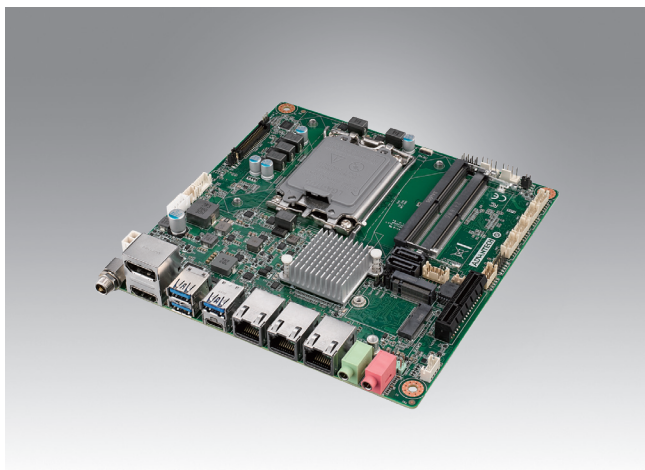


# AIMB-289

## Mini-ITX Motherboard 12th/13th/14th Gen Intel® Core™ Processor LGA1700



### Features

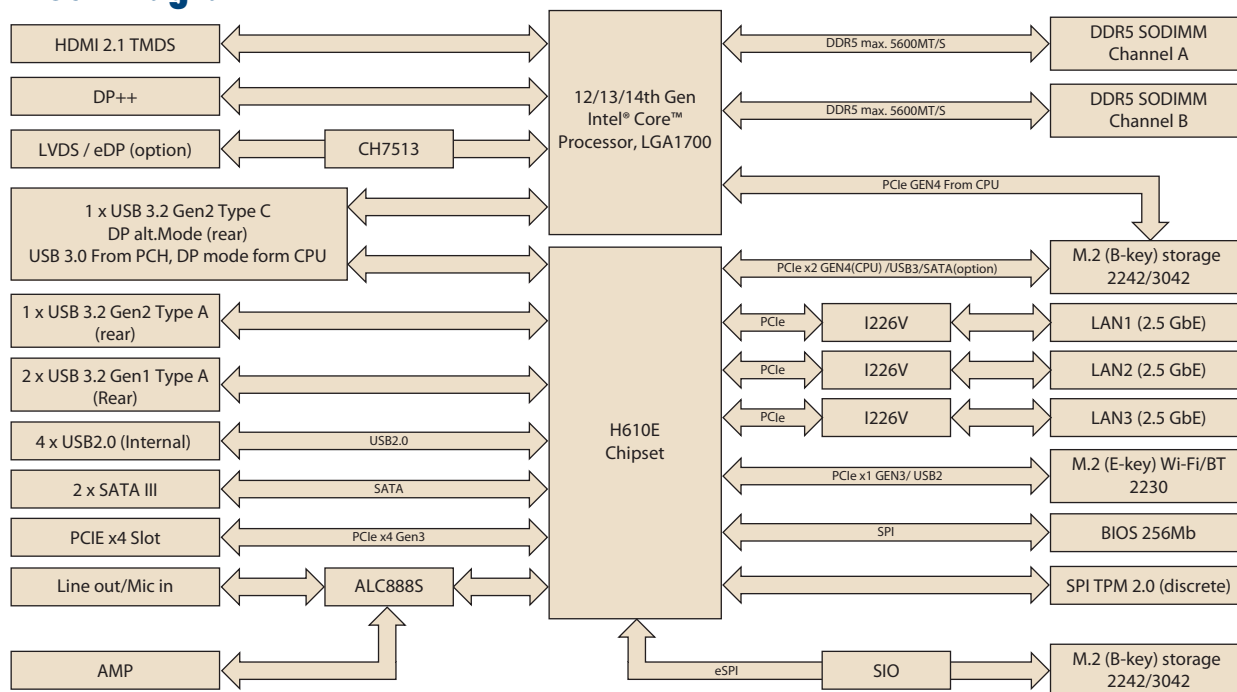
- 12th/13th/14th Gen Intel® Core™ Desktop Processors, Up to 24Core, support H610E chipset
- Dual channel DDR5 5600MHz, max. 96GB with two SODIMMs
- Super Speed I/O: PCIe x4 Gen3, USB3.2 Gen2 (10Gbps), 2.5GbE
- Triple independent 4K displays with 1 DP, 1 HDMI, 1 LVDS
- Rich expansion: M.2 M key for NVMe SSD, M.2 E key for wireless, 2 SATA(RAID 0,1,5)
- TPM2.0 support
- SUSI API, WISE-DeviceOn and Embedded Software



### Specifications

|                            |                      |                                                                                                                           |            |                      |            |                            |            |                      |                      |            |           |
|----------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------|------------|----------------------|------------|----------------------------|------------|----------------------|----------------------|------------|-----------|
| 14th Generation Processors | CPU                  | i9-14900                                                                                                                  | i9-14900T  | i7-14700             | i7-14700T  | i5-14500                   | i5-14500T  | i5-14400             | i5-14400T            | i3-14100   | i3-14100T |
|                            | Core Number          | 24                                                                                                                        | 24         | 20                   | 20         | 14                         | 14         | 10                   | 10                   | 8          | 8         |
|                            | Base frequency (GHz) | 2.0/1.5                                                                                                                   | 1.1/0.8    | 2.1/1.5              | 1.3/0.9    | 2.6/1.9                    | 1.7/1.2    | 2.5/1.8              | 1.5/1.1              | 3.5/NA     | 2.7/NA    |
|                            | Max Speed (GHz)      | 5.8/4.3                                                                                                                   | 5.5/4.0    | 5.4/4.2              | 5.2/3.7    | 5.0/3.7                    | 4.8/3.4    | 4.7/3.5              | 4.5/3.2              | 4.7/NA     | 4.4/NA    |
|                            | Smart cache (MB)     | 36MB                                                                                                                      | 36MB       | 33MB                 | 33MB       | 24MB                       | 24MB       | 20MB                 | 20MB                 | 12MB       | 12MB      |
| 13th Generation Processors | TDP (W)              | 65W                                                                                                                       | 35W        | 65W                  | 35W        | 65W                        | 35W        | 65W                  | 35W                  | 65W        | 35W       |
|                            | CPU                  | i9-13900E / i9-13900                                                                                                      | i9-13900TE | i7-13700E / i7-13700 | i7-13700TE | i5-13500E / i5-13500       | i5-13500TE | i5-13400E / i5-13400 | i3-13100E / i3-13100 | i3-13100TE |           |
|                            | Core Number          | 24                                                                                                                        | 24         | 16                   | 16         | 14                         | 14         | 10                   | 4                    | 4          |           |
|                            | Base frequency (GHz) | 1.8/2.0                                                                                                                   | 1          | 1.9/2.1              | 0.8        | 2.4/2.6                    | 1.3        | 2.4/2.5              | 3.3/3.4              | 2.4        |           |
|                            | Max Speed (GHz)      | 5.2/5.6                                                                                                                   | 5          | 5.1/5.2              | 4.8        | 4.6/4.8                    | 4.5        | 4.6                  | 4.4/4.5              | 4.1        |           |
| 12th Generation Processors | Smart cache (MB)     | 36                                                                                                                        | 36         | 30                   | 30         | 24                         | 24         | 20                   | 12                   | 12         |           |
|                            | TDP (W)              | 65                                                                                                                        | 35         | 65                   | 35         | 65                         | 35         | 65                   | 60                   | 35         |           |
|                            | CPU                  | i9-12900E / i9-12900                                                                                                      | i9-12900TE | i7-12700E / i7-12700 | i7-12700TE | i5-12500E / i5-12500/12400 | i5-12500TE | i3-12100E / i3-12100 | i3-12100TE           | G7400E     | G7400TE   |
|                            | Core Number          | 16                                                                                                                        | 16         | 12                   | 12         | 6                          | 6          | 4                    | 4                    | 2          | 2         |
|                            | Base frequency (GHz) | 2.3/2.4                                                                                                                   | 1.1        | 2.1                  | 1.4        | 2.9/3.0/2.5                | 1.9        | 3.2                  | 2.1                  | 3.6        | 3         |
| Processor System           | Max Speed (GHz)      | 5                                                                                                                         | 4.8        | 4.8                  | 4.7        | 4.5/4.6/4.4                | 4.3        | 4.2/4.3              | 4                    | NA         | NA        |
|                            | Smart cache (MB)     | 30                                                                                                                        | 30         | 25                   | 25         | 18                         | 18         | 12                   | 12                   | 6          | 6         |
|                            | TDP (W)              | 65                                                                                                                        | 35         | 65                   | 35         | 65                         | 35         | 60                   | 35                   | 46         | 35        |
|                            | Chipset              | H610E                                                                                                                     |            |                      |            |                            |            |                      |                      |            |           |
|                            | BIOS                 | AMI EFI 256Mb SPI                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
| Expansion Slot             | M.2                  | 1 M-Key for SSD, 1 E-Key for Wireless connection                                                                          |            |                      |            |                            |            |                      |                      |            |           |
|                            | PCIe x4              | PCIe x4 Gen3                                                                                                              |            |                      |            |                            |            |                      |                      |            |           |
| Memory                     | Technology           | Dual Channel DDR5, up to 5600 MHz (non-ECC)                                                                               |            |                      |            |                            |            |                      |                      |            |           |
|                            | Max. Capacity        | 96GB (up to 48GB per SODIMM)                                                                                              |            |                      |            |                            |            |                      |                      |            |           |
|                            | Socket               | 2 x 262pin SODIMM                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
| Graphics                   | Controller           | up to Intel® UHD Graphics 770                                                                                             |            |                      |            |                            |            |                      |                      |            |           |
|                            | HDMI                 | HDMI2.1, supports max. resolution 4096 x 2160 @ 60 Hz                                                                     |            |                      |            |                            |            |                      |                      |            |           |
|                            | DP                   | DP1.4b, supports max. resolution 4096 x 2160 @ 60 Hz                                                                      |            |                      |            |                            |            |                      |                      |            |           |
|                            | eDP                  | By Option, with internal pin header, supports max. resolution 4096 x 2304 @ 60 Hz (eDP colay with LVDS)                   |            |                      |            |                            |            |                      |                      |            |           |
|                            | LVDS                 | By Default, internal pin header, supports singel/dual channel 18/24-bit with maximum resolution up to 1920 x 1200 @ 60 Hz |            |                      |            |                            |            |                      |                      |            |           |
| Network                    | Multi Displays       | up to 3 independent displays (combination of 1DP, 1HDMI, 1LVDS)                                                           |            |                      |            |                            |            |                      |                      |            |           |
|                            | ETHERNET             | up to 2500 Mb/s                                                                                                           |            |                      |            |                            |            |                      |                      |            |           |
|                            | Controller           | Intel i226                                                                                                                |            |                      |            |                            |            |                      |                      |            |           |
|                            | Connector            | 3 x RJ45                                                                                                                  |            |                      |            |                            |            |                      |                      |            |           |
|                            | SATA                 | Max data transfer rate 600 MB/s                                                                                           |            |                      |            |                            |            |                      |                      |            |           |
| Rear I/O                   | Channel              | 2 x SATAIII                                                                                                               |            |                      |            |                            |            |                      |                      |            |           |
|                            | DP                   | 1                                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
|                            | HDMI                 | 1                                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
|                            | Ethernet             | 3                                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
|                            | USB                  | Up to 4 USB3.2 (H610E: 2 USB3.2 Gen1)                                                                                     |            |                      |            |                            |            |                      |                      |            |           |
| Internal Connector         | Audio                | 1 (Line out/Mic in)                                                                                                       |            |                      |            |                            |            |                      |                      |            |           |
|                            | USB                  | 4 USB2.0                                                                                                                  |            |                      |            |                            |            |                      |                      |            |           |
|                            | eDP/LVDS             | 1 LVDS (eDP colay with LVDS)                                                                                              |            |                      |            |                            |            |                      |                      |            |           |
|                            | Serial               | 4 (COM1 RS-232, supports 5V/12V by jumper selection, COM2 & 3 RS232/422/485, COM4 RS-232)                                 |            |                      |            |                            |            |                      |                      |            |           |
|                            | SATA                 | 2                                                                                                                         |            |                      |            |                            |            |                      |                      |            |           |
| Watchdog Timer             | M.2                  | 1 M-key (dimension: 2280)<br>1 E-key (dimension: 2230)                                                                    |            |                      |            |                            |            |                      |                      |            |           |
|                            | GPIO                 | 8-bit                                                                                                                     |            |                      |            |                            |            |                      |                      |            |           |
|                            | Output               | System reset                                                                                                              |            |                      |            |                            |            |                      |                      |            |           |
|                            | Interval             | Programmable 1 ~ 255 sec/min                                                                                              |            |                      |            |                            |            |                      |                      |            |           |
|                            | Boost                | 92.7W                                                                                                                     |            |                      |            |                            |            |                      |                      |            |           |
| Power Requirements         | Typical              | 68.9W                                                                                                                     |            |                      |            |                            |            |                      |                      |            |           |
|                            | Temperature          | Operating: 0 ~ 60° C (32 ~ 140° F), depends on CPU speed and cooler solution                                              |            |                      |            |                            |            |                      |                      |            |           |
| Environment                | Storage              | Non-Operating: -40 ~ 85° C (-40 ~ 185° F)                                                                                 |            |                      |            |                            |            |                      |                      |            |           |
|                            | Dimensions           | 170 mm x 170 mm (6.69" x 6.69")                                                                                           |            |                      |            |                            |            |                      |                      |            |           |

## Block Diagram



## Ordering Information

| P/N             | Chipset | HDMI | LVDS/<br>eDP | DP | GbE | 2.5GbE | COM | SATAIII | USB3.2                                                                     | USB2.0 | M.2 E<br>key | M.2 B<br>key | PClex4 | TPM | AMP |
|-----------------|---------|------|--------------|----|-----|--------|-----|---------|----------------------------------------------------------------------------|--------|--------------|--------------|--------|-----|-----|
| AIMB-289HF-LDA1 | H610E   | 1    | 1/(1)        | 1  | 0   | 3      | 4   | 2       | 2 x USB3.2 Gen1 type A<br>1 x USB3.2 Gen2 type C<br>1 x USB3.2 Gen2 type A | 4      | 1            | 1            | 1      | 1   | (1) |
| AIMB-289HL-EDA1 | H610E   | 1    | (1)/1        | 1  | 0   | 2      | 2   | 2       | 2 x USB3.2 Gen1 type A<br>1 x USB3.2 Gen2 type A                           | 4      | 1            | 1            | 1      | (1) | (1) |

\*(1) Supports by BOM options

## Packing List

| Part Number    | Description                      | Quantity |
|----------------|----------------------------------|----------|
| 1700034404-02  | 1-to-1 serial port cable, 50cm   | 1        |
| 1700003194-21  | SATA HDD cable                   | 1        |
| 1960116395T001 | I/O port bracket                 | 1        |
| 1700023082-11  | ATX 2*10P to 1*3P-2.0 25cm cable | 1        |

## Optional Accessory

| Part Number    | Description                                |
|----------------|--------------------------------------------|
| 1700034405-01  | 1-to-2 USB 2.0 cable, 50cm                 |
| 1970005349T001 | LGA1700 CPU Cooler H: 55.4mm (for TDP 65W) |
| 1970005672T001 | LGA1700 CPU Cooler H: 32mm (for TDP 35W)   |

## Embedded OS/API

| OS/API | Part No. | 968 P/N | Description |
|--------|----------|---------|-------------|
| TBD    |          |         |             |

## Optional Chassis

| Part Number    | Description                                 |
|----------------|---------------------------------------------|
| EPC-B2000-A030 | Mini-ITX Chassis with 350W ATX power supply |

## I/O View

