

ASMB-978 Dual LGA4710 6th Gen Intel® Xeon® Scalable EEATX Server Board with 16 DDR5, 9x SATA 3.0, 4x MCIO, 2x M.2, 2x 10GbE, 2x 2.5GbE IPMI , and up to 10 PCIe Gen5 Expansion Slots with Flexible x8/x16 Lane Configurations

Startup Manual

Packing List

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

- 1 x ASMB-978 Startup Manual
- 1 x SATA data cable
- 1 x SATA power cable
- 2 x CPU power cables (8P)
- 2 x CPU carriers (E2A, E2B)
- 1 x I/O shield
- 2 x M.2 screws
- 1 x COM cable
- 1 x PCIe I/O Support
- 1 x Front panel convert cable

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).

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This manual is for the ASMB-978 series Rev. A1.

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1st Edition
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Specifications

Standard M/B Functions

- **CPU:** Dual LGA4710 6th Gen Intel® Xeon® Scalable processors; Max TDP: 350W
- **BIOS:** AMI 256 Mbit SPI BIOS
- **System Memory:** 16 x DDR5 RDIMM / RDIMM-3DS / MCR DIMM
 - RDIMM up to 6400 MT/s
 - MCR DIMM up to 8000 MT/s (GNR-SP only)
 - Max capacity up to 4TB
- **Storage:**
 - 9 x SATA (2 x Slim-SAS 4x + 1 x 7P SATA)
 - 2 x M.2 (PCIe Gen5 x4)
 - 4 x MCIO (PCIe Gen5 x8)
- **Serial Ports:** 2 serial ports, only supports RS-232
- **Watchdog Timer:** 255/sec or min level timer intervals
- **USB Port:**
 - 5 x USB 3.2 Gen1 ports (2 rear, 2 onboard and 1 x Type-A)
 - 4 x USB 2.0 Gen 1 ports (via pin header) + 1 x Type-A USB 2.0 port

VGA Interface

- **Chipset:** ASPEED AST2600
- **Resolution:** Supports VGA up to a resolution of 1920 x 1200 @60Hz refresh rate.

Ethernet Interface

- **Interface:** 10/100/1000/2500 Mbps & 2.5 GbE Base-T & 10 GbE Base-T
- **Controller:** LAN1/2: Intel I226; LAN3/4: Intel E610-XAT2
- 1 x Dedicated IPMI LAN

Mechanical and Environmental

- **Dimensions (L x W):** 382.54 x 352.5 mm (15.06 x 13.87 in)
- **Power Supply Voltage:** +3.3 V, +5 V, ±12 V, +5 Vs
- **Power Consumption (mainboard only, excluding I/O devices):** Max. load: +3.3V@3.54A, +5V@2.89A, +12V@0.88A, +5Vsb@0.01A, 12V_8P@65.79A
- **Operating Temperature:** 0 ~ 40°C (depending on CPU)
- **Weight:** 1.956 kg

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	
Description	Part Reference
Label	Function
ATXPWR1	ATX 24-pin main power connector
ATX12V1, ATX12V2, ATX12V3, ATX12V4	Processor power connector (mandatory)
BH2	For optional battery kit
BIOS_SKT1, SKT2	BIOS SPI ROM
BMC_SKT1	BMC SPI ROM
BMC_LAN_USB3C1	IPMI dedicated LAN connector & USB 3.2 Gen1 port 1, 2
COM1, COM2	RS-232 header
CPUFAN0, CPUFAN1	CPU FAN connector
DIMMA1, DIMMB1, DIMMC1, DIMMD1, DIMME1, DIMMF1, DIMMG1, DIMMH1	DDR5 from CPU0
DIMMI1, DIMMJ1, DIMMK1, DIMML1, DIMMM1, DIMMN1, DIMMO1, DIMMP1	DDR5 from CPU1
ESPI1	eSPI connector
EX_THR1	Connector for external thermistor
GPIO1	GPIO connector
JFP1	Front panel header
JFP2_LANLED1	LAN LED extension connector
KBMS2	External keyboard and mouse
LAN3, LAN4	10 Gbps LAN connector
LAN1_2	2.5 Gbps LAN connector
M2_2280_1, M2_2280_2	M.2 connector (Gen5 x4)
MCIO1, MCIO2, MCIO3, MCIO4	MCIO connector (Support PCIe Gen5 x8,)
PCIEX16_SLOT1	PCIe x16 slot (CPU0)
PCIEX8_SLOT2	PCIe x8 slot (CPU0)
PCIEX16_SLOT3	PCIe x16 slot (CPU0)
PCIEX8_SLOT4	PCIe x8 slot (CPU0)
PCIEX16_SLOT5	PCIe x16 slot (CPU0)
PCIEX8_SLOT6	PCIe x8 slot (CPU1)
PCIEX16_SLOT7	PCIe x16 slot (CPU1)
PCIEX8_SLOT8	PCIe x8 slot (CPU1)

Connectors and Jumpers (Cont.)

PCIEX16_SLOT9	PCIe x16 slot (CPU1)
PCIEX8_SLOT10	PCIe x8 slot (CPU1)
PMBUS1	PMBUS connector to communicate with the power supply
SATA_CON1,SATA_CON2, SATA8	4 x SATA via SlimSAS, 1 x SATA
SLOT12V1, SLOT12V2	For PCIe slot 12V input only
SMBUS1	SMBus header
SYSFAN0~3_A, SYSFAN0~3_B	System FAN connector
SYS_LED1	System LED connector
SPI_CN1,SPI_CN2	Connector or BIOS update tool
USB3A1	USB 3.0 port (Type-A)
USB3H1	USB 3.0 port (20-pin header)
USB2H1	USB 2.0 Header
USB2H2	USB 2.0 Header
VGA1	VGA connector
VROC	Enables NVMe RAID, hot-plug, and LED control via direct PCIe CPU link
SKY_SB1	SMBUS for SKY series HDD BP

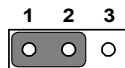
Jumper List

Label	Function
JCASE1	Chassis case open alarm
JCMOS1	CMOS clear
JWDT1	Watchdog reset
PSON1	AT(1-2) / ATX(2-3)

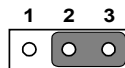
JCMOS1: CMOS Clear

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

*: Default



Keep CMOS data



Clear CMOS data

Connectors and Jumpers (Cont.)

JFP1	2	4	6	8	-
	1	3	5	7	9

PWR SW	RESET	
HDD LED	PWR LED	

JFP1	
Pin.2	#PWR_SW
Pin.4	GND
Pin.6	#RST_SW
Pin.8	GND
Pin.3, Pin.5	SATA_M.2_LED, BMC_SUSLED

* The power button pin is located at Pins 2 & 4 of the front panel connector.

2.0 mm JFP2 Connector on Board

Description	Pin Number		Description
RST BTN	2	▼1	PWD BTN
PWD GND	4	3	PWD GND
LAN1_LED+	6	5	LAN2_LED+
LAN1_LED-	8	7	LAN2_LED-
X	10	9	SYS_LED+
GND	12	11	SYS_LED-
PWR LED+	14	13	HDD_LED+
PWR LED-	16	15	HDD_LED-

2.0 mm JFP2 Connector on Board

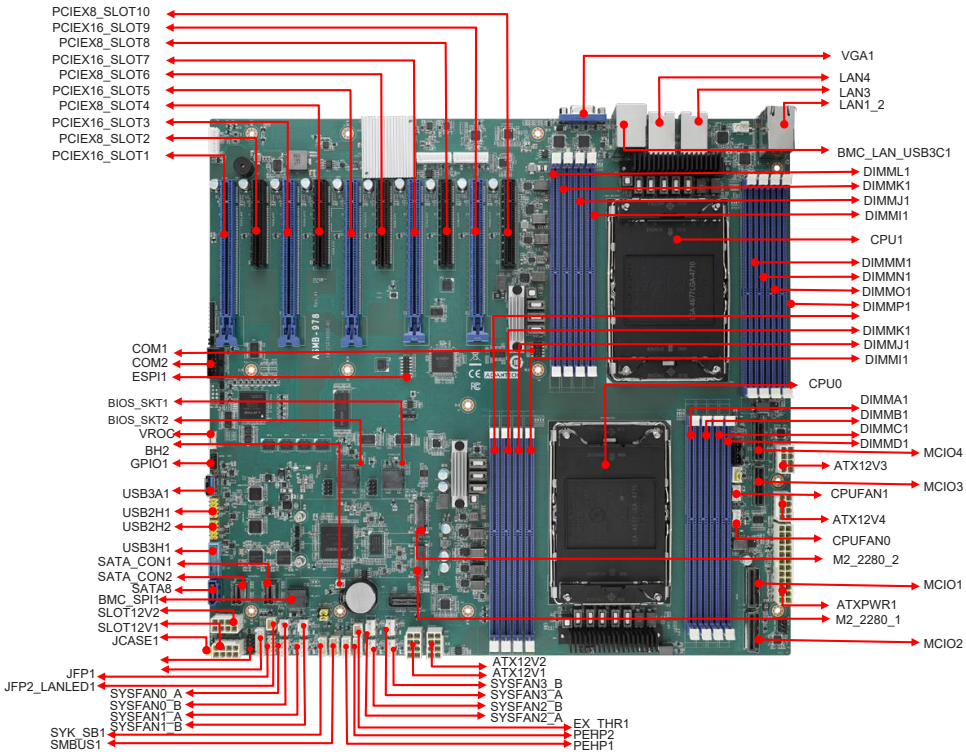
Description	Pin Number		Description
(Red) PWD BTN	▼1	2	RST BTN (White)
(Black) PWD GND	3	4	PWD GND (Black)
(Blue) LAN1_LED+	5	6	LAN2_LED+(Brown)
(Red) LAN1_LED-	7	8	LAN2_LED-(Black)
		Key	
(Orang) HDD_LED+	13	14	PWR LED+ (Red)
	15		
	Key	16	PWR LED- (Black)

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.

Board Layout



Board Layout: Jumper and Connector Locations