

LGA 1700 12th Gen Intel® Core™ MicroATX Server Board with 4 x DDR5, 3 x PCIe, 6 x USB 3.2, 5 x SATA 3, Quad/Dual LAN, & IPMI Startup Manual

Packing List

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

- 1 × Startup manual
- 2 × Serial ATA HDD data cables
- 2 × Serial ATA HDD power cables
- 1 × COM cable (for connection to rear panel)
- 1 × I/O port bracket
- 1 × Warranty card
- 1 × Screw for M.2 devices

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: <http://www.adobe.com/downloads/> (Acrobat is a trademark of Adobe)

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This manual is for the ASMB-588 series Rev. A1.

Part No. 2042058800

Printed in China

1st Edition

September 2022

Specifications

Standard Functions

- **CPU:** LGA 1700 12th Gen Intel® Core™ i9/i7/i5/i3 processor
- **BIOS:** AMI 256 Mb SPI BIOS
- **Chipset:** Intel W680
- **System memory:** Dual Channel DDR5 ECC/Non-ECC 4400/4000/3600 MHz unbuffered DIMM, Max. 128 GB
- Note:** Due to the inherent limitations of PC architecture, the system may not fully detect 128 GB RAM when 128 GB RAM is installed.
- **SATA3 interface:** 5 x SATA 3 6Gb/s ports to support Intel Rapid Storage Technology with software RAID 0, 1, 10, & 5 (for Windows only)
- **Serial ports:** Three serial ports onboard, only support RS-232 (1 x inserted in rear I/O via COM cable connection)
- **Watchdog timer:** 255 level timer intervals (sec/min)
- **USB 3.2:** Supports up to 6 x USB 3.2 ports, 4 x Gen2 ports in rear I/O and 2 x Gen1 ports from on-board pin header
- **USB 2.0:** Supports up to 5 x USB 2.0 ports (1 x Type-A)

Display Interface

- **Chipset:** CPU integrated Intel HD graphics controller
- **Display memory:** 1 GB maximum shared memory with 2 GB and above system memory installed (BIOS default is 256 MB)
- **Resolution:**
 - Supports VGA up to 1920x1200 resolution @60 Hz refresh rate
 - Supports DVI up to 1920x1200 resolution @60 Hz refresh rate
 - Supports HDMI 2.0 up to 2K/4K resolution @60 Hz refresh rate

Ethernet Interface

- **Interface:** 10/100/1000 Mbps
- **Controller:** LAN1: Intel® I219LM; LAN2 ~ LAN4: Intel® I210AT (LAN2 is BMC shared NIC; LAN3/4 is for G4 SKU only)

Mechanical and Environmental

- **Dimensions (L x W):** 244 x 244 mm (9.6 x 9.6 in)
- **Power supply voltage:** +3.3V, +5V, ±12V, 5V_{SB}
- **Power consumption:** Max. load: +3.3V @ 0.76A, +5V @ 0.92A, +12V @ 0.03A, +12V (8P) @ 4.82A, +5V_{SB} @ 0.15A
- **Operating temperature:** 0 ~ 60 °C; 32 ~ 140 °F (depends on CPU speed and cooler solution)
- **Weight:** 0.5 kg; 1.1 lb (weight of board)

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 list	
Label	Function
ATXPWR1	ATX 24-pin main power connector (for System)
ATX12V1	8-pin power connector (for CPU)
AUDIO2	Audio connector
BAT1	For RTC battery
BAT2	For optional battery kits
BIOS_SKT1	BIOS SPI ROM
BMC2	BMC connector to support Advantech IPMI module (P/N: IPMI-2000-00A1)
COM1, COM2_3	Serial port: RS-232
CPUFAN0	CPU FAN connector
DIMMA0, DIMMA1, DIMMB0, DIMMB1	DDR5 288-pin slot
DVI1	DVI connector
ESPI1	For RD debugging
EX_THR1	For external thermistor cable kit
FPAUD1	Front panel audio header
GPIO1	8-bit GPIO header
HDMI1_VGA1	HDMI + VGA connector
JCASE1	Case open
JFP1	To support 1U chassis (cable P/N: 1700031926-11) Power Switch/Power Reset/Power LED/LAN1LED/LAN2LED/HDD LED Power LED Behavior: • Suspend: Fast flash (ATX/AT) • System On: ON (ATX/AT) • System Off: OFF (ATX/AT)
JFP1+JFP2	Power Switch/ Power Reset/ External Speaker/ HDD LED/ SMBus connector
JFP3	Keyboard lock and power LED • Suspend: Fast flash (ATX/AT) • System On: ON (ATX/AT) • System Off: OFF (ATX/AT)
LAN1_USB3C1, LAN2_USB3C2	LAN1/USB 3.2 Gen2 port 1, 2 stack connector LAN2/USB 3.2 Gen2 port 3, 4 stack connector
LAN3_LAN4	LAN3 & LAN4 connector
LANLED1	LAN LED extension connector
M2_2280_1	M.2 2280 (PCIe)
PCIEX4_SLOT4, PCIEX4_SLOT7	PCIe x4 slot (Gen4 x4 link)

Jumpers and Connectors (Cont.)

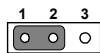
Connector list	
PCIEX16_SLOT6	PCIe x16 slot (Gen5 x16 link)
PMBUS1	PMBUS connector to communicate with power supply
SATA0~4	SATA III (6 Gb/s)
SMBUS1	SMBus connector
SPDIF_OUT1	SPDIF audio output pin header
SPI_CN1	SPI flash card pin header
SPI_TPM1	SPI connector to support Advantech TPM 2.0 module (P/N: PCA-TPMSPI-00A1)
SYSFAN0,SYSFAN1, SYSFAN2,SYSFAN3	System FAN connector
SYS_LED1	System information LED connector
USB2A1	USB 2.0 port (USB Type A)
USB2H1, USB2H2	USB 2.0 port (header)
USB3H1	USB 3.2 Gen1 port (header)

Jumper list	
Label	Function
JCMOS1	CMOS clear
JFV1	VGA is forced on
JME1	Intel ME disable jumper for ME/ BIOS update
JPEG1	x16 or x8x8 for slot-6
JPSMB1, JPSMB2	PCIe SLOT SMBUS connector: to PCH (1-2)/ to BMC (2-3)
JSMB1	For RD debugging
JTHR_SEL1	Selects on board or external thermistor
JUSB_1	Rear window USB 3.2 Gen2 port power source switch between +5 V _{sb} and +5 V
JUSB_2	On board USB 2.0/3.2 Gen1 port power source switch between +5 V _{sb} and +5 V
JWDT1	Watchdog reset
PSON1	AT(1-2)/ATX(2-3)

Jumpers and Connectors (Cont.)

PCIEX16_Slot6 configuration (JPEG1)

Closed pins	Result
1-2	Slot6 PCIe x16*
2-3	Slot6 PCIe x8 + x8
*: Default	



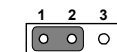
Slot6 PCIe x16



Slot6 PCIe x8 + x8

JCMOS1/JME1: CMOS clear/ME update function

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



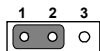
Keep CMOS data/
Disable ME update



Clear CMOS data/
Enable ME update

JWDT1: Watchdog timer output option

Closed Pins	Result
1-2	System reset*
2-3	Disabled
*: Default	



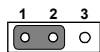
System Reset 1-2 Closed



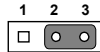
Disabled 2-3 Closed

PSON1: ATX, AT mode selector

Closed Pins	Result
1-2	AT Mode
2-3	ATX Mode*
*: Default	



AT Mode 1-2 closed



ATX Mode 2-3 closed

Installation Note

JFP1+JFP2

Closed pins	Result
Pin.3	#PWR_SW
Pin.6	GND
Pin.9	#RST_SW
Pin.12	GND
*Power button pin is located in Pin 3 & 6 of front panel connector	

JFP1	3	6	9	12	PWRSW	RESET
JFP2	2(+)	5(-)	8	11	HDDLED	SNMP SM_BUS
JFP3	1	4	7	10	SPEAKER	
	(+)	(-)			PWRLED & KEYLOCK	

2.0 mm JFP1 connector on board

Description	Pin Number	Description
RST BTN	2	PWR BTN
RST GND	4	PWR GND
LAN1_LED+	6	LAN2_LED+
LAN1_LED-	8	LAN2_LED-
CRPS Detect (Reserved)	10	SYS_LED+ (Reserved)
GND	12	SYS_LED- (Reserved)
PWR LED+	14	HDD_LED+
PWR LED-	16	HDD_LED-

2.0 mm JFP1 connector to 2.54 mm Pitch Header

Description	Pin Number		Description
(Red) PWR BTN	▼1	2	RST BTN (White)
(Black) PWR GND	3	4	RST GND (Black)
(Blue) LAN1_LED+	5	6	LAN2_LED+ (Brown)
(Red) LAN1_LED -	7	8	LAN2_LED - (Black)
		Key	
(Orang) HDD_LED+	13	14	PWR LED+ (Red)
(Black) HDD_LED -	15		
	Key	16	PWR LED - (Black)

Declaration of Conformity

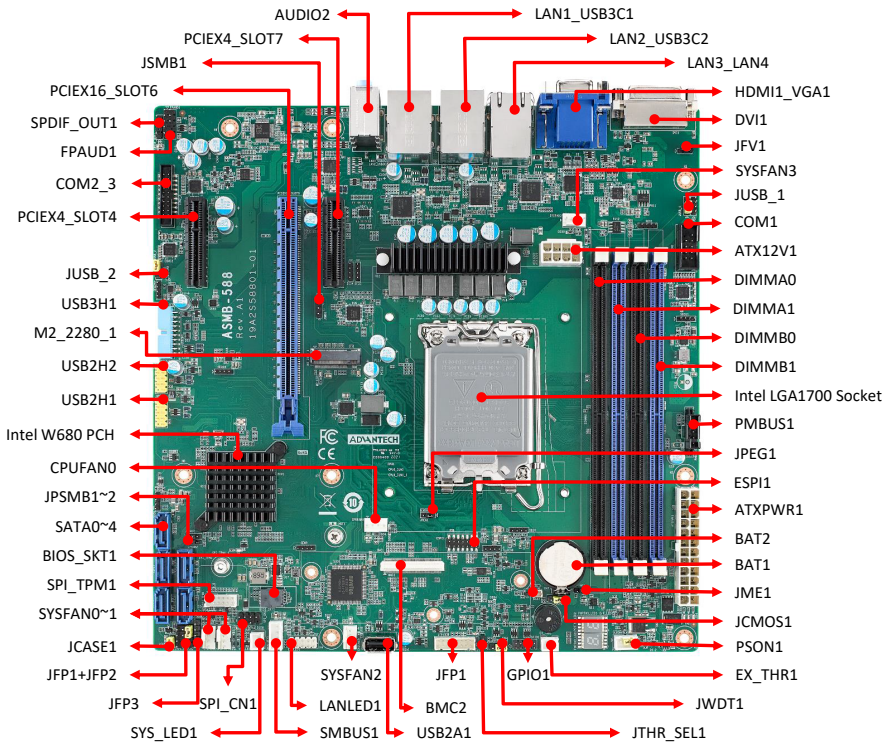
Caution! The computer is supplied with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to manufacturer's instructions.



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



Board Layout: Jumper and Connector Locations