



## KEY FEATURES

- Intel® 14th/13th/12th Gen (Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S) Core™ Processors with H610 chipset
- 2 x 262-pin SO-DIMM DDR5 4800/5600 MHz, up to 64GB (32GB per DIMM)
- 1 x PCIe x16 (Gen5), 2 x USB 3.2 Gen2, 1 x USB 3.2 Gen1, 5 x USB 2.0, 1 x M.2 Key B, 1 x M.2 Key E, 1 x M.2 Key M, 2 x COM, 2 x SATA3
- 1 x Intel 2.5 Gigabit LAN, 1 x Intel 1 Gigabit LAN
- Supports Triple display, 2 x HDMI 2.0b, 1 x DP1.4a, 1 x LVDS, 1 x eDP1.4b
- TPM 2.0 onboard IC
- 12~28V DC-In (Lockable DC Jack)

## SPECIFICATIONS

### Form Factor

|                   |   |
|-------------------|---|
| Dimensions(LxWxH) | Mini-ITX (6.7-in x 6.7-in x 1.5-in, 17.0 cm x 17.0 cm x 2.5 cm) |
|-------------------|---|

### Processor System

|         |  |
|---------|--|
| CPU     | Intel® 14th/13th/12th Gen (Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S) Core™ Processors, up to 65W |
| Chipset | Intel® H610  |
| Socket  | LGA1700  |
| BIOS    | AMI SPI 256 Mbit   |

### Memory

|            |   |
|------------|---|
| Technology | Dual Channel DDR5 4800/5600 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>*If motherboard ambient temp. is over 55°C, the memory thermal solution should be added to avoid thermal issue |
| Capacity   | 64 GB (32 GB per DIMM)  |
| Socket     | 2 x 262-pin SO-DIMM   |

### Graphics

|              |   |
|--------------|---|
| Controller   | Intel® UHD Graphics   |
| HDMI         | HDMI 2.0b<br>Max resolution up to 4096x2160@60Hz              |
| DisplayPort  | DisplayPort 1.4a, DP++<br>Max resolution up to 4096x2160@60Hz |
| LVDS         | Dual channel 24 bit up to 1920x1200@60Hz                      |
| eDP          | eDP1.4b<br>Max resolution up to 4096x2160@60Hz                |
| MultiDisplay | Triple Display  |

### Expansion Slot

|            |   |
|------------|---|
| PCIe       | 1 x PCIe x16 (Gen5)   |
| 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 PCIe x1, USB 3.2 Gen1, USB 2.0 and SIM for 4G/5G |
| SIM Socket | 1 x Socket connected to M.2 Key B   |

### Audio

|           |   |
|-----------|---|
| Interface | Realtek ALC662, High Definition Audio. Line-out, Mic-in |
|-----------|---|

### Ethernet

|                   |   |
|-------------------|---|
| Controller/ Speed | LAN1: Intel® I226V with 10/100/1000/2500 Mbps<br>LAN2: Intel® I219V with 10/100/1000 Mbps |
| Connector         | 2 x RJ-45   |

### Rear I/O

|             |  |
|-------------|--|
| HDMI        | 2 x HDMI 2.0b                            |
| DisplayPort | 1 x DP 1.4a++                            |
| Ethernet    | 1 x 2.5 Gigabit LAN<br>1 x 1 Gigabit LAN |
| USB         | 2 x USB 3.2 (Gen2)<br>2 x USB 2.0        |
| Audio       | 2 (Mic-in, Line-out)                     |

### Internal Connector

|                 |  |
|-----------------|--|
| USB             | 1 x USB 3.2 Gen1 (1 x USB 3.2 header)<br>3 x USB 2.0 (1 x 2.54 pitch header) |
| COM             | COM1, COM3 (RS-232/422/485)  |
| GPIO            | 4 x GPI, 4 x GPO   |
| LVDS            | 1  |
| eDP             | 1  |
| SATA PWR Output | 1  |
| Speaker Header  | 1  |

### Storage

|      |  |
|------|--|
| M.2  | 1 x M.2 (Key M, 2242/2280) with PCIe Gen3 x4 for SSD |
| SATA | 2 x SATA3 (6Gb/s)                                    |

### 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 | 12~28V DC-In with 4-pin wafer PWR cable or DC Jack (Screw type)   |
| 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     | 0°C ~ 70°C   |
| Storage Temp       | -40°C ~ 85°C |
| Operating Humidity | 5% ~ 90%     |
| Storage Humidity   | 5% ~ 90%     |