

LGA 4189 Intel® Xeon® Scalable Proprietary Server Board with 16x DDR4, 4 x PCIe x16, 10 x SATA3, 8 x USB 3.2 (Gen 1), Dual 10GbE, and IPMI

Startup Manual

Packing List

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

- 1 x ASMB-976 Startup manual
- 2 x Serial ATA HDD Data cables
- 2 x Serial ATA HDD Power cables
- 1 x I/O Port bracket
- 1 x Warranty card

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

Note 1: Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: <https://www.adobe.com/downloads.html> (Acrobat is a trademark of Adobe)

Specifications

Standard M/B Functions

- **CPU:** Dual LGA-4189 Intel Xeon® Processor Scalable Family series
- **BIOS:** AMI 256 Mb SPI BIOS
- **Chipset:** Intel® C621A PCH
- **System Memory:** 16x DDR4-2666/2933/3200 Registered ECC DIMM, Max. capacity 2TB

Note 2: Due to the inherent limitations of the PC architecture, the system may not fully detect 2TB RAM when 2TB RAM is installed.

- **SATA Interface:** 10 SATA3 6 Gb/s ports Intel Rapid Storage (for Windows only) (SATA0-SATA7 supports software RAID 0,1,10 & 5, SSATA0-SSATA1 supports software RAID 0,1 due to 2 SATA controller design)
- **Serial Ports:** Two RS-232 (one on rear I/O, and another one via pin header)
- **Keyboard/Mouse Header (KBMS1):** Supports the standard PS/2 keyboard and mouse via PS/2 cable
- **Watchdog Timer:** 255 sec/min level timer intervals
- **USB Port:** Supports up to 9 x USB 3.2 ports (4 x ports and 1*Type-A from onboard 20-pin header) and 1 x USB 2.0 ports (1*Type-A from onboard 10-pin header)

VGA Interface

- **Chipset:** ASPEED AST2500
- **Display Memory:** 64 MB
- **Resolution:** Supports VGA up to resolution 1920 x 1200 @ 60 Hz refresh rate

Ethernet Interface

- **Interface:** 10/100/1000 Mbps & 10Gb (only for LAN3 & LAN4)
- **Controller:** LAN1/2: Intel I210; LAN3/4: Intel X550

Mechanical and Environment

- **Dimensions (L x W):** 380 x 346 mm (14.96" x 13.64")
- **Power Supply Voltage:** +3.3 V, +5 V, ±12 V, +5 Vsb
- **Power Consumption (mainboard only, excluding IO device):** Max. load: +3.3V@1.91A, +5V@2.94A, +12V@3.98A, +5V_SB@0.28A, -12V@0.01A, +12V_8P_0@22.79A, +12V_8P_1@22.84A
- **Operating Temperature:** 0 ~ 40° C (depending on CPU)
- **Weight:** 1.8 kg (weight of board)

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 at:

<http://support.advantech.com>

This manual is for the ASMB-976 series Rev. A1

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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 of the jumpers and connectors.

Connectors	
Label	Function
ATXPWR1	ATX 24 Pin main power connector
ATX12V1/V2	Processor power connector (for CPU0)
ATX12V3/V4	Processor power connector (for CPU1)
BH1	For optional battery kit
COM2	Serial port: RS-232
CPUFAN0,CPUFAN1	CPU FAN connector
DIMMA1, DIMMB1, DIMMC1, DIMMD1, DIMME1, DIMMF1, DIMMG1, DIMMH1	DDR4 slot for CPU0
DIMMI1, DIMMJ1, DIMMK1, DIMML1, DIMMM1, DIMMN1, DIMMO1, DIMMP1	DDR4 slot for CPU1
EX_THR1	Connector for external thermistor
GPIO1	GPIO connector
HDAUD1	Audio header
JFP1, JFP2, JFP3	Front panel header
KBMS1	External keyboard and mouse connector (6 pin)
LAN1_2	RJ-45 LAN port 1 and port 2
LAN3_4	RJ-45 LAN port 3 and port 4
IPMI_LAN5_USB3_12	Dedicated LAN port 5 + USB3.2 gen1 1/2 connector
LPC1	TPM connector
M2_2280_1	M.2 2280 PCIe gen4
M2_2280_2	M.2 2280 PCIe gen3 and SATA
PMBUS1	PMBUS connector to communicate with power supply
SATA_CON1	Serial ATA0~7
SSATA0	sSATA port 0
SSATA1	sSATA port 1
SGPIO1	sSATA SGPIO header
PCIEX8_SLOT1	PCIe x8 slot (CPU0)
PCIEX8_SLOT2	PCIe x8 slot (CPU1)

Jumpers and Connectors (Cont.)

PCIEX16_SLOT3	PCIe x16 slot (CPU0)
PCIEX8_SLOT4	PCIe x8 slot (CPU1)
PCIEX16_SLOT5	PCIe x16 slot (CPU0)
PCIEX8_SLOT6	PCIe x8 slot (CPU0)
PCIEX16_SLOT7	PCIe x16 slot (CPU1)
PCIEX8_SLOT8	PCIe x8 slot (CPU0)
PCIEX16_SLOT9	PCIe x16 slot (CPU1)
PCIEX 8_SLOT10	PCIe x8 slot (CPU1)
PCIEX 8_SLOT11	PCIe x8 slot (CPU1)
SMBUS1	SMBus header
SPI_CN1	Connector for BIOS update tool
EC_SKT1	EC EEPROM
EC_SMBUS1	EC SMBus header
CN2	Connector for BMC update tool
SYS_LED1	System LED connector
SYSFAN0-SYSFAN6	System FAN connector
USB2_10	USB 2.0 port 10 (Type-A)
USB3_9	USB 3.2 gen1 port 9 (Type A)
USB3_34, USB3_56, USB3_78	USB 3.2 gen1 port 3,4,5,6,7,8 (20 pin header)
VGA1	VGA connector
COM1	COM1 connector
VOLT1	Voltage display
VROC1	Intel Virtual RAID (VROC) key

Jumper list

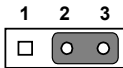
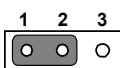
Label	Function
JCMOS1	CMOS clear
JME1	ME update
JWDT1	Watch Dog Reset
PSON1	AT(1-2) / ATX(2-3)
JCASE1	Alarm detection
JTHR_SEL	To select on board or external thermistor

Jumpers and Connectors (Cont.)

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

JFP1, JFP2

Pin.3	#PWR_SW
Pin.6	GND
Pin.9	#RST_SW
Pin.12	GND
Pin.8, Pin.11	HWM_SMB_DATA, HWM_SMB_CLK

Jumpers and Connectors (Cont.)

*Power button pin is located in Pin 3 & 6 of front panel connector.

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

Declaration of Conformity

The computer is supplied with a battery-powered realtime 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 Layout

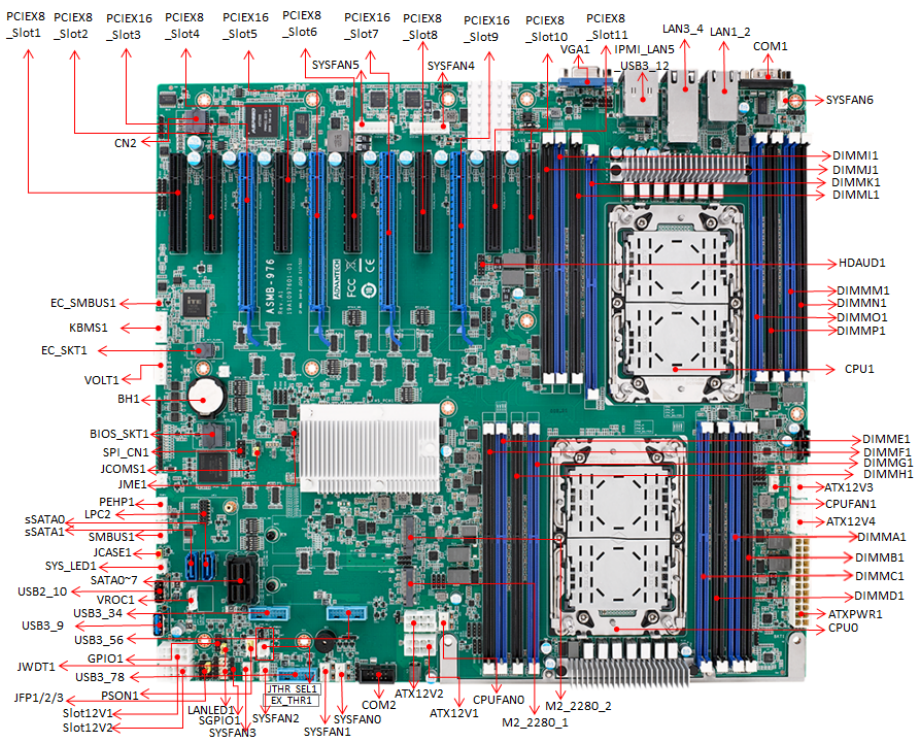


Figure 1: Board Layout: Jumper and Connector Locations