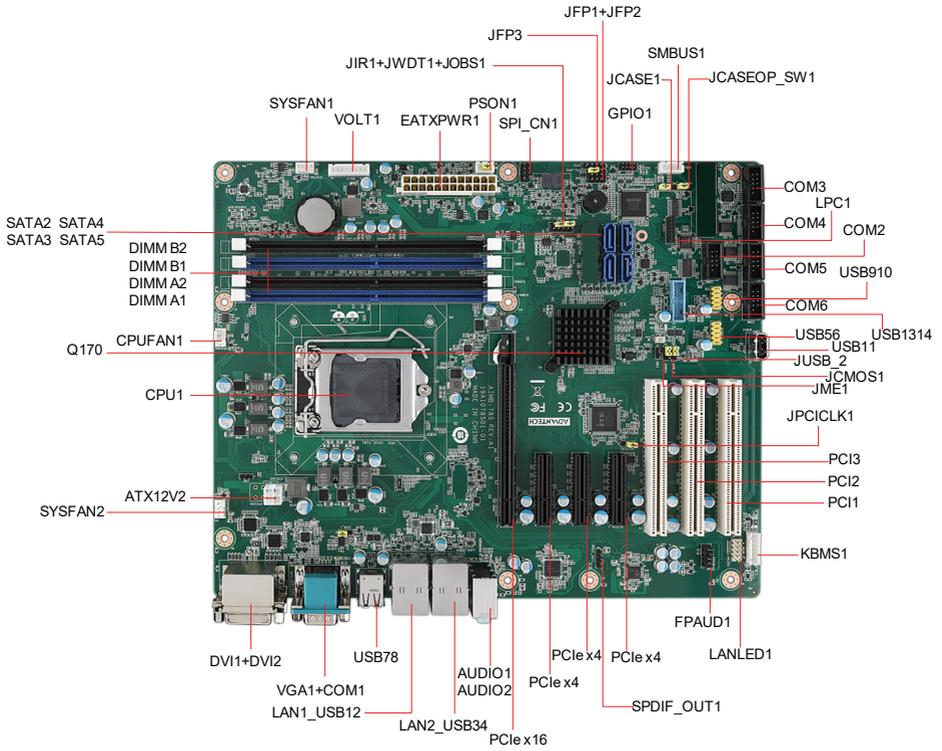
**Caution!** The computer is supplied with a battery-powered realtime clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



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



JFP1	3	6	9	12	PWRSW	RESET
&	2	5	8	11	HDDLED	SNMP SM BUS
JFP2	1	4	7	10	SPEAKER	
JFP3	1	2	3	4	PWRLD & KEYLOCK	

**Figure 1: Board Layout: Jumper and Connector Locations**