

ASMB-831 Series LGA 6096 AMD EPYC™ 9004 ATX Server Board with 6 x DDR5, 5 x PCIe x16 and 2 x PCIe x8, 9 x SATA3, 7 x USB 3.2 Gen1, Dual 10GbE, IPMI

Startup Manual

Packing List

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

- 1 x ASMB-831 Startup Manual
- 1 x SATA data cable
- 1 x SATA power cable
- 2 x CPU power cables (8P)
- 2 x M.2 screws
- 1 x I/O port bracket
- 1 x PCIe I/O support
- 1 x Front panel converter cable

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.)

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This manual is for the ASMB-831 series Rev. A1.

Part No. 2042083100
Printed in China

1st Edition
Mar. 2023

Specifications

Standard M/B Functions

- **CPU:** SP5 LGA 6096 AMD EPYC™ 9004 Series processors
- **BIOS:** AMI 256 Mbit SPI BIOS
- **System Memory:** 6* DDR5-3600/4000/4400/4800 Registered ECC DIMM
- **Note 2:** Due to the inherent limitations of the PC architecture, the system may not fully detect maximum RAM capacity.
- **SATA Interface:** 8 via SFF-8643 ports and 1 SATA 6Gb/s port
- **Serial Ports:** One at the rear I/O, only supports RS-232
- **Watchdog Timer:** 255 timer intervals
- **USB Port:** Supports up to 7 x USB 3.2 Gen1 ports (4 rear ports, 2 ports from the onboard 20-pin header and 1*Type-A on board)

VGA Interface

- **Chipset:** ASPEED AST2600
- **Display Memory:** 64 MB
- **Resolution:** Supports VGA up to a resolution of 1920 x 1200 @ 60 Hz refresh rate.

Ethernet Interface

- **Interface:** 100/1000 Mbps & 10 GbE Base-T
- **Controller:** LAN1/2: Intel® X710-AT2, LAN3: IPMI dedicated LAN, BMC_LAN

Mechanical and Environmental

- **Dimensions (L x H):** 304 x 244 mm (12" x 9.6")
- **Power Supply Voltage:** +3.3 V, +5 V, ±12 V, +5 Vs
- **Power Consumption (mainboard only, excluding I/O devices):** Max. load: +3.3 V @ 2.976 A, +5 V @ 3.264 A, +12 V @ 0.616 A, +12V_8P_1 @ 15.72 A, +12V_4P_1 @ 6.876 A
- **Weight:** 1.05 kg (weight of board)
- **Operating Temperature:** 0 ~ 60 °C (depending on CPU)

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 (for the system)
ATX12V1, ATX12V2	Processor power connector (for CPU0)
BH1	For RTC battery
BH2	For optional battery kit
BIOS_SKT1	BIOS SPI ROM
BMC_LAN_USB3C2	IPMI dedicated LAN connector & USB 3.2 port 3, 4
BMC_SKT1	IPMI ROM
BMC_UART1	IPMI UART connector
COM1	Serial port: RS-232
CPUFAN0	CPU FAN connector
C0_DIMM_A1, C0_DIMM_B1, C0_DIMM_C1, C0_DIMM_G1, C0_DIMM_H1, C0_DIMM_I1	DDR5 288-pin slot
ESPI1	ESPI connector
EX_THR1	For external thermistor cable kit
GPIO1	8-bit GPIO header
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/Reset connector External speaker/HDD LED connector / SMBus connector
JFP3	Keyboard Lock and Power LED - Suspend: Fast flash (ATX/AT) - System On: ON (ATX/AT) - System Off: OFF (ATX/AT)
LAN1, LAN2	RJ-45 LAN connector
LANLED1	LAN LED extension connector
M2_22110_1	M.2 connector (SATA & PCIe x4)
M2_22110_2	M.2 connector (PCIe x4)
PMBUS1	PMBUS connector to communicate with the power supply

Jumpers and Connectors (Cont.)

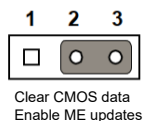
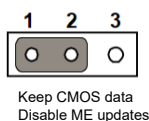
SATA_CON1	SATA 0~7 via SFF8643 connector
SSATA	SATA 8 connector
PCIEX16_SLOT1	PCIe x16 slot (x16 link) (CPU)
PCIEX8_SLOT2	PCIe x8 slot (x8 link) (CPU)
PCIEX16_SLOT3	PCIe x16 slot (x16 link) (CPU)
PCIEX8_SLOT4	PCIe x8 slot (x8 link) (CPU)
PCIEX16_SLOT5	PCIe x16 slot (x16 link) (CPU)
PCIEX16_SLOT6	PCIe x16 slot (x16 link) (CPU)
PCIEX16_SLOT7	PCIe x16 slot (x16 link) (CPU)
SLOT12V1	For PCIe slot 12V input only
SMBUS1	SMBus header
SPI_CN1	Connector for BIOS update tool
SYSFAN0~SYSFAN4	System FAN connector
SYS_LED1	System Information LED Connector
USB3A1, USB3C1, USB3H1	USB 3.2 port 1, 2; USB 3.2 port 5, 6 (20-pin header); USB 3.2 port 7 (Type-A)
VGA1	VGA connector

Jumper List

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

JCMOS1: CMOS Clear Function

Closed pins	Result
1-2	Keep CMOS data*
2-3	Clear CMOS data
*: Default	

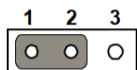


Jumpers and Connectors (Cont.)

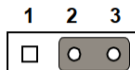
JWDT1: Watchdog Timer Output Options

Closed Pins	Result
1-2	System reset*
2-3	NC

*: Default



System Reset 1-2 Closed

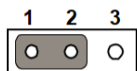


NC 2-3 Closed

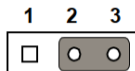
PSON1: ATX, AT Mode Selector

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

*: Default



AT Mode 1-2 Closed



ATX Mode 2-3 Closed

Declaration of Conformity

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.



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.

Installation Notes

JFP1	3	6	9	12	<table><tr><td>PWRSW</td><td>RESET</td></tr><tr><td>HDDLED</td><td>SNMP SM_BUS</td></tr><tr><td colspan="2">SPEAKER</td></tr><tr><td colspan="2">PWRLD & KEYLOCK</td></tr></table>	PWRSW	RESET	HDDLED	SNMP SM_BUS	SPEAKER		PWRLD & KEYLOCK	
PWRSW	RESET												
HDDLED	SNMP SM_BUS												
SPEAKER													
PWRLD & KEYLOCK													
&	2(+)	5(-)	8	11									
JFP2	1	4	7	10									
JFP3	1	2	3	4	5								
	(+)	(-)											

2.0 mm JFP1 connector on board

Description	Pin Number		Description
RST_BTN	2	▼1	PWR_BTN
RST_GND	4	3	PWR_GND
LAN1_LED+	6	5	LAN2_LED+
LAN1_LED-	8	7	LAN2_LED-
CRPS Datact (Reserved)	10	9	SYS_LED+ (Reserved)
GND	12	11	SYS_LED- (Reserved)
PWR_LED+	14	13	HDD_LED+
PWR_LED-	16	15	HDD_LED-

2.0 mm JFP1 connector to 2.54mm 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)

Board Layout

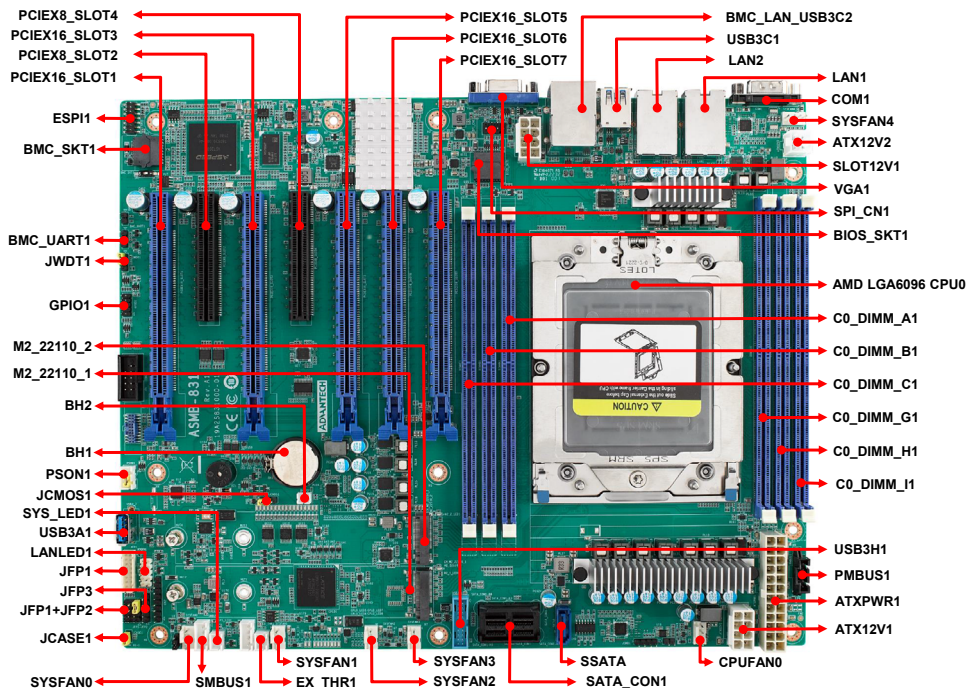


Figure 1: Board Layout: Jumper and Connector Locations