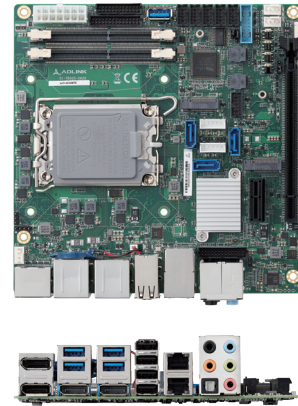


AmITX-AD-G

Mini-ITX Embedded Board
 with 12th/13th/14th Gen Intel®
 Core™ Desktop Processors



Features

- 12th/13th/14th Gen Intel® Core™ i7/i5/i3, Intel® Pentium® and Celeron® Desktop Processors with Intel® Q670E/H610E Chipset
- Up to 32GB dual channel DDR4 at 3200MHz
- PCIe x16, PCIe x1, M.2
- 4 DisplayPort outputs on rear IO (Q670E)
- Supports Smart Embedded Management Agent (SEMA®) functions
- 2x USB 3.2 Gen 1 onboard header (H610E: 1x USB 2.0)
- 4x USB 3.2 Gen 1

Specifications

| Processor & System | CPU | |
|--------------------|-----|--|
| | | Embedded 12th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1700 socket |
| | | Intel® Core™ i7-12700 Processor, 12C, 2.1/4.9GHz, 25M, 65W/180W (Maximum Turbo Power) |
| | | Intel® Core™ i7-12700E Processor, 12C, 2.1/4.8GHz, 25M, 65W |
| | | Intel® Core™ i7-12700TE Processor, 12C, 1.4/4.6GHz, 25M, 35W |
| | | Intel® Core™ i5-12500 Processor, 6C, 3.0/4.6GHz, 18M, 65W/117W (Maximum Turbo Power) |
| | | Intel® Core™ i5-12500E Processor, 6C, 2.9/4.5GHz, 18M, 65W |
| | | Intel® Core™ i5-12500TE Processor, 6C, 1.9/4.3GHz, 18M, 35W |
| | | Intel® Core™ i5-12400 Processor, 6C, 2.5/4.4GHz, 18M, 65W/117W (Maximum Turbo Power) |
| | | Intel® Core™ i3-12100E Processor, 4C, 3.2/4.2GHz, 12M, 60W |
| | | Intel® Core™ i3-12100 Processor, 4C, 3.3/4.3GHz, 12M, 60W/89W (Maximum Turbo Power) |
| | | Intel® Core™ i3-12100TE Processor, 4C, 2.1/4.0GHz, 12M, 35W |
| | | Intel® Pentium® Gold G7400TE Processor, 2C, 3.0/3.0GHz, 6M, 35W |
| | | Intel® Pentium® Gold G7400E Processor, 2C, 3.6/3.6GHz, 6M, 46W |
| | | Intel® Celeron® Processor G6900E, 2C, 3.0/3.0GHz, 4M, 46W |
| | | Intel® Celeron® Processor G6900TE, 2C, 2.4/2.4GHz, 4M, 35W |

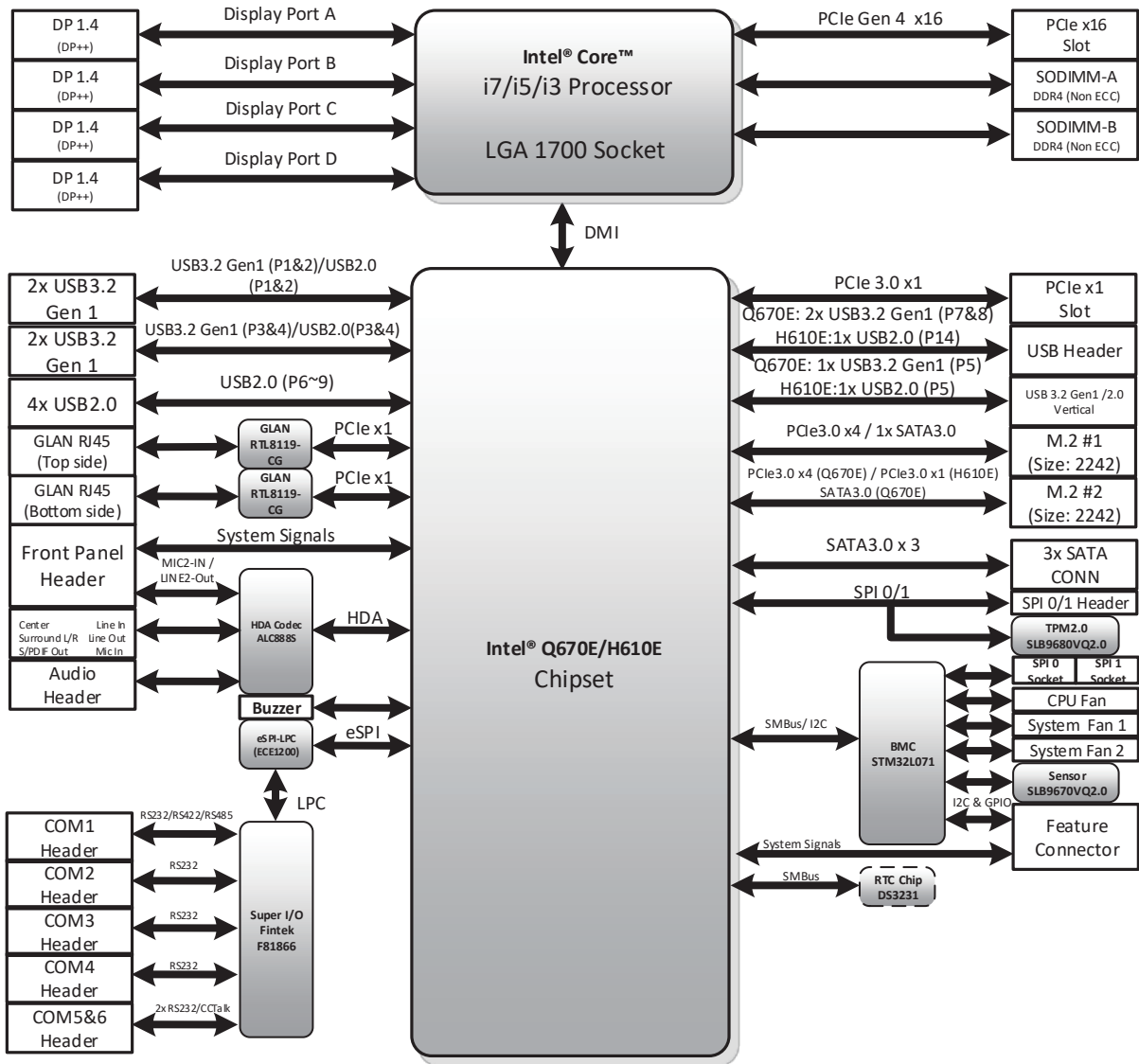
Specifications

| | | |
|--------------------|-----------------------------|--|
| Processor & System | CPU | <p>Embedded 13th Generation Intel® Core™ i7/i5/i3 and Pentium®/ Celeron® Processor, LGA1700 socket</p> <p>Intel® Core™ i7-13700 Processor, 16C, 2.1/5.2GHz, 30M, 65W/219W (Maximum Turbo Power)</p> <p>Intel® Core™ i7-13700E Processor, 16C, 1.9/5.1GHz, 30M, 65W</p> <p>Intel® Core™ i7-13700TE Processor, 16C, 1.1/4.8GHz, 30M, 35W</p> <p>Intel® Core™ i5-13500 Processor, 14C, 2.5/4.8GHz, 24M, 65W/154W (Maximum Turbo Power)</p> <p>Intel® Core™ i5-13500E Processor, 14C, 2.4/4.6GHz, 24M, 65W</p> <p>Intel® Core™ i5-13500TE Processor, 14C, 1.3/4.5GHz, 24M, 35W</p> <p>Intel® Core™ i5-13400 Processor, 10C, 2.5/4.6GHz, 24M, 65W/148W (Maximum Turbo Power)</p> <p>Intel® Core™ i3-13100E Processor, 4C, 3.3/4.4GHz, 12M, 60W</p> <p>Intel® Core™ i3-13100 Processor, 4C, 3.4/4.5GHz, 12M, 60W/110W (Maximum Turbo Power)</p> <p>Intel® Core™ i3-13100TE Processor, 4C, 2.4/4.1GHz, 12M, 35W</p> |
| | | <p>Embedded 14th Generation Intel® Core™ i7/i5/i3 and Pentium®/ Celeron® Processor, LGA1700 socket</p> <p>Intel® Core™ i7-14700 Processor, 20C, 2.1/5.4GHz, 33M, 65W/219W (Maximum Turbo Power)</p> <p>Intel® Core™ i7-14700T Processor, 20C, 1.3/5.2GHz, 33M, 35W/106W (Maximum Turbo Power)</p> <p>Intel® Core™ i5-14500T Processor, 14C, 1.7/4.8GHz, 24M, 35W/92W (Maximum Turbo Power)</p> <p>Intel® Core™ i3-14100 Processor, 4C, 3.5/4.7GHz, 12M, 60W/110W (Maximum Turbo Power)</p> <p>Intel® Core™ i3-14100T Processor, 4C, 2.7/4.4GHz, 12M, 35W/69W (Maximum Turbo Power)</p> |
| | Chipset | Intel® Q670E/H610E Chipset |
| | BIOS | <p>EFI in 16MB SPI BIOS</p> <p>Optional SPI BIOS socket onboard and SPI header for external BIOS, dual BIOS support</p> <p>TPM module soldered onboard</p> <p>Precision RTC (optional)</p> |
| | Debug Header | 40-pin multipurpose flat cable connector. Use in combination with DB-40 debug module providing BIOS POST code LEDs, BMC access, SPI BIOS, flashing, power testpoints, debug LEDs |
| | Memory | Dual channel non-ECC 3200 MHz DDR4 memory up to 32GB in dual vertical SODIMM sockets |
| | Board Management Controller | Supports: voltage monitoring, system and CPU temperature monitoring, smart fan control, logistics and forensic information, general purpose I2C, watchdog timer |
| I/O Interfaces | Expansion Slots | <p>1x PCIe x16 Gen4 slot</p> <p>1x PCIe x1 Gen3 slot</p> <p>2x M.2 (M key, Support 2242 and NVMe boot)</p> <p>M.2 #1 (Q670E: PCIe 3.0 x4; H610E: PCIe 3.0 x4 and w/ SATA interface)</p> <p>M.2 #2 (Q670E: PCIe 3.0 x4; H610E: PCIe 3.0 x1 and w/o SATA interface) 1x SPI header for external BIOS</p> |

Specifications

| | | |
|------------------------------|--|---|
| I/O Interfaces | Serial ATA | 3x SATA 6 Gbps ports (Jumper select NA/3.3V/5V for SATA1 and SATA2 to deliver power by SATA pin7; Default is NA) 2x SATA power connector |
| | USB | 4x USB 3.2 Gen 1 and 4x USB 2.0 on rear I/O 2x USB 3.2 Gen 1 onboard header (H610E : 1x USB 2.0) 1x USB 3.2 Gen 1 on vertical connector with keep out area for dongle (H610E: USB 2.0) |
| | Serial Ports (9 bit protocol support) | 1x RS-232/422/485 on internal header 3x RS-232 on internal headers 1x RS232/CCTALK x2 on internal header |
| | Digital IO | 8x GPIO via onboard feature connector |
| Audio | Audio Codec | Realtek® ALC888S |
| | Interfaces | 7.1 channel audio via 5 jacks and S/PDIF output on rear I/O 7.1 channel audio signals and S/PDIF output on internal header |
| Display | Graphics Core | Intel® 12th/13th/14th generation graphics core architecture (Intel® Xe Architecture) with up to 32 execution units supporting DirectX 12, OGL4.6, and up to four independent, simultaneous displays |
| | DisplayPort | Up to 4x DisplayPort v1.2 with max resolution of 4096x2304@60Hz 4x DisplayPort(Q670E), 3x DisplayPort (H610E) |
| Ethernet | Controller | 2x Realtek RTL8119-CG Ethernet controller |
| | Interface | PCI Express x1 Bus 10/100/1000 connection |
| Power | Standard Input | ATX: 12V ±5% / 5Vsb ±5% |
| | AT | 12V ±5% |
| | Peripheral Output | Onboard headers for fan and SATA power ATX Power Connector (14-pin) |
| Mechanical and Environmental | Dimension (mm) | 170 mm x 170 mm (L x W) |
| Operating Temperature | Standard | 0°C to +60°C |
| | Storage Temperature | -20°C to +80°C |
| | Certification | CE, FCC Class A |
| | Relative Humidity | 40° C @ 95% RH Non-condensing |

Functional Diagram



Ordering Information

| | |
|------------------|---|
| AmITX-AD-G-Q670E | Mini-ITX Embedded Board with 12th/13th/14th generation Intel® Core™ i7/i5/i3 Desktop Processor with Q670E Chipset |
| AmITX-AD-G-H610E | Mini-ITX Embedded Board with 12th/13th/14th generation Intel® Core™ i7/i5/i3 Desktop Processor with H610E Chipset |

Optional Accessories

| | |
|---------------|---|
| 30-20876-1000 | COM Port Cable, 1 Port, 25cm |
| 30-20873-0000 | USB 3.2 Gen 1 Cable, 2 ports, 20cm (for AmITX-AD-G-Q670E) |
| 30-20874-1000 | USB 2.0 Cable, 2 ports, 20cm (for AmTIX-AD-G-H610E) |

Packing List

| | |
|------------------|-----------------------|
| 30-20872-0000 | ATX/AT Power Cable |
| 30-20875-0000 | SATA Dual Power Cable |
| 30-10057-0600 | SATA Cable |
| 34-25329-0000-A0 | Rear I/O Shield |