

# AIMB-706 LGA1151 Intel® Core™ i7/i5/i3 ATX with Dual Display, SATA 3.0, USB 3.1, DDR4

## Startup Manual

### Packing List

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

- 1 x AIMB-706 motherboard
- 1 x AIMB-706 Startup Manual
- 2 x Serial ATA HDD data cables
- 1 x Serial ATA HDD power cable
- 1 x 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 socket supporting 8th/9th Gen Intel® Core™ i7/i5/i3 and Pentium®/Celeron® processors
- Note:** BIOS version V2.XX can support both 8th and 9th Gen processors while BIOS version V1.XX can only support 8th Gen processors.
- **BIOS:** AMI 128 Mbit SPI BIOS.

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For technical support and service, please visit our support website for AIMB-706 at:

<http://adv.t.ch/aimb706spt>



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

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This manual is for the AIMB-706 series Rev. A1.

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### Specifications (Cont.)

- **Chipset:** Intel® H310 PCH
- **System memory:** Up to 32 GB in two 288-pin DIMM sockets, supporting dual-channel DDR4 2400/2666 SDRAM. AIMB-706 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 the PC architecture, the system may not fully detect 32 GB RAM when 32 GB RAM is installed.
- **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:** 1 PCIe x16 expansion slot, 1 PCIe x4 expansion slot, 5 PCI slots 32-bit / 33 MHz PCI 2.2 compliant
- **LPC interface:** Advantech-designed LPC connector supports dTPM 2.0 module and COM port extension module.
- **Serial ports:** Up to six serial ports: COMD1, COMD2 and COM4 ~ 6 are RS-232; COM3 is RS-232/422/485 with jumper and BIOS menu options.
- **Keyboard/mouse connector:** Supports standard PS/2 keyboard and mouse.
- **Watchdog timer:** 255 sec timer intervals.
- **USB 3.1/2.0:** 4 USB 3.1 Gen 1 ports (2 rear, 2 via header), 5 USB 2.0 ports (2 rear, 2 via header, 1 internal Type-A)

### Graphics Interface

- **Chipset:** CPU integrated graphics controller
- **Display memory:** 1 GB maximum shared memory with 2 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")
- **Power supply voltage:** +3.3 V, ±5 V, ±12 V, +5 Vsb
- **Power consumption:**  
Intel® Core™ i7-8700 3.2 GHz; DDR4 16GB x 2  
Maximum: +3.3 V at 2.74 A, +5 V at 3.5 A, +12 V at 5.92 A, +5 Vsb at 0.05 A, -5 V at 0.01 A, -12 V at 0.08 A
- **Operating temperature:** 0 ~ 60 °C (depending on 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	USB 3.1 Gen 1 port 1, 2
USB3H1	USB 3.1 Gen 1 port 1, 2 (20-pin header)
USB2C1	USB 2.0 port 1, 2
USB2A1	USB 2.0 port (internal Type-A)
USB2H1	USB 2.0 port 1, 2 (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	PS/2 keyboard and mouse connector
KBMS2	External keyboard and 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 (AT/ATX)
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
SATA0 ~ SATA3	Serial ATA 3.0 port
PCI1	PCI slot
PCI2	PCI slot
PCI3	PCI slot
PCI4	PCI slot
PCI5	PCI slot

## Jumpers and Connectors (Cont.)

PCIE1	PCIe x16 slot
PCIE2	PCIe x4 slot
DIMMA1	Channel A DIMM1
DIMMB1	Channel B DIMM1
ATX12V1	ATX 12 V auxiliary power connector (for CPU)
EATXPWR1	ATX 24-pin main power connector (for system)
SPI_CN1	Update BIOS pin header
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
JWDT1	Watchdog timer reset
JOBS1	Hardware monitor alarm
PSON1	AT/ATX mode selection
JUSB_1	USB power source switch between +5 V and +5 V_ DUAL for rear USB ports
JUSB_2	USB power source switch between +5 V and +5 V_ DUAL for onboard USB ports
JSETCOM3	COM3 RS-232/422/485 jumper setting
JT1, JR1	COM3 RS-422/485 termination resistor
JFV1	VGA dummy load setting

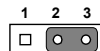
### JCMOS1: Clear CMOS

### 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

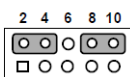


Clear CMOS data  
Disable ME update

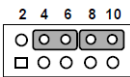
## Jumpers and Connectors (Cont.)

### 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	



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

### PSO1: ATX/AT Mode Selection

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



AT mode



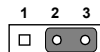
\*ATX mode

### 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

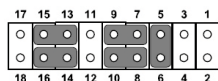


USB +5 V power

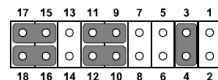
## Jumpers and Connectors (Cont.)

### JSETCOM3: COM3 RS-232/422/485 Jumper Settings

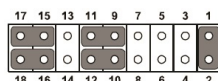
Closed Pins	Result
5-6, 7-9, 8-10, 13-15, 14-16	*RS-232
3-4, 9-11, 10-12, 15-17, 16-18	RS-422
1-2, 9-11, 10-12, 15-17, 16-18	RS-485
* Default	



\*RS-232



RS-422



RS-485

**Note:** While RS-485 is selected, it is necessary to change device mode to RS-485 for further choice of auto flow control under BIOS menu. Please refer to Chapter 3.2.2.10 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	



Disable termination



\*Enable termination

## Jumpers and Connectors (Cont.)

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

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

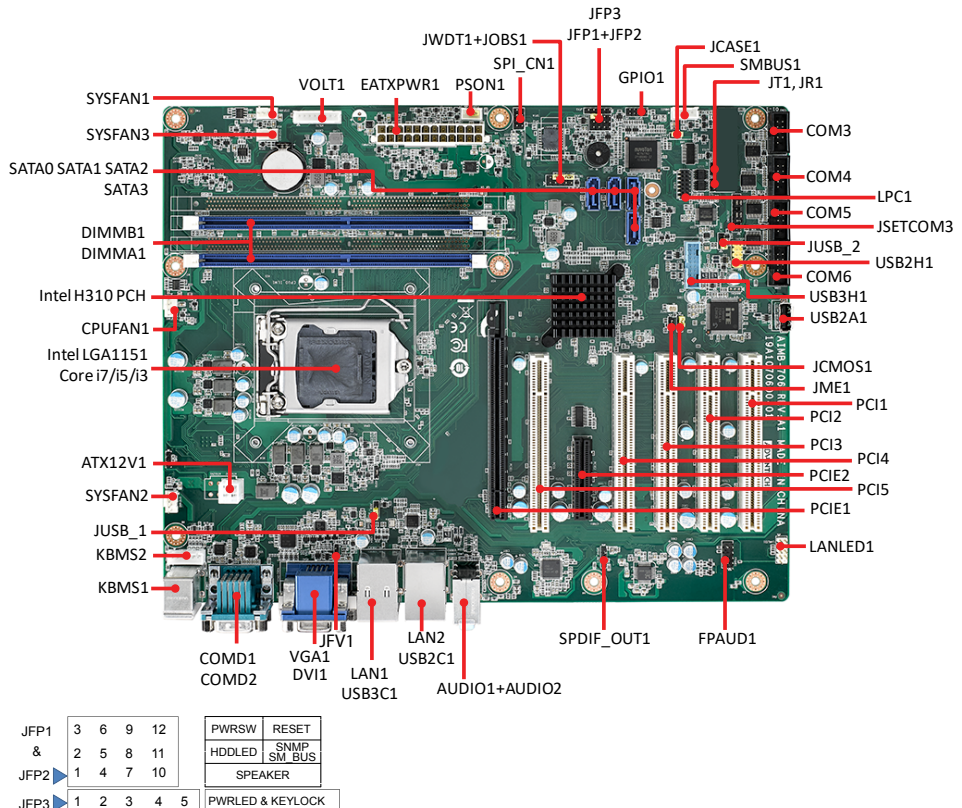
This device complies with the requirements in Part 15 of the FCC rules. Operation is subject to the following two conditions:

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**