

AIMB-276 Intel® LGA1151 Core™ i7/i5/i3 Mini-ITX with HDMI/DP++/LVDS(co-lay eDP), 2 x COM, 10 x USB, Dual LAN, PCIe x16, 12 ~ 24V DCIN

Startup Manual

Packing List

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

1. AIMB-276 Intel® LGA1151 Core™ i7/i5/i3 Mini-ITX motherboard
2. SATA HDD cable x 1
3. SATA Power cable x 1
4. Serial Port cable x 2
5. I/O port bracket x 1
6. Startup manual x 1
7. Warranty card x 1

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/Prodindex/acrobat/readstep.html (Acrobat is a trademark of Adobe).

Specifications

Standard SBC functions

- **CPU:** Supports Intel® Core™ i7/i5/i3 LGA1151 CPU.
- **BIOS:** AMI EFI 256 Mbit SPI.
- **Chipset:** Intel® Q370 Chipset.
- **System memory:** Up to 32 GB in two 260-pin SODIMM sockets. Supports DDR4 2666 MHz SDRAM.

Note: Due to the inherent limitations of the PC architecture, the system may not fully detect 32 GB RAM when 32 GB RAM is installed.

- **SATA3 Interface:** Three on-board Serial ATA3 connectors with a data transmission rate of up to 600 MB/s supporting Advanced Host Controller Interface (AHCI) technology. One miniPCIe slot with data transmission rates of up to 600 MB supports mSATA storage modules.
- **Serial ports:** Two serial ports support 2 x RS-232.
- **M.2 Interface:** 1 M.2 E-Key for Wi-Fi module, 1 M.2 B-Key.
- **Watchdog timer:** 1~255 level timer intervals.
- **USB 3.1:** Supports up to six USB 3.1 ports.
- **USB 3.0:** Supports up to four USB 3.0 ports.

Graphic Interface

- **Chipset:** Supports Intel HD Graphics, Intel 8th generation Core i processors, i7-8700, i7-8700T, i5-8500, i5-8500T, i3-8100, i3-8100T, Pentium G5400, G5400T, G4900, G4900T
- **Display Memory:** 1GB maximum shared memory with 2GB and above system memory installed
- **Resolution:** Single channel 24-bit/Dual channel 48-bit LVDS which supports max. resolution 1920 x 1200. Supports DP++ up to 4096x2160 @60Hz resolution, and compliant with HDMI 2.0 specifications, up to 4096x2160 @ 60 Hz

Ethernet Interface

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel i219LM; LAN2: Intel® i211AT

Mechanical and Environmental

- **Dimensions (L x W):** 170 x 170 mm
- **Power adapter voltage:** 12~24V DC Input
- **Power requirements:**
i7-8700 3.2GHz, 2pcs 16G DDR4 2400MHz, 24V @ 9.86A
- **Operating temperature:** 0 ~ 60°C
- **Weight:** 0.365 kg (weight of board)

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-276 series Rev.A1.

Part No. 2046027600

1st Edition,

Printed in China

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Jumpers and Connectors

The board has a number of connectors and jumpers that help configure the system to suit your application requirements. The tables below list the functions of the connectors and jumpers.

Connector List		
	Description	Part Reference
1	Direct Current input connector	DCIN1
2	DisplayPort1/2	DP12
3	High-Definition Multimedia Interface connector	HDMI1
4	Universal Serial Bus Port 3.1 Gen1 #7/ #8	USB78
5	Universal Serial Bus Port 3.1 Gen2 #1/ #2	USB12
6	RJ45 #1	LAN1
7	Universal Serial Bus Port 3.1 Gen2 #3/ #4	USB34
8	RJ45 #2	LAN2
9	Universal Serial Bus Port 3.1 Gen2 #6 (Type-C)	USB6
10	Universal Serial Bus Port 3.1 Gen2 #5	USB5
11	HD Audio Interface (Analog)	AUDIO1
12	Amplifier connector	AMP1
13	Front panel audio header	FPAUD1
14	CMOS Mode selection	JCMOS1
15	PCI Express x16 slot	PCIEX16_1
16	Platform Controller Hub	PCH1
17	CMOS battery connector	BAT1
18	Case Open selection pin header	JCASEOP_SW1
19	Case Open connector	JCASE1
20	NGFF M.2 B-Key connector for 2242/3042 module	M2B1
21	Universal Serial Bus Port 3.1 Gen1 #9/ #10 box header	USB910
22	COM1 RI# selection pin header	JSETCOM1_V1
23	Serial ATA interface connector #1~#3	Sata1~Sata3
24	COM2 pin header (S1.27MM)	COM2
25	CPU FAN connector	CPUFAN1
26	COM1 pin header (S1.27MM)	COM1
27	Low pin count interface connector	LPC1
28	EDP/LVDS Backlight inverter power connector	INV1

Jumpers and Connectors (Cont.)

29	Subscriber identity module connector	SIM1
30	LVDS VESA, JEIDA format selection pin header	JLVDS_VCON1
31	Low-Voltage Differential Signaling Interface/ Embedded DisplayPort	LVDS1(000) / eDP (100)
32	Voltage selection for JLVDS connector	JLVDS1
33	System Fan #1 connector / System Fan #2 connector	SYSFAN1/2
34	Power LED and keyboard lock pin header	JFP2
35	Watchdog timer output and OBS beep	JWDT1 + JOBS1
36	8-bits General Purpose I/O pin header(S1.27MM)	GPI01
37	PWRBTN#/ RESET#/HDD LED/ Serial bus from HW monitor IC/Internal Buzzer / External Speaker header	JFP1
38	CPU Socket LGA1151 H4	CPU1
39	DDR4 SO-DIMM socket A1/ DDR4 SO-DIMM socket B1	Dimma1/ Dimmb1
40	SPI BIOS flash socket	SPI1
41	SPI Pin Header	SPI_CN1
42	Serial ATA interface power connector	SATA_PWR1/2
43	AT/ATX Mode selection	PSON1
44	ATX supported 3-pin header on board	ATX_5VSB1
45	NGFF M.2 E-Key connector for 2230 module	M2E1

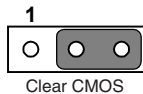
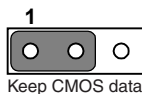
Jumper List

Label	Function
JCOMS1	CMOS Clear Jumper
JME1	ME Enable/Disable Jumper
JFP1	Power Switch/HDD LED/SMBUS/ Speaker Pin Header
JFP2	Power LED and Keyboard Lock Pin Header
JWDT1+JOBS1	Watchdog Timer Output and OBS Beep
PSON1	ATX/AT Mode Selection
JLVDS1	LVDS Panel Voltage Selection
JSETCOM2_V1	COM2 RI# pin RI#/5V/12V Select

Jumpers and Connectors (Cont.)

CMOS1: Clear CMOS

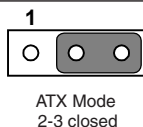
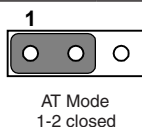
Pins	Result
1-2 (Default)	Keep CMOS data*
2-3	Clear CMOS data



PS0N1: ATX, AT Mode Selector

Closed Pins Result

1-2	AT Mode
2-3 (Default)	ATX Mode*



JWDT1+JOBS1: Watchdog Timer Output and OBS Beep

Function	Jumper Setting
Watchdog Timer Output(2-3)* OBS BEEP(4-5)*	<p>(2 and 3)+(4 and 5)</p>
Watchdog Timer Disable (1-2) OBS BEEP(4-5) (Default)	<p>(1 and 2)+(4 and 5)</p>

Jumpers and Connectors (Cont.)

LVDS Panel Voltage Selection (JLVDS1)

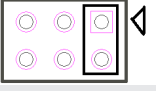
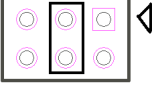
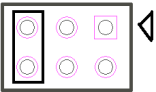
Function	Jumper Setting
Jumper position for 5V	<p>JLVDS1(2-4)</p>
Jumper position for 3.3V (Default)	<p>JLVDS1(4-6)</p>
Jumper position for 12V	<p>JLVDS1(3-4)</p>

JFP1: Power Switch/HDD LED/SMBUS/Speaker Pin Header

Internal Speaker (7-10) (Default) External Speaker (1-7)			
Pin	Signal	Pin	Signal
1	+5V	2	HDDLED+
3	Power Button+	4	NC
5	HDDLED-	6	Power Button-
7	SPK_P3	8	SMB_DATA
9	System Reset+	10	SPK_P4
11	SMB_CLK	12	System Reset

Jumpers and Connectors (Cont.)

JSETCOM1_V1: COM1 RI# Pin RI#/5V/12V Select

Function	Jumper Setting
Jumper position for RI# (Default)	 1 and 2
Jumper position for 5V	 3 and 4
Jumper position for 12V	 5 and 6

Declaration of Conformity

The 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.

Software Installation

Please kindly download the user manual and product driver from Advantech support website: <http://support.advantech.com.tw>.

The driver installer program will lead you through the installation as various drivers are required to take full advantage of your motherboard.

CAUTION

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

Board Diagram

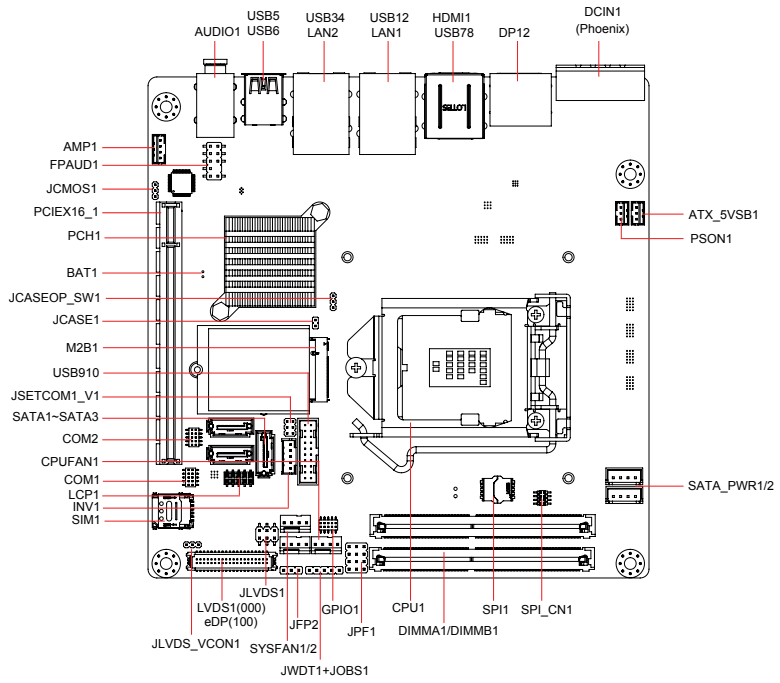


Figure 1: Top Side

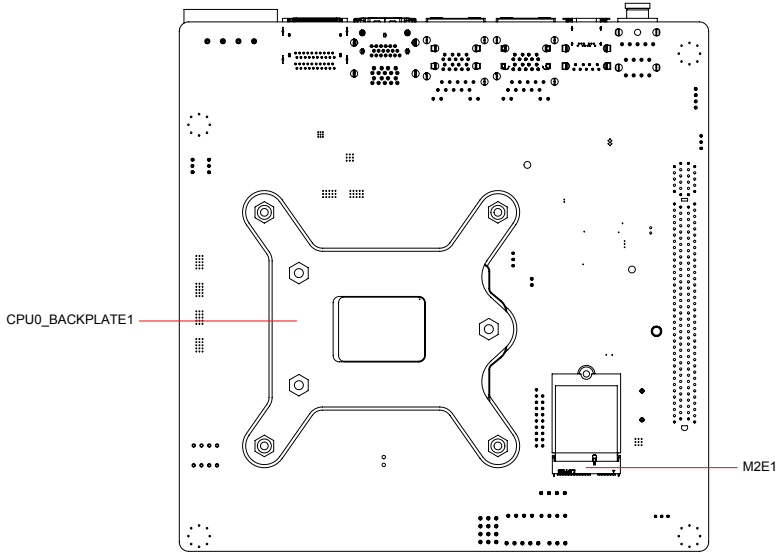


Figure 2: Bottom Side