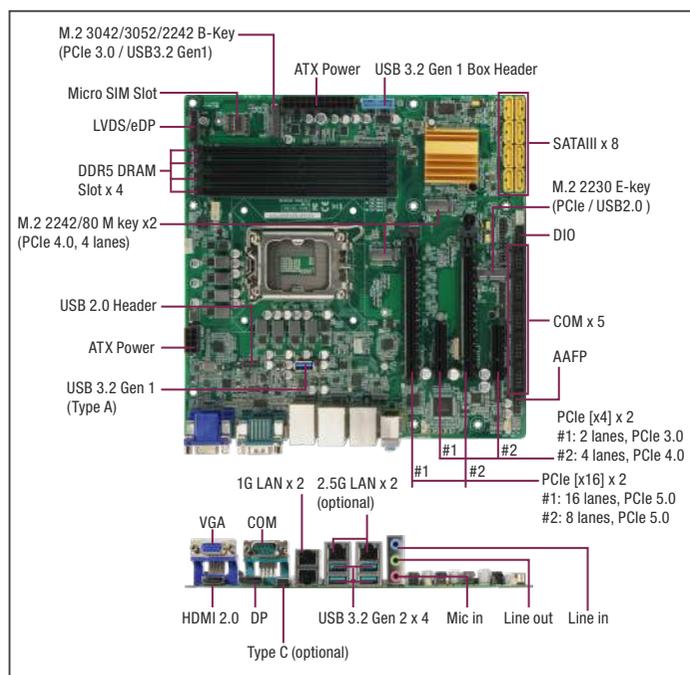# MAX-Q670A

Micro-ATX with 12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors, TDP Max. 125W

Features

- **12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors**
- **DDR5 4000MHz U-DIMM x 4, up to 128GB**
- **Four Independent Displays: HDMI 2.0 x 1, DP x 1, VGA x 1, LVDS/eDP x 1**
- **GbE LAN x2 (Optional: Additional 2.5GbE LAN x 2, Intel® I226-LM)**
- **M.2 2242/2280 M-Key x 2, M.2 3042/3052/2242 B-Key + Micro SIM Slot, M.2 2230 E-Key x 1**
- **USB 3.2 Gen 2 x 4, USB 3.2 Gen 1 x 3, USB 2.0 x 2 (Optional: USB Type-C x 1)**
- **SATA x 8**
- **Switchable USB Power feature for USB device reset**
- **Bootable feature in rear USB Port for enhanced security**
- **Onboard TPM 2.0**

Specifications

System

System	
Processor	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors (formerly Alder Lake/Raptor Lake), TDP Max 125W
Chipset	Intel® Q670 Express Chipset
Memory	DDR5 4000MHz DIMM x 4, Up to 192GB Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture
I/O Chipset	NCT6126D
Ethernet	RJ-45 GbE LAN x 1 (Intel® PHY I219-LM, supports Intel® AMT 12.0) RJ-45 GbE LAN x 1 (Intel® I210-AT) RJ-45 2.5GbE LAN x 2 (Intel® I226-LM, Optional)
Audio	Realtek ALC897 6-Channel High Definition Audio CODEC
TPM	TPM 2.0 onboard
Expansion Slots	PCIe Gen 5 [x16] x 1 (8 Lanes/8 Lanes when dual-use PCIe [x16] slot) PCIe Gen 3 [x4] x 1 (2 Lanes, Open Slot) PCIe Gen 5 [x16] x 1 (8 Lanes) PCIe Gen 4 [x4] x 1 (4 Lanes) M.2 3042/3052/2242 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1) + Micro SIM Slot x 1 M.2 2230 E-Key x 1 (PCIe 3.0 [x1]/USB 2.0)
BIOS	256 Mbit 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 steps by software program
Smart Fan Control	CPU Fan x 1/Chassis Fan x 2 (3rd Chassis Fan is DC Fan)
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S3, S4, S5

Graphics

Graphics	
Graphics Chipset	Intel® Graphics Media Accelerator
Graphics Multi Display	HDMI + VGA + DP + LVDS/eDP
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)
DVI	—
HDMI	HDMI 2.0 x 1, up to 4096 x 2160 @60/30 Hz, with Digital Audio
Display Port	DP 1.4 x 1, up to 4096 x 2160 @24 Hz or 3840 x 2160 @60 Hz, with Digital Audio
LVDS	18/24-bit Dual-Channel LVDS x 1, up to 1920 x 1080 @60 Hz
eDP	eDP x 1, up to 3840 x 2160 @30 Hz
Backlight Control	Yes

Environment & Power & ME

Environment & Power & ME	
Battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin 12V ATX Power Connector x 1 [Voltage/Current(A) requirement:+3.3V/1.4A;+5V/10.55A;+12V/13.89A;+5VSB/0.24A]
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)

Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Certificate	CE & FCC Class A
Form Factor	Micro-ATX Form Factor, 9.6" x 9.6" (244mm x 244mm)
Weight	1.76 lb (0.8Kg)
MTBF (Hours)	267,950

Rear Panel I/O Ports
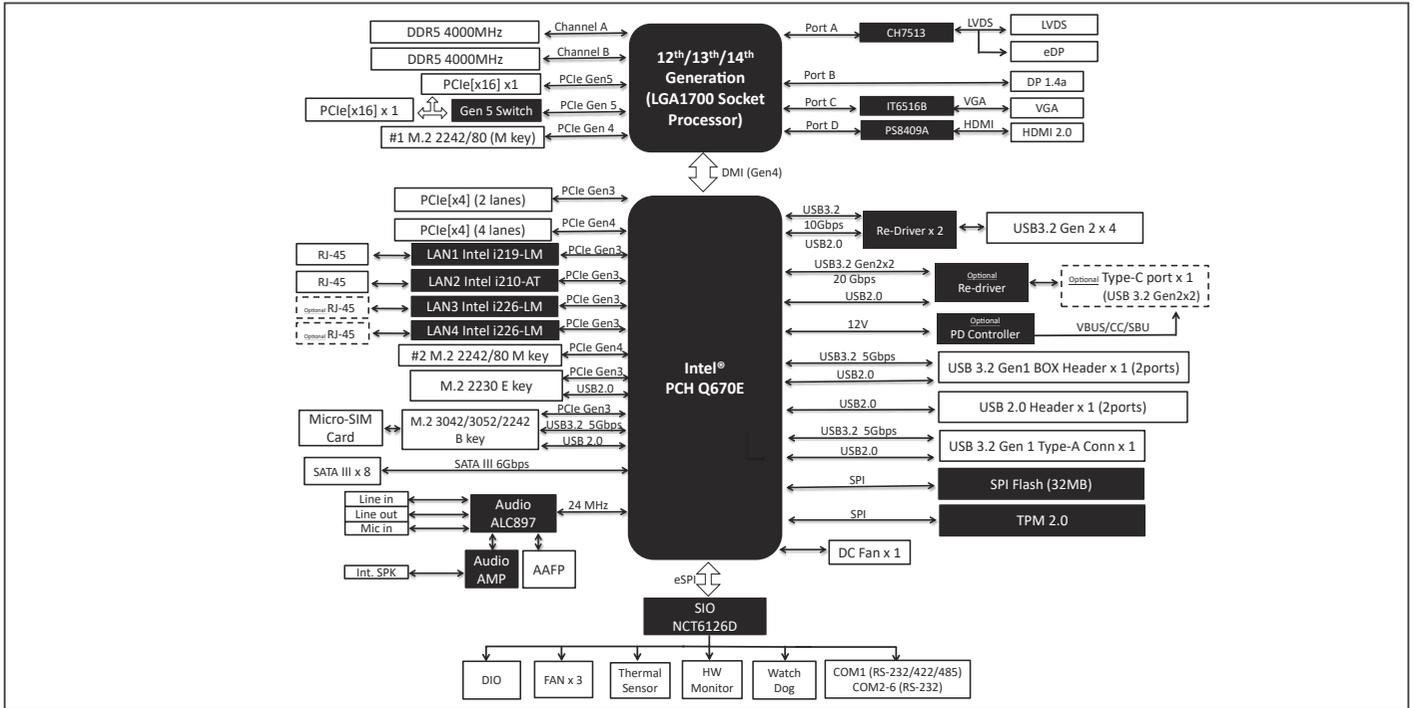
Rear Panel I/O Ports	
USB	USB 3.2 Gen 2 x 4 (10Gbps) USB Type-C x 1 (Optional, 20Gbps, 5V, 3A) (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)
Display I/O	HDMI 2.0 x 1, VGA x 1, DP 1.4 x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	RJ-45 LAN x 2 (Optional: RJ-45 x 4)
Serial Port	DB-9 x 1 (Supports RS-232/422/485, 5V/12V/RI)
PS/2 Port	—
Others	—

Internal I/O Connectors

Internal I/O Connectors	
Storage	SATA III x 8, supports RAID 0, 1, 5, 10 M.2 2242/2280 M-Key x 2 (PCIe Gen 4.0, 4 Lanes, supports RAID 0, 1, 5)
USB	USB 3.2 Gen 1 x 1 (2x5P 2.54mm Pitch Box Header, supports USB 3.2 Gen 1 x 2) USB 2.0 Header x 1 (2x5P 2.54mm Pitch Box Header, supports USB 2.0 x 2) USB 3.2 Gen 1 x 1 (Type-A, vertical) (All Headers support USB Power switchable feature)
Display I/O	—
Audio I/O	Speaker header x 1 (Line-out), AAFP x 1
Serial Port	RS-232 x 5 (via 1x9P Header)
PS/2 Port	—
Parallel Port	—
DIO	8-bit Digital I/O Interface x 1
FAN	4-pin CPU Fan Connector x 1 (PWM Mode) 4-pin Chassis Fan connector x 2 (PWM Mode) 3-pin Chassis Fan connector x 1 (DC Mode)
Power	—
Others	Chassis Intrusion x 1 AT/ATX Mode Select Jumper x 1 Front Panel Header x 1 Clear CMOS Jumper x 1 Onboard Buzzer x 1 3-pin ME Lock Header x 1 LED Header for Ethernet x 2 (Optional: LED Header x 4 when RJ-45 x 4)

OS

OS	
OS Support	Windows® 10 64-bit, Windows® 11 64-bit

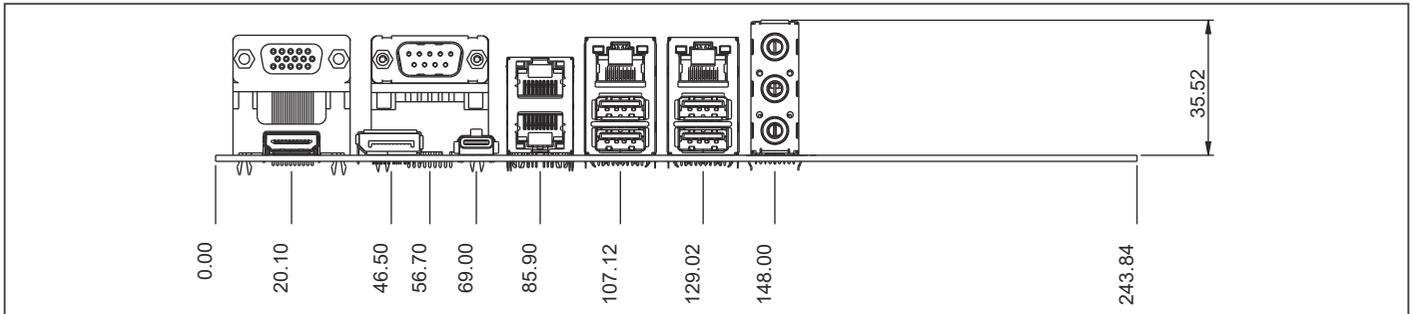Note: All specifications are subject to change without notice.

Block Diagram

Dimension

Unit: mm

Ordering Information

Part Number	CPU	RAM	Fan/Fanless	Display	Storage	LVDS	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
MAX-Q670A-A10-2L	LGA1700 Socket	DDR5 4000MHz	Fan	HDMI x 1 DP x 1 VGA x 1	SATA III x 8 M.2 2242/80 M-Key x 2	LVDS/eDP x 1	Intel® GbE x 2	USB 3.2 Gen 2 x 4 USB 3.0 Header x 1 USB 2.0 Header x 1 USB 3.2 Gen 1 x 1 (Type-A, Vertical)	5	1	PCIe [x16] x 2 PCIe [x4] x 2 M.2 3042/3052/2242 B-Key x 1 Micro SIM Card Slot x 1 M.2 2230 E-Key x 1	ATX	Onboard TPM 2.0	32°F ~ 140°F (0°C ~ 60°C)
MAX-Q670A-A10-4LC-226	LGA1700 Socket	DDR5 4000MHz	Fan	HDMI x 1 DP x 1 VGA x 1	SATA III x 8 M.2 2242/80 M-Key x 2	LVDS/eDP x 1	Intel® GbE x 4	USB 3.2 Gen 2 x 4 Type C x 1 USB 3.0 Header x 1 USB 2.0 Header x 1 USB 3.2 Gen 1 x 1 (Type-A, Vertical)	5	1	PCIe [x16] x 2 PCIe [x4] x 2 M.2 3042/3052/2242 B-Key x 1 Micro SIM Card Slot x 1 M.2 2230 E-Key x 1	ATX	Onboard TPM 2.0	32°F ~ 140°F (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	USB 3.2 Gen 1 Cable (19P, 450mm, w/ Bracket)
AP-FNTH11700020	1U CPU cooler for LGA1700,TDP Max. 125W, 5400RPM
AP-FNTH11700030	2U CPU cooler for LGA1700,TDP Max 125W, 8400RPM

Packing List

- MAX-Q670A
- SATA Cable
- COM Cable
- I/O Shield