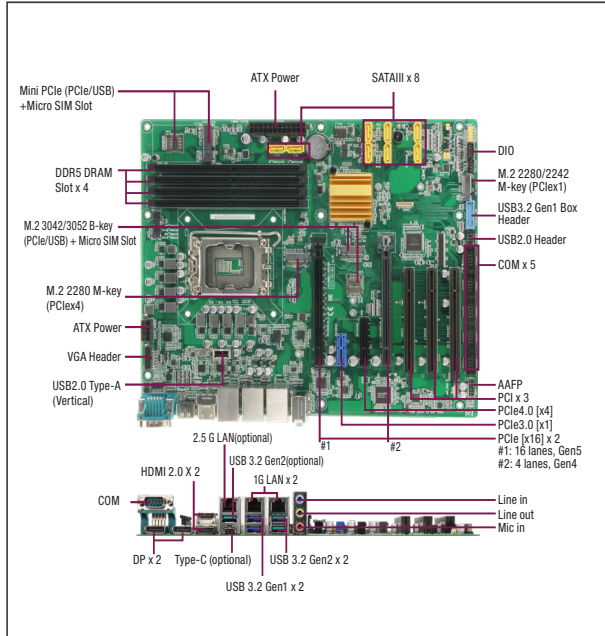


# 09 ATX-Q670A

ATX with 12th Generation Intel® Core™ LGA1700 Socket Processors, TDP Max. 125W, DDR5 DRAM, Multiple Display Ports

Industrial Motherboards



## Specifications

| System                   |                                                                                                                                                                                                                                                                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor                | 12th Generation Intel® Core™ LGA1700 Socket Processors (formerly Alder Lake/Raptor Lake), TDP Max 125W                                                                                                                                                                                                                              |
| Chipset                  | Intel® Q670E Chipset                                                                                                                                                                                                                                                                                                                |
| Memory                   | DDR5 4000MHz DIMM x 4, up to 128GB<br>Non-ECC, Unbuffered Memory, Dual-Channel Memory Architecture                                                                                                                                                                                                                                  |
| I/O Chipset              | NCT6126D                                                                                                                                                                                                                                                                                                                            |
| Ethernet                 | Intel® PHY I219-LM Giga LAN x 1 (supports Intel® AMT 12.0)<br>Intel® I210-AT Giga LAN x 1<br>Intel® I225-LM Giga LAN x 1 (Optional)<br>RJ-45 x 2 (Optional: RJ-45 x 3, LAN 3 with USB 3.2 Gen 2 x 1)                                                                                                                                |
| Audio                    | Realtek ALC897 6-Channel High Definition Audio CODEC                                                                                                                                                                                                                                                                                |
| TPM                      | TPM 2.0 onboard                                                                                                                                                                                                                                                                                                                     |
| Expansion Slots          | PCIe Gen 5 [x16] x 1 (16 Lanes)<br>PCIe Gen 3 [x1] x 1 (1 Lane, Open Slot)<br>PCIe Gen 4 [x4] x 1 (4 Lanes, Open Slot)<br>PCIe Gen 4 [x16] x 1 (4 Lanes)<br>PCI Slot x 3<br>M.2 3042/3052 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1)<br>Mini PCIe Slot x 1 (PCIe 3.0/USB 2.0)<br>Micro SIM Card Slot x 1 (M.2 B-Key or Mini PCIe Slot) |
| BIOS                     | 256Mbit Flash ROM, AMI BIOS                                                                                                                                                                                                                                                                                                         |
| H/W Monitor              | Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis                                                                                                                                                                                                                                |
| WatchDog Timer           | 1~255 step by software program                                                                                                                                                                                                                                                                                                      |
| Smart Fan Control        | CPU Fan x 1/Chassis Fan x 3                                                                                                                                                                                                                                                                                                         |
| Wake On LAN/ PXE         | Yes (WOL/PXE)                                                                                                                                                                                                                                                                                                                       |
| Power State              | S3, S4, S5                                                                                                                                                                                                                                                                                                                          |
| Graphics                 |                                                                                                                                                                                                                                                                                                                                     |
| Graphics Chipset         | Intel® Graphics Media Accelerator                                                                                                                                                                                                                                                                                                   |
| Graphics Multi Display   | HDMI+HDMI+DP+DP, HDMI+HDMI+DP+VGA, HDMI+VGA+DP+DP                                                                                                                                                                                                                                                                                   |
| VGA                      | Up to 1920 x 1200 @60Hz (via IT6516B)                                                                                                                                                                                                                                                                                               |
| DVI                      | —                                                                                                                                                                                                                                                                                                                                   |
| HDMI                     | HDMI 2.0, up to 4096 x 2160 @60/30Hz, with Digital Audio                                                                                                                                                                                                                                                                            |
| Display Port             | DP 1.4, up to 4096 x 2160 @24Hz or 3840 x 2160 @60 Hz, with Digital Audio                                                                                                                                                                                                                                                           |
| LVDS                     | —                                                                                                                                                                                                                                                                                                                                   |
| eDP                      | —                                                                                                                                                                                                                                                                                                                                   |
| Backlight Control        | —                                                                                                                                                                                                                                                                                                                                   |
| Environment & Power & ME |                                                                                                                                                                                                                                                                                                                                     |
| Battery                  | Lithium battery                                                                                                                                                                                                                                                                                                                     |
| Power Requirement        | 24-pin ATX Connector x 1, 8-pin ATX 12V Power Connector x 1                                                                                                                                                                                                                                                                         |
| Operating Temperature    | 32°F ~ 140°F (0°C ~ 60°C)                                                                                                                                                                                                                                                                                                           |
| Storage Temperature      | -40°F ~ 185°F (-40°C ~ 85°C)                                                                                                                                                                                                                                                                                                        |
| Operating Humidity       | 0%~90%RH, non-condensing                                                                                                                                                                                                                                                                                                            |

## Features

- 12th Generation Intel® Core™ LGA1700 Socket Processors
- DDR5 DRAM Support, 4000MHz, Max. 128GB
- Four Independent Display: HDMI 2.0 x 2, DP x 2, VGA x 1
- Dual Intel® GbE (Optional: additional LAN 3 I225-LM x 1)
- M.2 2280/2242 M-Key x 2, M.2 3042/3052 B-Key x 1 + Micro SIM Slot x 1, Mini PCIe x 1 + Micro SIM Slot x 1
- USB 3.2 Gen 2 x 2, USB 3.2 Gen 1 x 4, USB 2.0 x 3 (Optional: USB Type-C x 1, USB 3.2 Gen 2 x 3)
- SATA x 8
- USB Power Switchable Feature, for convenient USB device remote reset
- Bootable feature in rear USB Port for enhanced security
- Onboard TPM 2.0



|              |                                             |
|--------------|---------------------------------------------|
| Certificate  | CE & FCC Class A                            |
| Form Factor  | ATX Form Factor, 12" x 9.6" (305mm x 244mm) |
| Weight       | 1.76 lb (0.8 Kg)                            |
| MTBF (Hours) | 281,760                                     |

### Rear Panel I/O Ports

|             |                                                                                                                                                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB         | USB 3.2 Gen 2 x 2 (10Gbps, Optional: x 3 units if with LAN 3 I225-LM)<br>USB 3.2 Gen 1 x 2 (5Gbps)<br>USB Type C x 1 (5Gbps, 5V, 1.5A, Optional)<br>(All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature) |
| Display I/O | HDMI 2.0 x 2, DP 1.4 x 2                                                                                                                                                                                                                         |
| Audio I/O   | Audio Jack x 3, Line-in, Mic-in, Line-out                                                                                                                                                                                                        |
| LAN I/O     | RJ-45 LAN x 2 (Optional: RJ-45 x 3)                                                                                                                                                                                                              |
| Serial Port | DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)                                                                                                                                                                                                |
| PS/2 Port   | —                                                                                                                                                                                                                                                |
| Others      | —                                                                                                                                                                                                                                                |

### Internal I/O Connectors

| Storage       | SATA III x 8, supports RAID 0/1/5/10<br>M.2 2280 M-Key x 1 (PCIe Gen 4.0, 4 Lanes)<br>M.2 2242/80 M-Key x 1 (PCIe Gen 3.0 1 Lane)                                                                                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB           | USB 3.0 Box Header x 1 (2x5P, p=2.54mm), supports USB 3.2 Gen 1 x 2 (USB Power switchable feature)<br>USB 2.0 Header x 1 (2x5P, p=2.54mm) supports USB 2.0 x 2 (USB Power switchable feature)<br>USB 2.0 x 1 (Vertical Type-A) |
| Display I/O   | VGA Header x 1                                                                                                                                                                                                                 |
| Audio I/O     | Speaker Header (Line-out), AAFF x 1                                                                                                                                                                                            |
| Serial Port   | RS-232 Header x 5                                                                                                                                                                                                              |
| PS/2 Port     | —                                                                                                                                                                                                                              |
| Parallel Port | —                                                                                                                                                                                                                              |
| DIO           | 8-bit Digital I/O Interface x 1 (In/Out Programmable)                                                                                                                                                                          |
| FAN           | 4-pin CPU Fan Connector x 1 (PWM Mode)<br>4-pin Chassis Fan Connector x 3 (PWM Mode)                                                                                                                                           |
| Power         | —                                                                                                                                                                                                                              |
| Others        | Chassis Intrusion x 1, AT/ATX Mode Select Jumper x 1, Front Panel Header x 1<br>Clear CMOS Jumper x 1, Buzzer Onboard x 1, 3-pin ME Lock Header x 1                                                                            |
| OS            |                                                                                                                                                                                                                                |
| OS Support    | Windows® 10 64-bit, Windows® 11 64-bit                                                                                                                                                                                         |

## Packing List

- 14001-0063010  
SATA 6G Cable (7P, 180; 90, 500mm 2 in1)
- 14019-00060700  
VGA Cable (320mm, 2X8P, w/bracket)
- I/O Shield
- ATX-Q670A

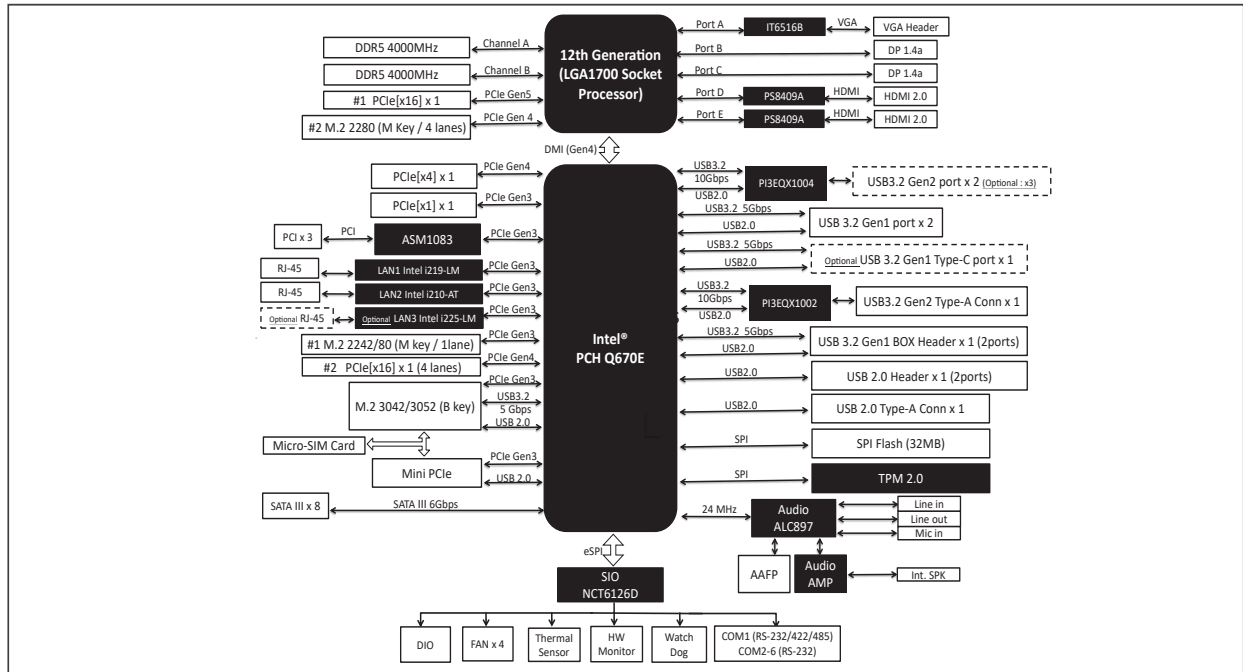
Note: All specifications are subject to change without notice.

# ATX-Q670A

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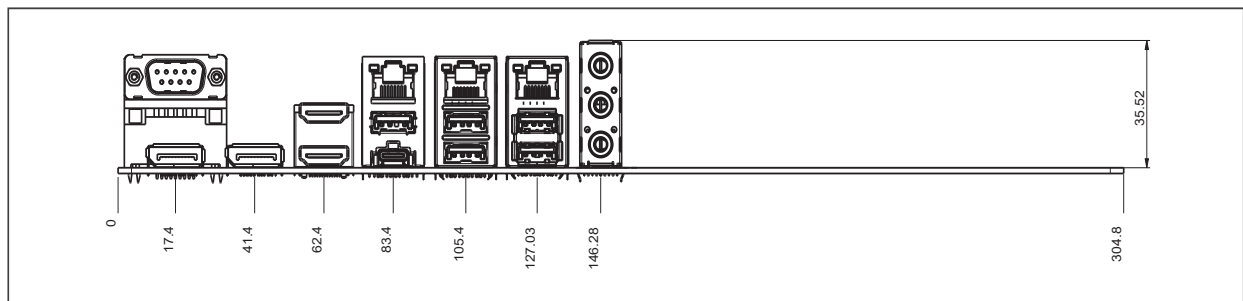
Industrial Motherboards

## Block Diagram



## Dimension

Unit: mm



## Ordering Information

| Part Number      | CPU            | RAM          | Fan/<br>Fanless | Display                              | Storage                                                     | LVDS | LAN           | USB                                                                                                                 | RS-232 | RS-232/422/485 | Expansion Slot                                                                                                                                                                                 | Power | TPM            | Temp.                        |
|------------------|----------------|--------------|-----------------|--------------------------------------|-------------------------------------------------------------|------|---------------|---------------------------------------------------------------------------------------------------------------------|--------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|------------------------------|
| ATX-Q670A-A10-2L | LGA1700 Socket | DDR5 4000MHz | Fan             | HDMI x 2<br>DP x 2<br>VGA Header x 1 | SATA III x 8<br>M.2 2280 M-Key x 1<br>M.2 2242/80 M-Key x 1 | —    | Intel®GbE x 2 | USB 3.2 Gen 2 x 2<br>USB 3.2 Gen 1 x 2<br>USB 3.0 Header x 1<br>USB 2.0 Header x 1<br>USB 2.0 x 1 (Vertical Type A) | 5      | 1              | PCIe [x16] x 1<br>PCIe [x1] x 1<br>PCIe [x4] x 1<br>PCIe [x16] x 1 (4 Lanes)<br>PCI Slot x 3<br>M.2 3042/3052 B-Key x 1 (PCIe/USB)<br>Mini PCIe Slot x 1 (PCIe/USB)<br>Micro SIM Card Slot x 1 | ATX   | TPM2.0 onboard | 32°F ~ 140°F<br>(0°C ~ 60°C) |

## Optional Accessories

| Part Number     | Description                                      |
|-----------------|--------------------------------------------------|
| 1709100330      | USB 2.0 cable (9P, 330MM, p=2.54mm, w/bracket)   |
| 170910020K      | USB 2.0 cable (9P, 200MM, p=2.54mm, w/o bracket) |
| 1700190450      | USB3.2 Gen 1 Cable (19P, 450mm, w/bracket)       |
| AP-FNTH11700010 | 2U CPU cooler for LGA1700,TDP Max. 95W, 2500RPM  |
| AP-FNTH11700020 | 1U CPU cooler for LGA1700,TDP Max. 125W, 5400RPM |
| AP-FNTH11700030 | 2U CPU cooler for LGA1700,TDP Max 125W, 8400RPM  |

Note: All specifications are subject to change without notice.

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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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