ADVANTECH

AIMB-707 LGA1200 Intel® Core™ i9/i7/i5/i3 ATX with Dual Display, M.2, USB 3.2, and DDR4
Startup Manual

Packing List

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

- 1 x AIMB-707 motherboard
- 1 x AIMB-707 Startup Manual
- 2 x Serial ATA HDD data cables
- 1 x I/O port bracket

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

Specifications

Standard Functions

- **CPU:** LGA1200 socket supporting 10th Gen Intel® Core™ i9/i7/i5/i3 and Pentium™/Celeron™ processors
- **BIOS:** AMI 128 Mbit SPI BIOS
- **Chipset:** Intel® H420E PCH

Note: Legacy platforms are not supported.

- **System memory:** Up to 64 GB in two 288-pin DIMM sockets, supporting dual-channel DDR4 2400/2666/2933 SDRAM. AIMB-707 supports non-ECC unbuffered DIMMs and does not support any memory configuration that mixes non-ECC with ECC unbuffered DIMMs.

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

http://www.advantech.com

For technical support and service, please visit our support website for AIMB-707 at:

http://advt.ch/aimb707spt

Register your products on our website and get 2 months extra warranty for free at:

http://www.register.advantech.com

This manual is for the AIMB-707 series Rev. A1.

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Specifications (Cont.)

- **M.2 socket:** One M.2 socket supports up to PCIe x2 M-Key 2280 type storage devices.
- **SATA interface:** Four onboard 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:** One PCIe x16 expansion slot, 2x PCIe x4 expansion slots (x1 link), 4x PCI slots 32-bit / 33 MHz PCI 2.2 compliant
- **USB 3.2/2.0:** Six USB 3.2 Gen 1 ports (6 rear), 4x USB 2.0 ports (2x via header, 2x internal Type-A)
- **LPC interface:** Advantech-designed LPC connector supports dTPM 2.0 module and COM port extension modules.
- **Serial ports:** Up to 6x serial ports: COMD1, COMD2 and COM 4 ~ 6 are RS-232; COM3 is RS-232/422/485 with jumper and BIOS menu options.
- **Keyboard/mouse connector:** The motherboard is not equipped with a rear PS/2 connector for keyboard/mouse. A 6-pin onboard header is supported for an optional PS/2 keyboard/mouse cable.
- **Watchdog timer:** 255 sec timer intervals

Graphics Interface

- **Chipset:** CPU integrated graphics controller.
- **Display memory:** One GB maximum shared memory with 2x GB and above system memory installed
- **DVI-D:** Resolution up to 1920 x 1200 @ 60 Hz refresh rate
- **VGA:** Resolution up to 1920 x 1200 @ 60 Hz refresh rate

Ethernet Interface

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel® I219-V; LAN2 (G2 SKU only): Intel® I210-AT

Mechanical and Environmental

- **Dimensions (L x W):** 304.8 x 244 mm (12 x 9.6 in)
- **Power supply voltage:** +3.3 V, +5 V, ±12 V, +5 Vsb
- **Power consumption:**
  Intel® Core™ i9-10900E; DDR4 32 GB x 2.
  Maximum: +3.3 V at 0.72 A, +5 V at 1.29 A, +12 V at 6.5 A, +5 Vsb at 0.11 A, -12 V at 0.04 A
- **Operating temperature:** 0 ~ 60 °C/32 ~ 140 °F (depending on the CPU)
- **Weight of board:** 0.7 kg (1.54 lb)

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**
LAN1	LAN1
LAN2	LAN2 (G2 SKU only)
USB3C1, USB3C3	4x USB 3.2 Gen 1 port
USB3C2	2x USB 3.2 Gen 1 port (G2 SKU only)
USB2A1	USB 2.0 internal Type-A port
USB2A2	USB 2.0 internal Type-A port (G2 sku only)
USB2H1	2x USB 2.0 port (10-pin header)
VGA1+DVI1	VGA connector / DVI-D connector (DVI1 for G2 SKU only)
COMD1+COMD2	Serial port: RS-232 (DB-9 connector)
COM4 ~ COM6	Serial port: RS-232 (9-pin header, G2 SKU only)
COM3	Serial port: RS-232/422/485 (9-pin header, G2 SKU only)
KBMS1	External keyboard/mouse connector (6-pin header)
CPUFAN1	CPU fan connector (4-pin)
SYSFAN1 ~ SYSFAN3	System fan connector (4-pin)
JFP3	Keyboard lock and power LED Suspend: fast flash (ATX/AT) System on: ON (ATX/AT) System off: OFF (ATX/AT)
JFP2	External speaker / HDD LED connector / SMBus connector
JFP1	Power switch / reset connector
AUDIO1+AUDIO2	Audio connector (Line-Out, Mic-In)
VOLT1	Alarm board power connector
JCASE1	Case open connector
LANLED1	Front panel LAN indicator connector
NVME1	M.2 2280 M-Key socket (G2 SKU only)
SATA0 ~ SATA3	Serial ATA 3.0 port
PCI1 ~ PCI4	PCI slot
PCIE1	PCIe x16 slot
PCIE2 ~ PCIE3	PCIe x4 slot (x1 link)
DIMMA1	Channel A DIMM1

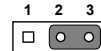## Jumpers and Connectors (Cont.)

DIMMB1	Channel B DIMM1
ATX12V1	ATX 12 V auxiliary power connector (for CPU)
EATXPWR1	ATX 24-pin main power connector (for system)
SPDIF_OUT1	SPDIF audio out pin header
GPIO1	8-bit GPIO from super I/O
SMBUS1	SMBus connector from PCH
FPAUD1	Front panel audio connector
LPC1	Low pin count connector for Advantech dTPM 2.0 and RS232 modules

JCMOS1: Clear CMOS JME1: Intel® ME Update	
Closed Pins	**Result**
1-2	*Keep CMOS data *ME normal mode
2-3	Clear CMOS data ME recovery mode
* Default	

*Keep CMOS data   Clear CMOS data
*ME normal mode   ME recovery mode

JWDT1+JOBS1: Watchdog Timer Output and OBS Alarm	
Closed Pins	**Result**
2-4, 8-10	Watchdog timer disable (2-4) OBS beep (8-10)
4-6, 8-10	*Watchdog timer reset (4-6) OBS beep (8-10)
* Default	
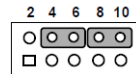
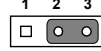Watchdog timer disable (2-4)   *Watchdog timer reset (4-6)
OBS beep (8-10)   OBS beep (8-10)

PSON1: ATX/AT Mode Selection

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

AT mode   *ATX mode

JUSB_1 (Rear USB), JUSB_2 (Onboard USB): USB Power Source Switch Between +5V and +5V_DUAL

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

*USB +5 V_DUAL power   USB +5 V power

SMB1 (Clock), SMB2 (Data): PCIe SMBus Connection Setting

Closed Pins	Result
1-2	*Enable PCIe SMBus connection
2-3	Disable PCIe SMBus connection
* Default	

*Enable PCIe SMBus connection   Disable PCIe SMBus connection

Note: Both SMB1 and SMB2 jumpers should be switched to the same setting, either 1-2 closed or 2-3 closed.

JT1(TX Signal), JR1(RX Signal): COM3 RS-422/485 Termination Resistor

Closed Pins	Result
1-2	Disable termination
2-3	*Enable termination
* Default	

Disable termination   *Enable termination

JSETCOM3: COM3 RS-232/422/485 Jumper Settings
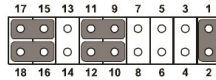
Closed Pins	Result
5-6, 7-9, 8-10, 13-15, 14-16	*RS-232
3-4, 9-11, 10-12, 15-17, 16-18	RS-422
1-2, 9-11, 10-12, 15-17, 16-18	RS-485
* Default	
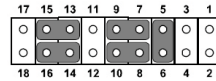
*RS-232
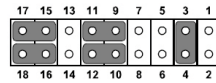
RS-422

RS-485

Note: BIOS setting changes are necessary if RS-422 or RS-485 is selected. Please refer to Chapter 3 of the user manual for additional settings.

JFV1: VGA Dummy Load Setting

Closed Pins	Result
1-2	Enable VGA dummy load
2-3	*Disable VGA dummy load
* Default	

Enable VGA dummy load   *Disable VGA dummy load

Note: We reccomend leaving this function disabled if you use DVI/DP as your main display.

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.

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.

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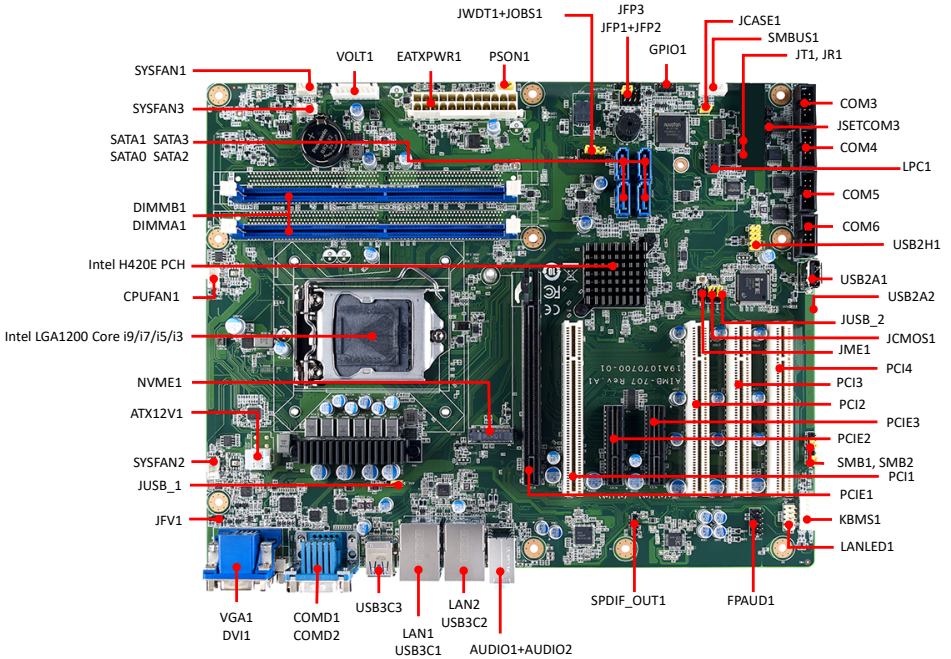
Figure 1: Board Layout: Jumper and Connector Locations