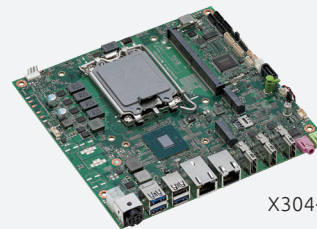


X304-Q670W



X304-H610

Main Features

- 13/12th Intel® Core™ LGA 1700 socket type processors, 35W
- Dual channel DDR5 SO-DIMM, max up to 64GB
- 3 x HDMI 2.0 output, support 4K@60Hz and 1 x LVDS (support by Q670)
- Dual Intel® LAN ports
- 2 x COM ports, 4 x USB 3.2, Mic-in/Line-out/Speaker-out
- Onboard TPM 2.0 design for security advantage
- Support Intel® AMT technology (Q670E only)
- Multiple expansion slots: M.2 2280 Key M for storage, M.2 2230 Key E for Wi-Fi, M.2 3052 Key B for LTE/5G

Product Overview

The X304 is an industrial Mini-ITX embedded computing board powered by Intel® 13/12th Core™ i9/i7/i5/i3 processors (formerly Alder Lake-S & raptor Lake-S) with Intel® Q670E/H610E chipset. In addition to the great computing performance, the X304 features with outstanding GPU performance driven by Intel® UHD graphics 770 engine allow for eye-catching visuals. The X304 comes with rich I/O connectivity including 4 x COM ports, 8 x USB ports, 2 x LANs, 3 x HDMI 2.0 for 4K display output, 1 x LVDS connector and 1 x GPIO supported. The internal LVDS connector can be connected with panel and reach 2K resolution for multiple media & kiosk use. It also comes in great expansion possibilities, including three M.2 slots for support SSD storage, Wi-Fi and LTE/5G connectivity. The X304 is perfect to be embedded in industrial testing equipment, visual and edge computing, and measurement machine applications which need rich I/O connectivity in high demand for higher computing and graphic performance.

Specifications

CPU Support

- 13/12th Gen Intel® Core™ i9/i7/i5/i3 LGA 1700 socket type processors, up to 35W
 - Intel® Core™ i9-12900TE, 16 core, 1.1 GHz (P-Core) and 1GHz (E-Core), 30M Cache, 35W
 - Intel® Core™ i7-12700TE, 12 core, 1.4 GHz (P-Core) and 1GHz (E-Core), 25M Cache, 35W
 - Intel® Core™ i5-12500TE, 6 core, 1.9 GHz (P-Core), 18M Cache, 35W
 - Intel® Core™ i3-12100TE, 4 core, 2.1 GHz (P-Core), 12M Cache, 35W
 - Intel® Core™ i9-13900TE, 24 core, 1.0 GHz (P-Core) and 800MHz (E-Core), 36M Cache, 35W
 - Intel® Core™ i7-13700TE, 16 core, 1.1 GHz (P-Core) and 800MHz (E-Core), 30M Cache, 35W
 - Intel® Core™ i5-13500TE, 14 core, 1.3 GHz (P-Core) and 1.1GHz (E-Core), 24M Cache, 35W
 - Intel® Core™ i3-13100TE, 4 core, 2.4 GHz (P-Core), 12M Cache, 35W

Chipset & Memory

- Intel® PCH Q670E
- Intel® PCH H610E
- 2 x 262-pin DDR5 SO-DIMM socket, supports up to 64G and un-buffered and non-ECC

Graphics & Display

- Intel® UHD Graphics 770
- 3 x HDMI 2.0 output, resolution up to 4096 x 2160@60Hz
- 1 x LVDS connector, dual channel, resolution up to 1920 x 1200@60Hz (Q670W SKU only, eDP can be selected by jumper)

Onboard LAN

- 2 x RJ45 connector with Intel® i226-V (2.5GbE) and 219-LM (GbE) LAN controller
- Support wake on LAN function

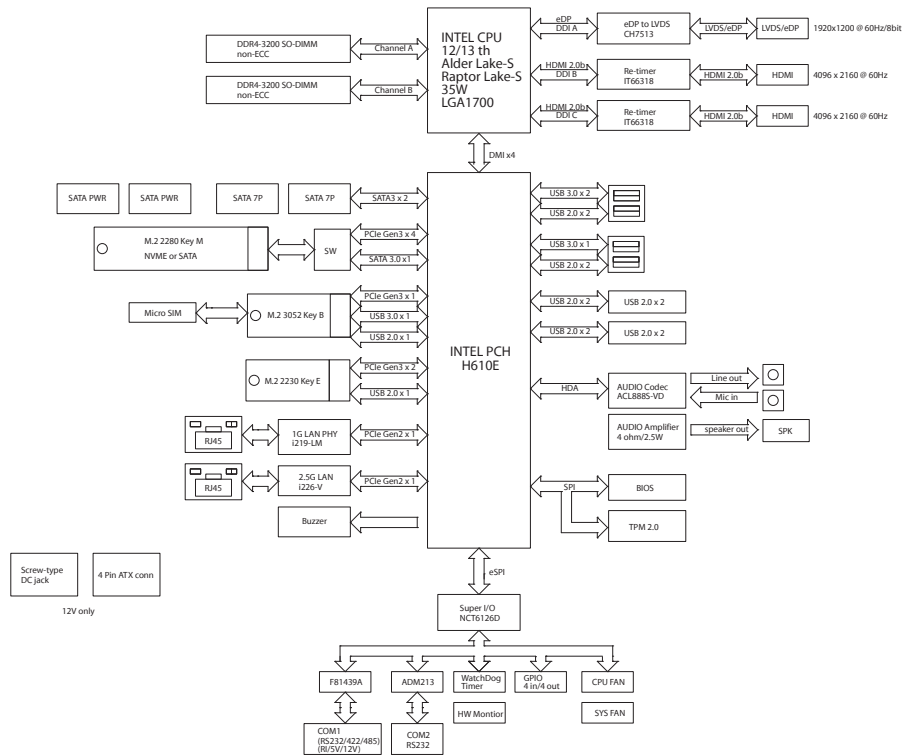
Audio

- Realtek ALC888S

I/O Interface on the Edge

- 3 x HDMI 2.0 output
- 1 x Intel® i219-LM(GbE) , 1 x Intel® i226-V (2.5GbE)
- 4 x USB 3.2 (Q670W SKU) or 3 x USB 3.2+1 x USB 2.0 (H610 SKU)
- 1 x Mic-in, 1 x Line-out powered by Realtek ALC888S
- 1 x 12V DC or 12~24V DC Input (Q670W SKU only)

Block Diagram



Internal I/O Function

- 4 x USB 2.0, by 2 x internal pin header
- COM1: RS232/422/485, internal pin header
- COM2: RS232, internal pin header, support RI, 12/5V select by jumper (COM3: RS232/422/485 +COM4: RS232 by request)
- 1 x internal LVDS connector (Q670W SKU only)
- 1 x GPIO, TTL level, 4 x GPI, 4 x GPO
- 1 x Internal speaker pin header with 2W 4Ω Amplifier
- 1 x Power button internal pin header
- 1 x Set of HDD LED, internal pin header
- 1 x 4-pin CPU FAN connector

Expansion

- 1 x M.2 2230 Key E, support Wi-Fi/Bluetooth module
- 1 x M.2 3052 Key B, support LTE/5G module

Storage

- 1 x 7-pin SATA connector and 1 x 2-pin SATA power connector
- 1 x M.2 2280 Key M, support PCIe x4 and SATA signal

Power Requirements

- 1 x ATX 4-pin connector
- 12V DC or 12~24V DC input (Q670W SKU only)

Environment

- Operating temperature: 0°C to 60°C
- Storage temperature: -20°C to 80°C
- Relative humidity: 95% (non-condensing)

Dimension

- 170mm (L) x 170mm (W) (6.7" x 6.7")

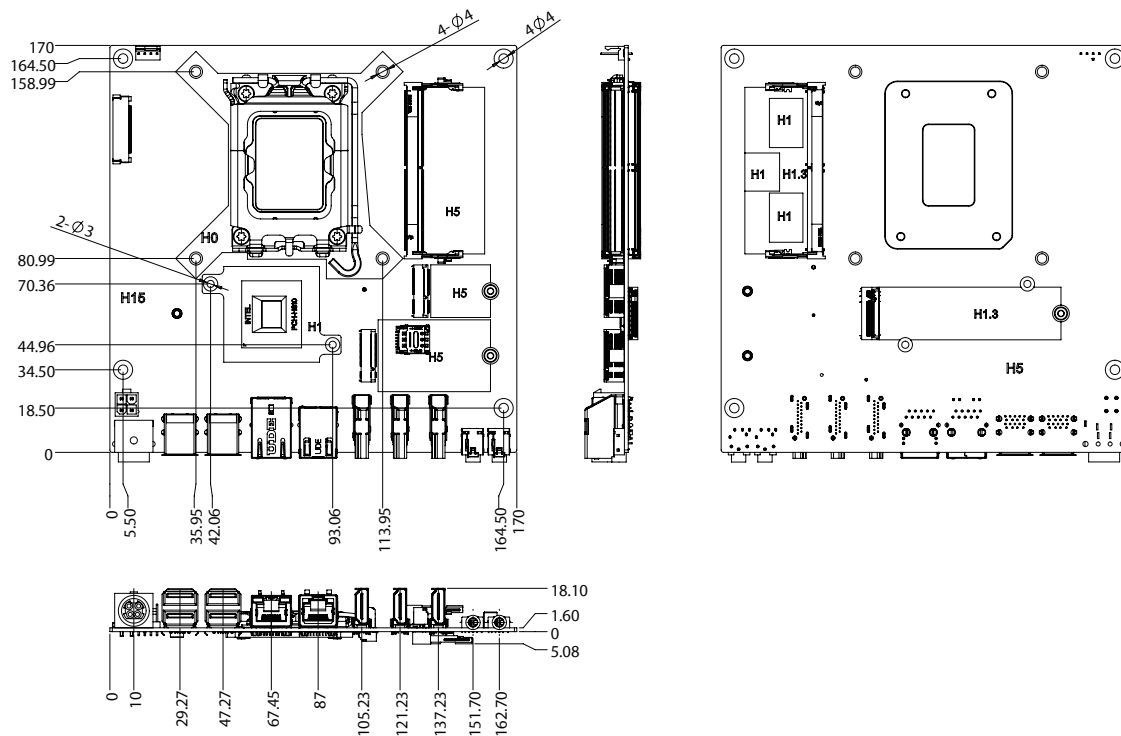
Certification

- CE approval (EN55032/EN55035)
- FCC Class A (EMI part 15B)

Operating System

- Win10, 64-bit/Win11/Linux

Dimension Drawing (mm)



Ordering Information

- X304-Q670W (P/N:10W10X30404X0)**
 Mini-ITX embedded computing board powered by 13/12th Intel® Core™ processor, 3 x HDMI, 1 x LVDS, 12~24V DC Input
- X304-H610 (P/N:10W10X30403X0)**
 Mini-ITX embedded computing board powered by 13/12th Intel® Core™ processor, 3 x HDMI, 12V DC Input
- PCH heatsink (P/N:TBD)**