ASMB-831

LGA 6096 AMD® EPYC™ 9004 ATX Server Board with 6 x DDR5, 5 x PCIe x16 + 2 x PCIe x8, 9 x SATA3, 7 x USB 3.2 (Gen1), Dual 10GbE, and IPMI
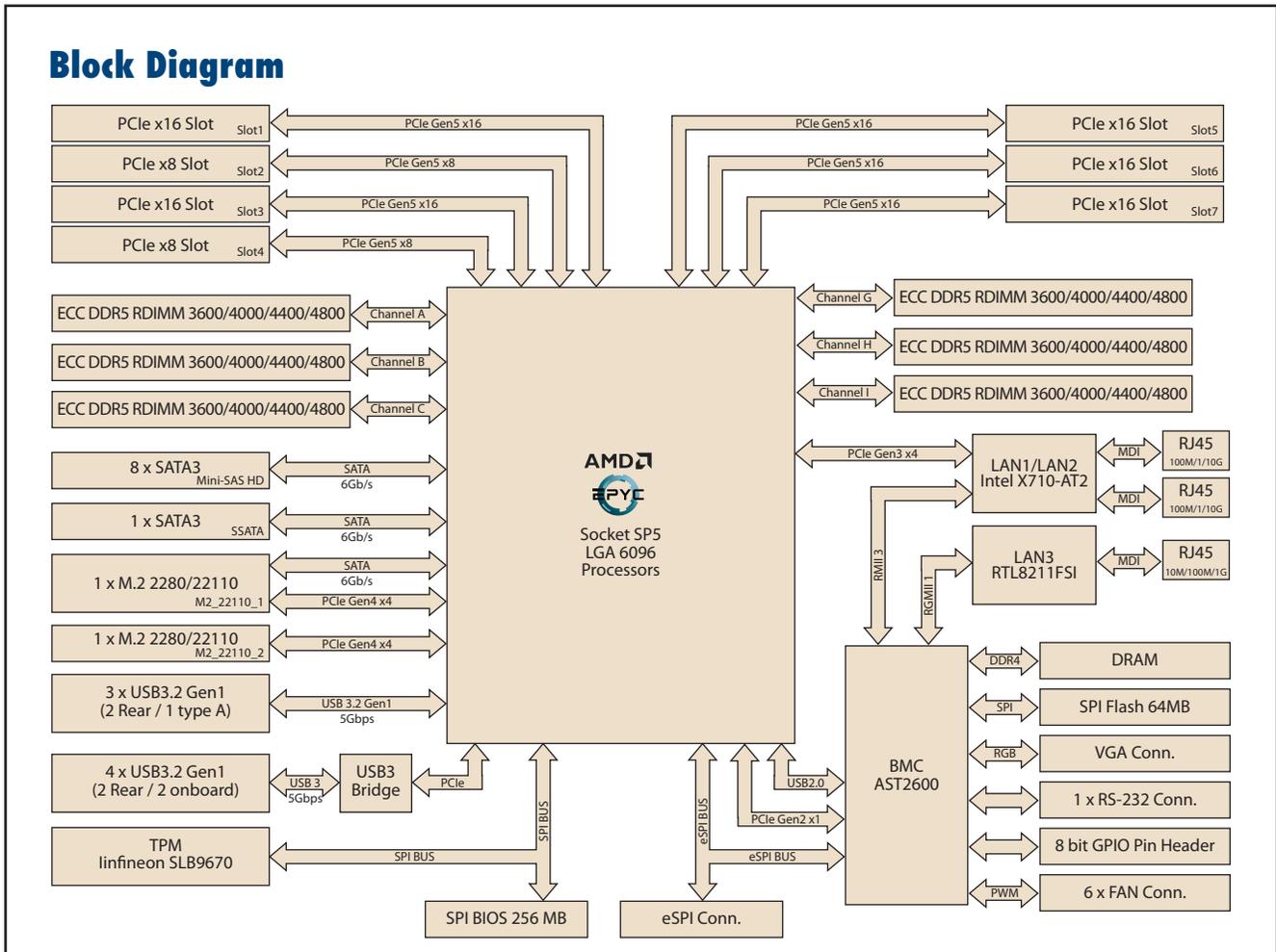
Preliminary

CE FCC

Features

- LGA 6096 (Socket SP5) ATX server board with AMD® EPYC™ 9004 processor
- DDR5 4800 MHz RDIMM up to 384GB (6 DIMMs)
- Five PCIe x16 (Gen5) and two PCIe x8 (Gen5) for four double-deck cards
- Intel® X710-AT2 dual 10GbE ports
- Nine SATA3 and seven USB 3.2 (Gen1) ports
- Two M.2 2280/22110 (SATA / PCIe compatible)
- 0 ~ 60 °C/ 32 ~ 140 °F ambient operating temperature range

Specifications

Form Factor		ATX form factor
Processor System	Socket	AMD LGA 6096 (Socket SP5)
	CPU type	AMD EPYC™ 9004 processors (CPU cooler should be purchased separately)
Memory	Total slots	6x (1 DIMM per channel)
	Capacity	Maximum 384GB ECC RDIMM
	Memory type	DDR5 ECC-REG 3600/4000/4400/4800 MHz RDIMM
	Memory size	16 GB, 32 GB, 64 GB (RDIMM)
Expansion Slots	Total PCI/PCI-X/PCIe slots	7
	Slot location 1	PCIe x16 slot (Gen5 x16 link)
	Slot location 2	PCIe x8 slot (Gen5 x8 link)
	Slot location 3	PCIe x16 slot (Gen5 x16 link)
	Slot location 4	PCIe x8 slot (Gen5 x8 link)
	Slot location 5	PCIe x16 slot (Gen5 x16 link)
	Slot location 6	PCIe x16 slot (Gen5 x16 link)
	Slot location 7	PCIe x16 slot (Gen5 x16 link)
Graphics	VGA	ASPEED AST2600
Storage	SATA controller	AMD EPYC™ CPU integrated: Eight (via Mini-SAS HD SFF-8643) + one SATA3
	SAS controller	-
Networking	GbE/10GbE LAN	Intel® X710-AT2 (dual 10GbE ports)
Onboard I/O Connector	PSU connector	24-pin SSI power connector + 2 x 8-pin SSI 12 V power connector + 1 x 4-pin SSI 12 V power connector
	USB connector	2 x USB 3.2 Gen1 ports (one onboard header) + 1 x Type-A USB 3.2 Gen1 port
	Fan header	6 x 4-pin (5 for system + 1 for CPU)
	M.2	1 x M.2 2280/22110 (PCIe Gen4 / SATA) + 1 x M.2 2280/22110 (PCIe Gen4 only)
	SMBus	1
	Chassis intruder	1
	Front LAN LED	1
	Audio Header	-
	PS/2 KB/Mouse header	-
	Serial port header	-
Rear I/O Connector	External serial port	1
	External USB port	4 (USB 3.2 Gen1)
	VGA port	1
	RJ-45	3 (1 port dedicated LAN and 1 port shared LAN for IPMI function)
	PS/2 Keyboard/Mouse	-
	Infiniband	-
Management Solution	Software	-
	Out of band remote management	Yes
Monitoring	CPU temperature	Yes
	System Monitoring	Yes
Watchdog Timer	Output	System reset
	Interval	Programmable 1 ~ 255 sec/min

Power Requirement	Power On	3.3V	5V	12V	12V_8P_1	12V_4P_1
	(210W CPU@2.6GHz DDR5-2666 64G*6)	2.976A	3.264A	0.616A	15.72A	6.876A

Environment		Operating	Non-operating
	Temperature	0 ~ 60 °C/32 ~ 140 °F, depends on CPU speed and cooling solution	-40 ~ 85 °C/-40 ~ 185 °F
	Humidity	10% ~ 95%	10% ~ 95% (Non condensing)
Physical Characteristics	Dimension (L x H)	304 x 244 mm (12 x 9.6 in)	

*CPU power design support up to 240W TDP. Please consider extended air thermal solution while using CPU > 210W TDP

ADVANTECH | **Server Boards**

All product specifications are subject to change without notice.   Last updated: 30-Jan-2023

Block Diagram

	PCIe Gen5 x16		PCIe Gen5 x16	
PCIe x16 Slot — Slot1				PCIe x16 Slot — Slot5
PCIe x8 Slot — Slot2	PCIe Gen5 x8		PCIe Gen5 x16	PCIe x16 Slot — Slot6
PCIe x16 Slot — Slot3	PCIe Gen5 x16		PCIe Gen5 x16	PCIe x16 Slot — Slot7
PCIe x8 Slot — Slot4	PCIe Gen5 x8			

ECC DDR5 RDIMM 3600/4000/4400/4800 — Channel A
ECC DDR5 RDIMM 3600/4000/4400/4800 — Channel B
ECC DDR5 RDIMM 3600/4000/4400/4800 — Channel C

Channel G — ECC DDR5 RDIMM 3600/4000/4400/4800
Channel H — ECC DDR5 RDIMM 3600/4000/4400/4800
Channel I — ECC DDR5 RDIMM 3600/4000/4400/4800

AMD EPYC
Socket SP5
LGA 6096
Processors

8 x SATA3 — Mini-SAS HD — SATA 6Gb/s
1 x SATA3 — SSATA — SATA 6Gb/s
1 x M.2 2280/22110 — M2_22110_1 — SATA 6Gb/s / PCIe Gen4 x4
1 x M.2 2280/22110 — M2_22110_2 — PCIe Gen4 x4
3 x USB3.2 Gen1 (2 Rear / 1 type A) — USB 3.2 Gen1 5Gbps
4 x USB3.2 Gen1 (2 Rear / 2 onboard) — USB 3 5Gbps — USB3 Bridge — PCIe
TPM Iinfineon SLB9670 — SPI BUS

PCIe Gen3 x4 — LAN1/LAN2 Intel X710-AT2 — MDI — RJ45 100M/1/10G
LAN1/LAN2 Intel X710-AT2 — MDI — RJ45 100M/1/10G
RMII 3 / RGMII 1 — LAN3 RTL8211FSI — MDI — RJ45 10M/100M/1G

BMC AST2600
DDR4 — DRAM
SPI — SPI Flash 64MB
RGB — VGA Conn.
1 x RS-232 Conn.
8 bit GPIO Pin Header
PWM — 6 x FAN Conn.

USB2.0
PCIe Gen2 x1
eSPI BUS

SPI BUS
SPI BIOS 256 MB
eSPI BUS — eSPI Conn.

Ordering Information

Part Number	Memory	GbE/10GbE LAN	IPMI	Graphics
ASMB-831T2-00A1	6 x DDR5 ECC-REG DIMM	-/2	Yes	AST2600

Packing List

Part Number	Description	Quantity
2042083100	Startup manual	x 1
1700003194	SATA data cables	x 1
1700022749-11	SATA power cables	x 1
1700019748	CPU power cable	x 2
1930005673-11	Screw for M.2 device	x 2
1960109293T001	I/O Shield	x 1
1960109237N000	PCIe I/O support	x 1
1700031926-11	Front panel convert cable	x 1

Optional Accessories

Part Number	Description
1970005624T001	LGA-6096 CPU cooler for 2U/4U chassis (210W)
1700028292-01	Dual port USB 3.2 Gen1 cable (30 cm/11.8 in) with bracket

Note:
1. Select SATA cable (SFF-8643) from HPC chassis datasheet or contact sales representative.

I/O View

ASMB-831T2-00A1