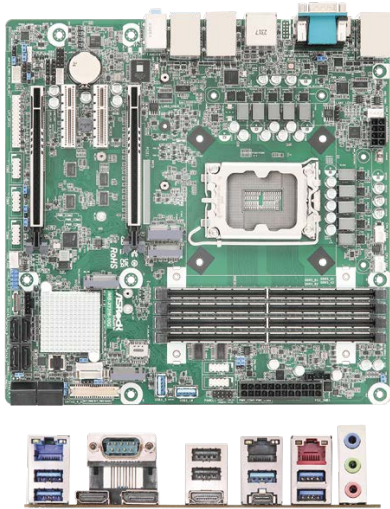




# IMB-X1316-10G

Micro-ATX Motherboard

## KEY FEATURES

- Intel® 14th/13th/12th Gen (Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S) Core™ Processors with W680 chipset
- 4 x 288-pin ECC/non-ECC Long-DIMM DDR5 4400/5600 MHz, up to 192GB (48GB per DIMM)
- 1 x PCIe16 (Gen5), 1 x PCIe8 (Gen5), 2 x PCIe4 (Gen4), 1 x USB 3.2 Gen2x2, 7 x USB 3.2 Gen2, 2 x USB 2.0, 1 x M.2 Key E, 2 x M.2 Key M, 1 x M.2 Key B, 6 x COM, 8 x SATA3
- 1 x Marvell 10 Gigabit LAN, 1 x Intel 2.5 Gigabit LAN, 1 x Intel 1 Gigabit LAN
- Supports Quad display, 2 x HDMI 2.0b, 1 x DP 1.4a, 1 x LVDS
- TPM 2.0 onboard IC
- Supports Intel® vPro, VMD RAID 0/1/5/10
- ATX PWR (24+8 Pin)

## SPECIFICATIONS

### Form Factor

|            |                                                                  |
|------------|------------------------------------------------------------------|
| Dimensions | Micro-ATX (9.6-in x 9.6-in x 1.4-in, 24.4 cm x 24.4 cm x 3.6 cm) |
|------------|------------------------------------------------------------------|

### Processor System

|         |                                                                                                           |
|---------|-----------------------------------------------------------------------------------------------------------|
| CPU     | Intel® 14th/13th/12th Gen (Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S) Core™ Processors, up to 125W |
| Chipset | Intel® W680                                                                                               |
| Socket  | LGA 1700                                                                                                  |
| BIOS    | AMI SPI 256 Mbit                                                                                          |

### Memory

|            |                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technology | Dual Channel ECC/non-ECC DDR5 4400/5600 MHz*<br>*Actual memory frequency depends on the CPU types and DRAM modules, for more information refer to <a href="https://www.asrockind.com/en-gb/index.php?route=newsblog/faq&amp;faq_id=90">https://www.asrockind.com/en-gb/index.php?route=newsblog/faq&amp;faq_id=90</a> technical FAQ<br>*For DDR5 5600 support refer to memory support list |
| Capacity   | 192GB (48GB per DIMM)                                                                                                                                                                                                                                                                                                                                                                      |
| Socket     | 4 x 288-pin Long-DIMM                                                                                                                                                                                                                                                                                                                                                                      |

### Graphics

|              |                                                               |
|--------------|---------------------------------------------------------------|
| Controller   | Intel® UHD Graphics                                           |
| HDMI         | 2 x HDMI 2.0b<br>Max resolution up to 4096 x 2160@60Hz        |
| DisplayPort  | DisplayPort 1.4a, DP++<br>Max resolution up to 4096x2160@60Hz |
| LVDS         | Dual channel 24 bit up to 1920 x 1200@60Hz                    |
| MultiDisplay | Quad Display                                                  |

### Expansion Slot

|            |                                                                                                                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PCIe       | 2 x PCIe Gen5 Slots (PCIe1/PCIe4:single at x16(PCIe1); dual at x8 (PCIe1) / x8 (PCIe4))<br>(PCIe1: Support riser card x8/x8)<br>2 x PCIe4 (Gen4)*<br>*If using PCIe8/x16 card on PCIe2 slot, M.2 Key M2(M2_M2) is limited to install. |
| M.2        | 1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless<br>1 x M.2 (Key B, 3042/3052) with PCIe1, USB 3.2 Gen1, USB 2.0 and SIM for 4G/5G                                                                                   |
| SIM Socket | 1x SIM socket connected to M.2 key B                                                                                                                                                                                                  |

### Audio

|           |                                                                     |
|-----------|---------------------------------------------------------------------|
| Interface | Realtek ALC897 HD, High Definition Audio, Line-In, Line-Out, Mic-In |
|-----------|---------------------------------------------------------------------|

### Ethernet

|                   |                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Controller/ Speed | LAN1: Intel® I226LM with 10/100/1000/2500 Mbps, support vPro<br>LAN2: Intel® I210AT with 10/100/1000 Mbps<br>LAN3: Marvell AQC113 with 10/100/1000/2500/5000/10000 Mbps |
| Connector         | 3 x RJ-45                                                                                                                                                               |

### Rear I/O

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| HDMI        | 2 x HDMI 2.0b                                                         |
| DisplayPort | 1 x DP++                                                              |
| Ethernet    | 1 x 10 Gigabit LAN<br>1 x 2.5 Gigabit LAN<br>1 x 1 Gigabit LAN        |
| USB         | 2 x USB 2.0<br>5 x USB 3.2 Gen2<br>1 x USB 3.2 Gen2x2 (Type C, 5V/3A) |
| Audio       | 3 (Line-In/Line-Out/Mic-In)                                           |
| Serial Port | COM1 (RS-232/422/485)                                                 |

### Internal Connector

|                    |                                                          |
|--------------------|----------------------------------------------------------|
| USB                | 2 x USB 3.2 Gen2 vertical Con                            |
| COM                | COM2 (RS-232/422/485)<br>COM3, COM4, COM5, COM6 (RS-232) |
| Parallel           | 1 (shared with GPIO)                                     |
| GPIO               | 8 x GPI, 8 x GPO (shared with LPT header)                |
| LVDS               | 1                                                        |
| Speaker Header     | 1                                                        |
| PS/2               | 1 x PS/2 header                                          |
| Thunderbolt header | 1 (only use with PCIe3)                                  |

### Storage

|      |                                                                                                                                                                       |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M.2  | 1 x M.2 (Key M, 2242/2280/25110) with PCIe4 Gen4 for SSD<br>1 x M.2 (Key M, 2242/2280) with PCIe4 Gen3 for SSD                                                        |
| SATA | 8 x SATA3                                                                                                                                                             |
| RAID | Intel® VMD RAID 0/1/5/10<br>**supported by identical interface (PCIe or SATA)<br>PCIe interface: M.2 Key B + M.2 Key M1/2 or 2*M.2 Key M<br>SATA interface: SATA port |

### Security

|     |                    |
|-----|--------------------|
| TPM | TPM 2.0 onboard IC |
|-----|--------------------|

### Watchdog Timer

|          |                                  |
|----------|----------------------------------|
| Output   | From Super I/O to drag RESETCON# |
| Interval | 256 Segments, 0, 1, 2, ...255sec |

### Power Requirements

|           |                                                                                                                           |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| Input PWR | ATX PWR (24+8-pin)                                                                                                        |
| Power On  | AT/ATX Supported<br>- AT : Directly PWR on as power input ready<br>- ATX : Press button to PWR on after power input ready |

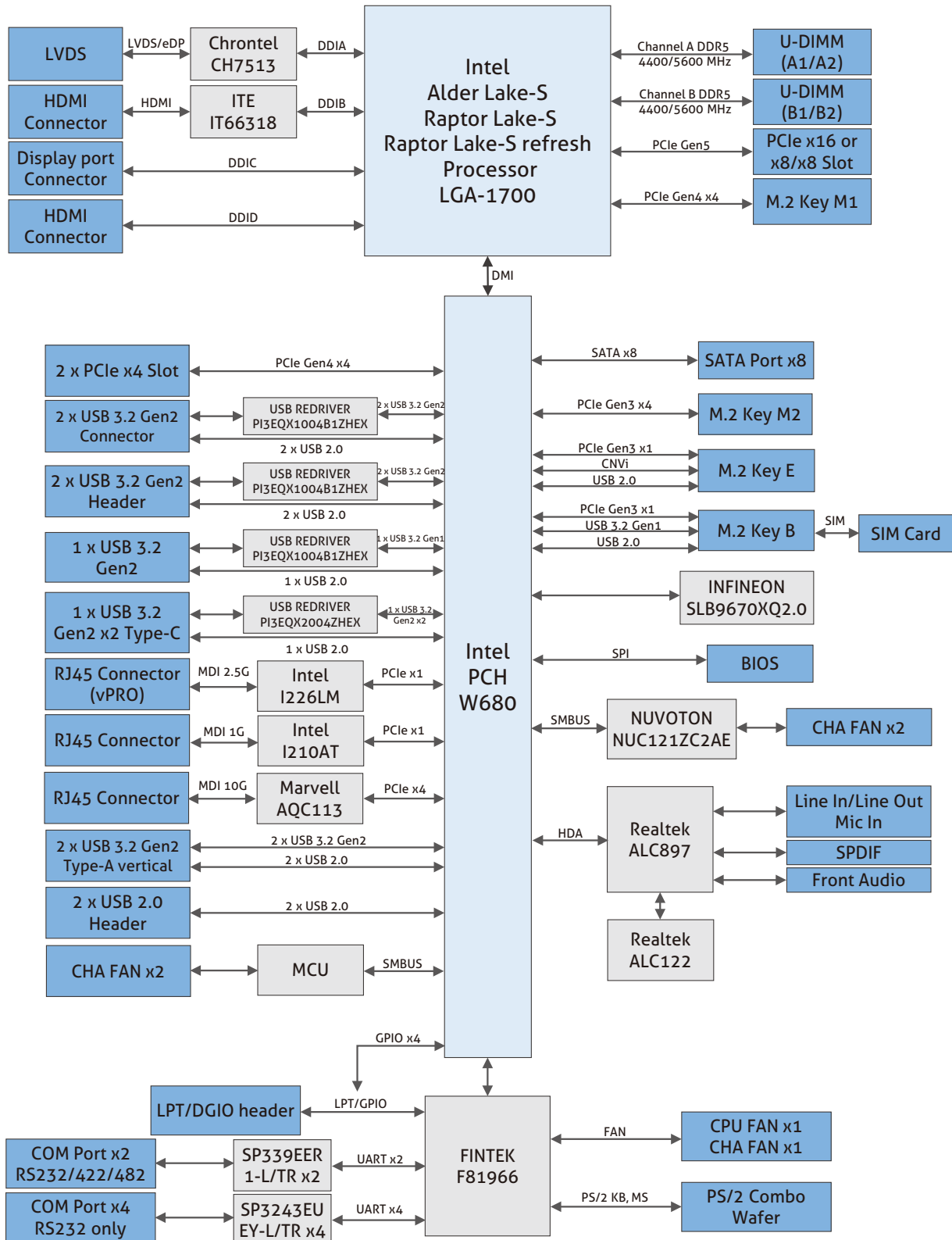
### Environment

|                    |                |
|--------------------|----------------|
| Operating Temp     | -20°C ~ 70°C   |
| Storage Temp       | -40° C ~ 85° C |
| Operating Humidity | 5% ~ 90%       |
| Storage Humidity   | 5% ~ 90%       |

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Micro-ATX Motherboard

## BLOCK DIAGRAM



## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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