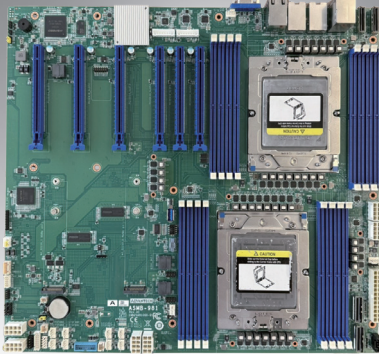


# ASMB-981

**LGA 6096 AMD® EPYC™ Embedded  
9004/9005 Server Board with 16 x DDR5,  
6 x PCIe x16, 4 x MCIO, 5 x USB 3.2  
(Gen1), Dual 10GbE, and IPMI**

## Preliminary



CE FCC

## Features

- LGA 6096 (Socket SP5) server board with Dual AMD® EPYC™ Embedded 9004/9005 processor
- Up to DDR5 6400 MHz RDIMM
- Six PCIe x16 (Gen5) and support four double-deck cards
- Intel® X710-AT2 dual 10GbE ports and i226LM Dual 2.5G
- Four MCIO connectors (Gen5/SATA), Five USB 3.2 (Gen1)
- Two M.2 2280/22110 (PCIe compatible)
- 0 ~ 40 °C ( 32 ~ 104 °F) ambient operating temperature range

## Specifications

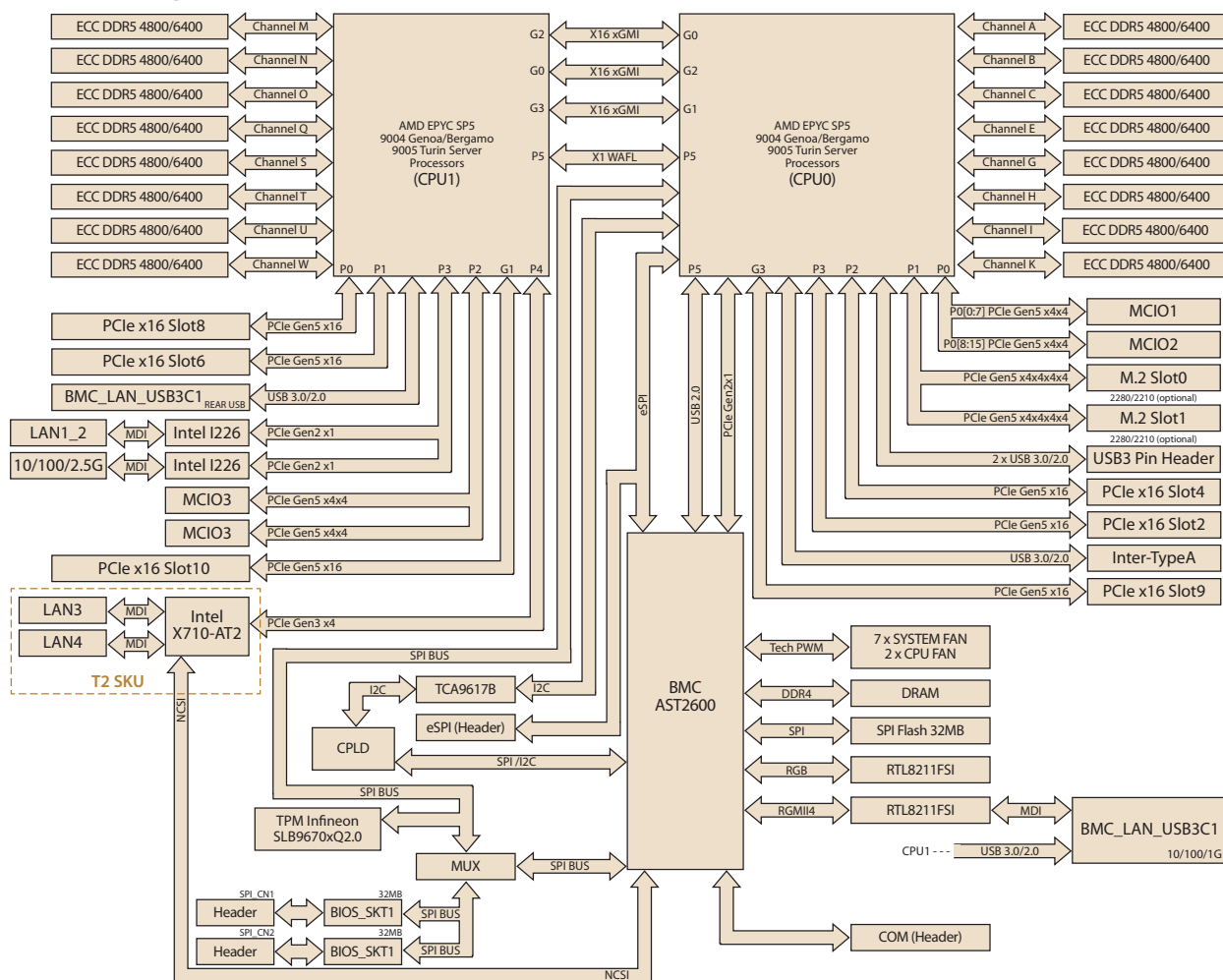
|                          |                                        |                                                                                              |       |        |                            |
|--------------------------|----------------------------------------|----------------------------------------------------------------------------------------------|-------|--------|----------------------------|
| Form Factor              |                                        | Proprietary                                                                                  |       |        |                            |
| Processor System         | Socket                                 | AMD Dual LGA 6096 (Socket SP5)                                                               |       |        |                            |
|                          | CPU type                               | AMD EPYC™ Embedded 9004/9005 processors (CPU cooler should be purchased separately*)         |       |        |                            |
| Memory                   | Total slots                            | 16 (1 DIMM per channel)                                                                      |       |        |                            |
|                          | Capacity                               | Maximum 4TB ECC RDIMM                                                                        |       |        |                            |
|                          | Memory type                            | Up to 4800MHz ECC DDR5 RDIMM (AMD EPYC 9004)<br>Up to 6400MHz ECC DDR5 RDIMM (AMD EPYC 9005) |       |        |                            |
|                          | Memory size                            | 16 GB, 32 GB, 64 GB, 96, 128, 256 GB                                                         |       |        |                            |
| Expansion Slots          | Total PCI/PCI-X/PCIe slots             | 6                                                                                            |       |        |                            |
|                          | Slot location 1                        | N/A                                                                                          |       |        |                            |
|                          | Slot location 2                        | PCIe x16 slot (Gen5 x16 link), CXL support**                                                 |       |        |                            |
|                          | Slot location 3                        | N/A                                                                                          |       |        |                            |
|                          | Slot location 4                        | PCIe x16 slot (Gen5 x16 link), CXL support**                                                 |       |        |                            |
|                          | Slot location 5                        | N/A                                                                                          |       |        |                            |
|                          | Slot location 6                        | PCIe x16 slot (Gen5 x16 link), CXL support**                                                 |       |        |                            |
|                          | Slot location 7                        | N/A                                                                                          |       |        |                            |
|                          | Slot location 8                        | PCIe x16 slot (Gen5 x16 link), CXL support**                                                 |       |        |                            |
|                          | Slot location 9                        | PCIe x16 slot (Gen5 x16 link)                                                                |       |        |                            |
| Slot location 10         | PCIe x16 slot (Gen5 x16 link)          |                                                                                              |       |        |                            |
| Graphics                 | VGA                                    | ASPEED AST2600                                                                               |       |        |                            |
| Storage                  | SATA controller                        | AMD EPYC™ CPU integrated: 16 (via 2 x MCIO)                                                  |       |        |                            |
|                          | SAS controller                         | -                                                                                            |       |        |                            |
| Networking               | 2.5GbE/10GbE LAN                       | 2 x Intel® I226LM / Intel® X710-AT2 (dual 10GbE ports)                                       |       |        |                            |
| Onboard I/O Connector    | PSU connector                          | 24-pin SSI power connector + 6 x 8-pin SSI 12V 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                             | 11 x 4-pin (8 for Dual 4-pin system + 1 for system + 2 for CPU) + 2 x 8-pin (2 for system)   |       |        |                            |
|                          | M.2                                    | 2 x M.2 2280/22110 (PCIe Gen5), CXL support**                                                |       |        |                            |
|                          | MCIO                                   | 4 x MCIO (2 x PCIe Gen5 x8, 2 x PCIe Gen5 x8/SATA), CXL support**                            |       |        |                            |
|                          | SMBus                                  | 1                                                                                            |       |        |                            |
|                          | chassis intrusion                      | 1                                                                                            |       |        |                            |
|                          | Front LAN LED                          | 1                                                                                            |       |        |                            |
|                          | Audio Header                           | -                                                                                            |       |        |                            |
|                          | PS/2 KB/Mouse header                   | -                                                                                            |       |        |                            |
| Rear I/O Connector       | Serial port header                     | -                                                                                            |       |        |                            |
|                          | External serial port                   | 1                                                                                            |       |        |                            |
|                          | External USB port                      | 2 (USB 3.2 Gen1)                                                                             |       |        |                            |
|                          | VGA port                               | 1                                                                                            |       |        |                            |
|                          | RJ-45                                  | 5 (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    | SLOT12V                    |
|                          | 400W CPU@3.65 GHz DDR5-4800<br>16G*16) | 2.51A                                                                                        | 6.95A | 76.64A | 0.73A                      |
| Environment              |                                        | Operating                                                                                    |       |        | Non-operating              |
|                          | Temperature                            | 0 ~ 40 °C (32 ~ 104 °F), depends on CPU speed and cooler solution                            |       |        | -40 ~ 85 °C/-40 ~ 185 °F   |
|                          | Humidity                               | 10% ~ 95%                                                                                    |       |        | 10% ~ 95% (Non condensing) |
| Physical Characteristics | Dimension (L x H)                      | 380 x 352.5 mm (14.96" x 13.88")                                                             |       |        |                            |

\*CPU power design support up to 400W TDP. Please consider extended thermal solution while using CPU > 300W TDP

\*\*CXL 2.0 + Type 3 device

Last updated: 16-Mar-20

## Block Diagram



## Ordering Information

| Part Number      | Memory          | 2.5GbE/10GbE LAN | IPMI | Graphics |
|------------------|-----------------|------------------|------|----------|
| ASMB-981T2-00A1  | 16 x DDR5 RDIMM | 2/2              | Yes  | AST 2600 |
| ASMB-981T2-00A1U | 16 x DDR5 RDIMM | 2/2              | Yes  | AST 2600 |
| ASMB-981I-00A1   | 16 x DDR5 RDIMM | 2/-              | Yes  | AST 2600 |

## Packing List

| Part Number    | Description          | Quantity |
|----------------|----------------------|----------|
| 2042098100     | Startup manual       | x 1      |
| 1700019748     | CPU power cable      | x 2      |
| 1930008738     | Screw for M.2 device | x 2      |
| 1960119686N000 | I/O Shield           | x 1      |
| 1700019414     | COM cable            | x 1      |

## Optional Accessories

| Part Number    | Description                                               |
|----------------|-----------------------------------------------------------|
| 1970006026N000 | LGA-6096 CPU cooler for 4U chassis (300W)                 |
| 1970005676N001 | LGA-6096 CPU cooler for 2U/4U chassis (220W)              |
| 1700028292-01  | Dual port USB 3.2 Gen1 cable (30 cm/11.8 in) with bracket |
| 1700031926-11  | Front panel convert cable                                 |

Note:

1. Select MCIO cable from HPC chassis datasheet or contact sales representative.

## I/O View



ASMB-981T2-00A1



ASMB-981I-00A1