ADVANTECH

AIMB-708 LGA1700 Intel® Core™ i9/i7/i5/i3 ATX Motherboard with HDMI/VGA, DDR4, USB 3.2, M.2 Startup Manual

Packing List

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

• 1 x AIMB-708 motherboard
• 1 x AIMB-708 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:** LGA1700 socket supporting 12th/13th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® processors.
• **BIOS:** AMI 256 Mbit SPI BIOS
• **Chipset:** Intel® H610E PCH

Note: Legacy platforms are not supported.

• **System memory:** Up to 64 GB in two 288-pin DIMM sockets, supporting dual-channel DDR4 3200 SDRAM. AIMB-708 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-708 at:

http://advt.ch/aimb708spt

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-708 series Rev. A1, and all specifications are subject to the data-sheet on the official website. The information in this manual is subject to change without notice.

Specifications (Cont.)

• **M.2 socket:** One M.2 socket supports up to PCIe x2 Gen 3 M-Key 2280 type storage devices (G2 SKU only).
• **SATA interface:** Four on-board Serial ATA 3.0 connectors support data transmission rates 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 Gen 4 expansion slot, 2 PCIe x4 expansion slots (x2 Gen 3 link), 4 PCI slots 32-bit/33 MHz PCI 2.2 compliant.
• **USB 3.2/2.0:**
  - G2 SKU: 4 USB 3.2 Gen 1 ports on the rear with up to 5 Gb/s data rate, 6 USB 2.0 ports (2 rear, 2 via header, 2 internal Type-A)
  - VG SKU: 2 USB 3.2 Gen 1 ports on the rear with up to 5 Gb/s data rate, 5 USB 2.0 ports (2 rear, 2 via header, 1 internal Type-A)
• **Serial port:** Up to 6 serial ports: COMD1 and COM4 ~ 6 are RS-232; COM3 is RS-232/422/485 with jumper and BIOS menu options.
• **SPI interface:** Advantech-designed SPI connector supports optional dTPM 2.0 module.
• **Watchdog timer:** 255 timer level intervals.

Graphics Interface

• **Chipset:** CPU integrated graphics controller.
• **Display memory:** 1 GB maximum shared memory with 2 GB and above system memory installed.
• **HDMI (G2 SKU only):** Resolution up to 3840 x 2160 @ 30 Hz refresh rate.
• **VGA:** Resolution up to 1920 x 1200 @ 60 Hz refresh rate.

Ethernet Interface

• **Interface:**
  - LAN1: 10/100/1000 Mbps
  - LAN2: 10/100/1000/2500 Mbps (G2 SKU only)
• **Controller:**
  - LAN1: Intel® I219-V
  - LAN2: Intel® I226-V (G2 SKU only)

Mechanical and Environmental

• **Dimensions (L x W):** 304.8 x 244 mm (12" x 9.6")
• **Power consumption:** Intel® Core™ i 65W; DDR4 32 GB x 2 Maximum: +3.3V at 3.06A, +5V at 8.17A, +12V at 0.84A, +5V$_{SB}$ at 0.05A, -12V at 0.03A, -5V at 0.01A
• **Operating temperature:** 0 ~ 60 °C (depending on CPU loading and thermal solution)
• **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
ATX12V1+ATX12V2	ATX 12 V auxiliary power connector (for CPU)
AUDIO1+AUDIO2	Audio connector (Line Out, Mic In)
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)
COMD1	Serial port: RS-232 (DB-9 connector) *2
CPUFAN1	CPU fan connector (4-pin)
DIMMA1	Channel A DIMM1
DIMMB1	Channel B DIMM1
EATXPWR1	ATX 24-pin main power connector (for system)
FPAUD1	Front panel audio connector
GPIO1	8-bit GPIO from super I/O
HDMI1	HDMI connector (G2 SKU only)
JCASE1	Case open connector
JCMOS1	CMOS clear data
JFP1	Power switch/reset connector
JFP2	External speaker/HDD LED connector/SMBus connector
JFP3	Power LED Suspend: fast flash (ATX/AT) System on: on (ATX/AT) System off: off (ATX/AT)
JFV1	VGA dummy load setting
JME1	Intel® ME update
JPCICLK1	PCI clock selection
JR1+JT1	COM3 RS-422/485 termination resistor
JSETCOM3	COM3 RS-232/422/485 jumper setting
JUSB1	External USB power source switch
JUSB2	Internal USB power source switch
JWDT1+JOBS1	Watchdog timer output and OBS alarm
LAN1	GbE LAN
LAN2	GbE LAN (G2 SKU only)

Jumpers and Connectors (Cont.)

LANLED1	Front panel LAN indicator connector
NVME1	M.2 2280 M-Key socket (G2 KU only)
PCI1 ~ PCI4	PCI slot
PCIE1	PCIe x16 slot (x16 Gen 4 link)
PCIE2 ~ PCIE3	PCIe x4 slot (x2 Gen 3 link)
PSON1	ATX/AT mode selection
SATA4 ~ SATA7	Serial ATA 3.0 port
SMB1 ~ SMB2	PCIe SMBus connection setting for PCIE2 ~ PCIE3 slot
SMB3 ~ SMB4	PCIe SMBus connection setting for PCIE1 slot
SMBUS1	SMBus connector from PCH
SPDIF_OUT1	SPDIF audio out pin header
SPI_TPM1	SPI (Serial Peripheral Interface) connector for Advantech dTPM 2.0 module.
SYSFAN1 ~ SYSFAN3	System fan connector (4-pin)
USB2A1	USB 2.0 port (internal Type-A)
USB2A2	USB 2.0 port (internal Type-A, G2 SKU only)
USB2C1	USB 2.0 port *2
USB2H1	2 x USB 2.0 port (10-pin header)
USB3C1	USB 3.2 Gen 1 port *2 (G2 SKU only)
USB3C2	USB 3.2 Gen 1 port *2
VGA1	VGA connector
VOLT1	Alarm board power connector

Note The PCIE1 slot can only support graphics cards and storage cards according to the specification recommended by Intel. Other types of add-on cards might not work properly. For the compatible device list validated on the PCIe x16 slot, please refer to the user manual.

JCMOS1: CMOS clear data
JME1: Intel® ME update

Closed Pins	Result
1-2	*Keep CMOS data *Enable ME update
2-3	Clear CMOS data Disable ME update
* Default	

*Keep CMOS data
*Enable ME update

Clear CMOS data
Disable ME update

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	
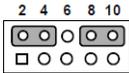
Watchdog timer disable (2-4) OBS beep (8-10)
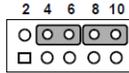
*Watchdog timer reset (4-6) OBS beep (8-10)

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

JPCICLK1: PCI clock selection

Closed Pins	Result
1-2	*33/66 MHz autodetected
2-3	33 MHz
* Default	

*33/66 MHz autodetected

33 MHz

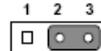### SMB1 (clock), SMB2 (data): PCIe SMBus connection setting for PCIE2 ~ PCIE3 slots
SMB3 (clock), SMB4 (data): PCIe SMBus connection setting for PCIE1 slot

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

*Enable PCIe SMBus connection   Disable PCIe SMBus connection
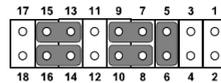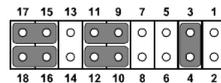
Note   SMB1+SMB2 or SMB3+SMB4 jumpers should be switched to the same setting, either 1-2 closed or 2-3 closed.

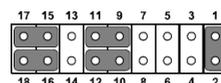### JSETCOM3: COM3 RS-232/422/485 jumper settings

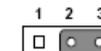| Closed Pins	Result
5-6, 7-9, 8-10, 13-15, 14-16	*RS-232
3-4, 9-11, 10-12, 15-17, 16-18	RS-422
1-2, 9-11, 10-12, 15-17, 16-18	RS-485
* Default	

*RS-232

RS-422

RS-485

Note   BIOS setting change is necessary if RS-422 or RS-485 is selected. Please refer to Chapter 3 of user manual for further setting.

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

Jumpers and Connectors (Cont.)

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!   It is recommended to leave this function disabled if you use DVI/DP as your main display.

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.
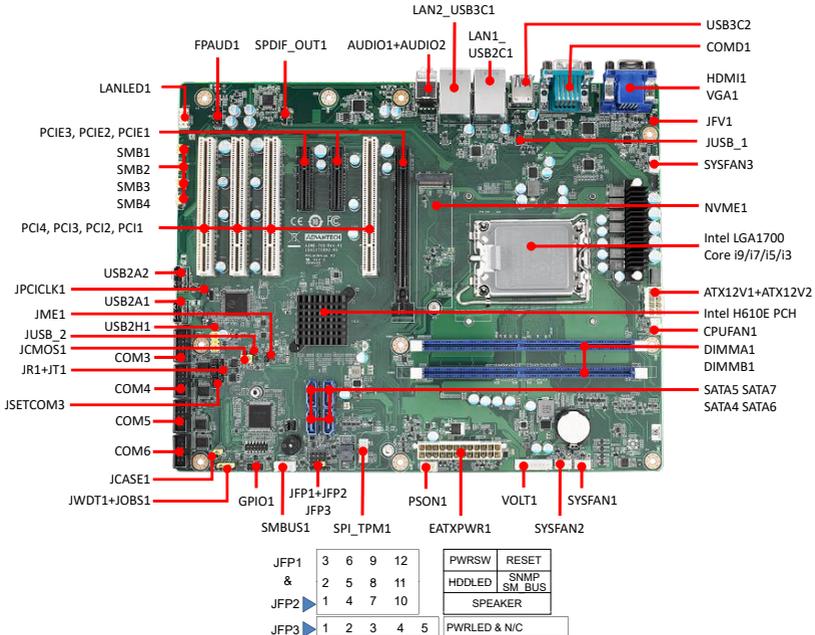
Board Layout

Figure 1: Board Layout: Jumper and Connector Locations

JFP1	3	6	9	12
&	2	5	8	11
JFP2	1	4	7	10

JFP3	1	2	3	4	5

PWRSW	RESET
HDDLED	SNMP SM_BUS
SPEAKER	

PWRLED & N/C