

AIMB-586 Intel® Xeon® E3/ Core™ i7/i5/i3 LGA1151 MicroATX with HDMI/2DP/eDP(LVDS), 6 x COM, Quad LAN, SATA III, 4 x USB3.1(Gen2), 6 x USB 2.0, 2 x USB3.0

Startup Manual

Packing List

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

- AIMB-586 Intel® LGA1151 Xeon® E3/ Core™ i7/i5/i3 Micro ATX motherboard
- SATA HDD cable x 2
- SATA power cable x 2
- I/O port bracket x 1
- Startup manual x 1
- M.2 screw x 2
- Warranty card x 1

Optional Cables

- Dual port USB 3.0 cable (30 cm) with bracket (P/N: 1700020277-01)
- Dual port USB 2.0 cable 27cm with bracket (P/N:1700002204)

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

- Note1:** 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).

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

<http://www.advantech.com>

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For technical support and service, please visit our support website at:

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This manual is for the AIMB-586 series Rev. A1.

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Specifications

Standard SBC Functions

- **CPU:** Intel® LGA1151 Xeon/ Core™ i7/i5/i3/Pentium®/ Celeron®
- **BIOS:** AMI 128 Mbit SPI
- **Chipset:** Intel® Q370/C246/H310 chipset
- **System Memory:** Up to 64 GB; 288-pin DIMM x 4, supports dual channel DDR4 2400/2666 SDRAM. Due to the inherent limitations of PC architecture, the system may not fully detect 64 GB RAM when 64 GB RAM is installed.
- **SATA3 Interface:** Up to 8 on-board serial ATA3 connectors with a data transmission rate of up to 600 MB/s supporting Advanced Host Controller Interface(AHCI) technology.(Q370 :6 ; C246 : 8; H310:4)
- **Serial Ports:** Six serial port, 1 of RS-232/422/485 (support auto flow control) and 5 of RS-232
- **Keyboard/Mouse Connector:** Supports one standard PS/2 keyboard, one standard PS/2 mouse on board
- **Watchdog Timer:** 1 ~ 255 level timer intervals
- **USB(2.0/3.0):** Supports up to six USB 3.1 ports, rear and onboard pin headers, and 4 USB 2.0 external ports (Q370/C246 sku)

Graphic Interface

- **Controller:** Core™ i7-8700/ i5-8500/ i3-8100 CPUs are embedded with integrated graphics
- **Display Memory:** 1 GB maximum shared memory with 2GB and above system memory installed.
- **HDMI:** BOM option to HDMI 2.0a. 4096 x 2160 @ 60 Hz refresh rate. (BOM option, default HDMI 1.2)
- **Display Port:** 2, up to 4096 x 2304 @ 60 Hz
- **eDP:** Up to 3840 x 2160 @ 60 Hz with internal pin header (BOM option LVDS)

Ethernet Interface

- **LAN1:** Intel® i219LM
- **LAN2:** Intel® i211AT / i210 for WG2 sku

Mechanical and Environmental

- **Dimensions (L x W):** 244 x 244 mm
- **Power Supply Voltage:** +5 v, +12 v, +3.3 v, +5 VSB, -12 v
- **Power Consumption:**
 - Intel LAG1151 Core i7-8700 3.4 GHz, 12 MB L3 cache, 64 GB DDR4 2400 MHz x 4pcs
 - +5 v 3.3 v 12 v 5 Vsb -12 v
 - 1.361A, 0.473A , 0.365A, 0A, 0A
- Measure the maximum current value which system under maximum load (CPU: Top speed, RAM & Graphic: Full loading)
- **Operating Temperature:** 0 ~ 60 °C (depending on CPU)
- **Weight:** 0.5 kg (weight of board)

Connectors and Jumpers

The board has a number of connectors and jumpers that allow you to configure your system to suit your application.

The table below lists the function of each of the connectors and jumpers.

Connectors	
Label	Function
JFP1 (Keyboard Lock and Power LED)	Power LED S3/S4: Fast flash / Slow flash (ATX) System On: ON (ATX/ AT) System Off: OFF (AT) System Off: Slow flash (ATX)
JFP2	Power switch/ reset/ external speaker / SATA HDD LED / SMBus connector
LANLED1	Front Panel LAN Indicator connector
JSETCOM2	Serial port:RS232/RS422/RS485 jumper setting
JCMOS1	CMOS clear (default 1-2 pin)
PSON1	AT(1-2) / ATX(2-3) (Default 2-3)
COM1	Serial Port 1 (RS-232)
COM2	Serial Port COM2, pin header 2 x 5, COM2 supports RS232/422/485
COM3/4/5/6	Serial port: COM 3/4/5/6, box header 2 x 20 p
KBMS1	On board external keyboard and mouse connector
LAN1_USB12 LAN2_USB34	USB Port 1,2,3,4 LAN1, LAN2
USB5678	USB port 5-8
USB 1112	USB2.0 port 11,12 (QG2/WG2)
USB 1314	USB3.0 port 13,14 (QG2/WG2)
AUDIO1	Line Out, Mic IN connector
FPAUDIO1	Front Panel audio connector (FP_AUDIO)
JCASE1	Case open connector
SPI_CN1	SPI flash programming connector
SATA1-8	Serial III ATA connector QG: 6 port/ WG: 8 port / L: 4 port
GPIO1	GPIO pin header(SMD pitch=2.0 mm)
ATX12V1	ATX 12V auxiliary power connector
EATXPWR1	ATX power connector
CPUFAN1	CPU FAN connector (4 pin)
SYSFAN1/2	System FAN power connector (4 pin)
LVDS1	LVDS/eDP power jumper
LVDS_EDP1	LVDS/EDP connector

INV1	EDP/LVDS inverter
VOLT1	Voltage display connector
SPDIF1	Digital audio connector 4 x 1 header pitch =2.54mm
JIR1+JOBS1 +JWDT1	Jumper for Irda/watchdog/OBS
JUSBPWR1	USB power selection for LAN1_USB12, LAN2_USB34, USB5678
JUSBPWR2	USB VBUS selection for USB1516, USB1213, USB356
SMBUS1	SMBUS expansion pin header 1 x 4 p
LPC1	Low pin count interface (2 x 7 pin header)
M2M1	M.2 (M key /2280)
M2E1	M.2 (E key /2230)

CMOS1: Clear CMOS

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

*: Default



Keep CMOS data



Clear CMOS

JSETCOM2: COM2 RS232/422/485 Mode Selector

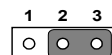
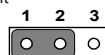
Users can use JSETCOM2 to select among RS 232/422/485 modes for COM2. The default setting is RS 232.

RS-232 Configuration (default)	
RS-422 Configuration	
RS-485 Configuration	

JPSON1: ATX, AT Mode Selector

Pins	Result
1-2	AT Mode
2-3*	ATX Mode*

*: Default

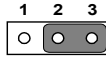
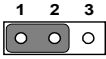


Connectors and Jumpers

JUSBPWR1/JUSBPWR2: USB VBUS selection for USB port

Pins	Result
1-2*	Set USB VBUS as +5VSB
2-3	Set USB VBUS as +5V

* Default



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 provided with a battery-powered real-time clock circuit. There is a danger of explosion if 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

