

# MA20-Q6700 Series

Intel® Q670E chipset supports LGA 1700 socket for 14<sup>th</sup>/13<sup>th</sup>/12<sup>th</sup> Generation Core™ i9/i7/i5/i3 Pentium® Processor (Raptor Lake-S/Alder Lake-S)

## Features

1. Intel® 14th /13th/12th LGA1700 Socket Processor (Max. 125W TDPs under 240A)
2. Intel® Q670E Chipset
3. 4\* DDR5 5600MHz/4800MHz UDIMM up to 128GB
4. 3\* 10/100/1000/ 2500 Base-TX Ethernet Ports
5. 1\* HDMI, 1\* DP, 1\* VGA
6. 6\* COM (COM1/2 support RS232/422/485)
7. 7\* USB3.2 Gen.2, 2\* USB3.2 Gen.1, 3\* USB2.0
8. 2\* PCIe Gen.4 x16 (for 1\*PCIe x16 or 2\*PCIe x8), 2\* PCIe Gen.4 x4, 2\* PCIe Gen.3 x1, 1\* PCI
9. 4\* M.2 slots (2\* M-key, 1\* E-key, 1\* B-key)
10. 4\* SATAIII (6Gb/s) support RAID 0,1,5,10
11. Support JetBIOS SW back up tool and JetBIOS HW recovery tool for BIOS recovering
12. Support Onboard TPM2.0 (MA20-Q6702 only)

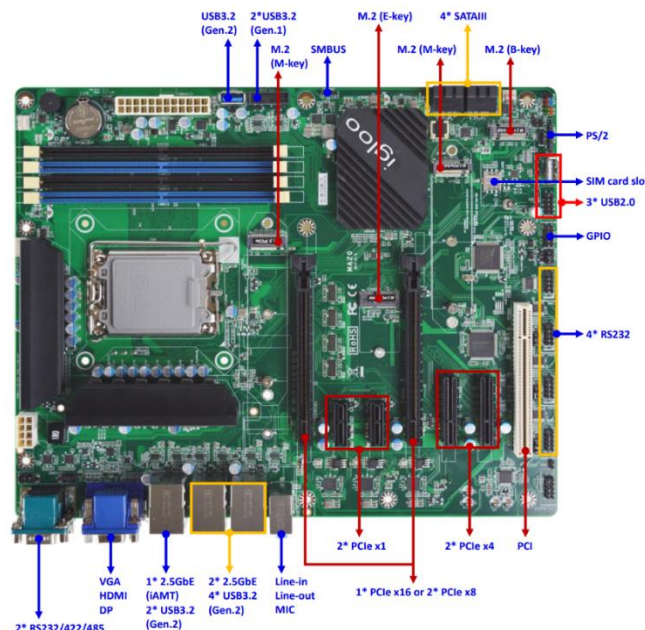


## Overview

The MA20-Q6700 Series is ATX form factor board with LGA1700 socket for Intel® 14th /13th/12th generation Core i9/i7/i5/i3 Pentium Processor. The board supports four DDR5 UDIMM 5600MHz/4800MHz memory, up to 128GB. Featuring the integrated Intel® Ethernet controller, the MA20-Q6700 Series offers three 10/100/1000/2500 Base-TX Ethernet devices for network transmission. Four SATAIII (6Gb/s) interface and two M.2 M-key (2242/2280) support NVMe offer storage devices. One M.2 E-key (2230) support CNVi, one M.2 B-key (3042/3052) support 4G/5G module, seven USB3.2 Gen.2 ports, two USB3.2 Gen.1 port, three USB2.0 ports and six COM ports provide versatile expansion. The two PCIe x16 slots, two PCIe x4 slots, two PCIe x1 slots and one PCI slot provides different type expansion choice. The MA20-Q6700 Series offers one HDMI2.0 port, one VGA port and one DP1.4 port which can support 3 independent displays.

**Application:** Edge Computing/ Digital Signage/ Industrial PCs/ Factory Automation/ Public Sector/ Digital Security/ Surveillance application

## I/O Diagram



## Specifications

<b>Model</b>	<ul style="list-style-type: none"> <li>MA20-Q6700</li> <li>MA20-Q6702 (onboard TPM2.0)</li> </ul>
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>ATX (305 * 244mm)</li> </ul>
<b>Processor System</b>	<ul style="list-style-type: none"> <li>Intel® 14<sup>th</sup> /13<sup>th</sup>/12<sup>th</sup> (Raptor Lake-S/Alder Lake-S) LGA1700 Socket Core i9/i7/i5/i3/Pentium Processor (Max. 125W TDPs under 240A)</li> <li>Intel® Q670E Express Chipset</li> <li>AMI 256Mb Flash ROM BIOS</li> </ul> <p><i>*Support recover crashed BIOS data tool by a USB flash pen driver:</i></p> <ol style="list-style-type: none"> <li>Using JetBIOS SW back up tool with any external USB ports</li> <li>Using JetBIOS HW recovery tool with specific USB port (internal USB2)</li> </ol>
<b>Memory</b>	<ul style="list-style-type: none"> <li>14th/13th CPU support 4* Dual CH non-ECC DDR5 5600MHz UDIMM up to 128GB</li> <li>12th CPU support 4* Dual CH non-ECC DDR5 4800MHz UDIMM up to 128GB</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>4* SATAIII (6 Gb/s) support RAID 0, 1, 5, 10</li> <li>1* M.2 M-Key (2242/2280, PCIe Gen.4 x4 interface) support NVMe</li> <li>1* M.2 M-Key (2242/2280, PCIe Gen.4 x4/SATA interface) support NVMe</li> </ul>
<b>Expansion</b>	<ul style="list-style-type: none"> <li>1* M.2 E-Key (2230, PCIe Gen.3 x1/USB2.0 interface) support CNVi</li> <li>1* M.2 B-Key (3042/3052, PCIe Gen.3 x1/USB3.2 Gen.2/USB2.0 interface) support 4G/5G Module</li> <li>2* PCIe Gen.4 x16 (PCIe1 and PCIe3 total support 1* PCIe Gen.4 x16 or 2* PCIe Gen.4 x8) <i>*Signal detect automatically.</i></li> <li>2* PCIe Gen.4 x4</li> <li>2* PCIe Gen.3 x1</li> <li>1* PCI</li> </ul>
<b>Ethernet</b>	<ul style="list-style-type: none"> <li>1* Intel® i225-LM 2.5GbE</li> <li>2* Intel® i225-V 2.5GbE</li> </ul>
<b>Graphics</b>	<ul style="list-style-type: none"> <li>Intel® UHD Graphics, shared memory</li> <li>1* DP 1.4a (Max Resolution: 4096x2304@60Hz)</li> <li>1* HDMI 2.0b (Max Resolution: 4096x2160@60Hz)</li> <li>1* VGA (Max Resolution: 1920x1080@60Hz)</li> <li>Support Triple Displays</li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>HD audio: Realtek ALC888S</li> </ul>
<b>Watchdog Timer</b>	<ul style="list-style-type: none"> <li>From Super I/O to drag RESETCON#</li> <li>256 segments (10sec ~ 255min)</li> </ul>
<b>Internal I/O</b>	<ul style="list-style-type: none"> <li>2* USB3.2 (Gen.1)</li> <li>1* USB3.2 (Gen.2) type-A vertical</li> <li>2* USB2.0</li> <li>1* USB2.0 type-A vertical (<i>internal USB2</i>)</li> <li>4* SATAIII</li> <li>4* RS232 (COM3/4 support 5V/12V TTL)</li> <li>1* M.2 M-Key (2242/2280, PCIe Gen.4 x4 interface) support NVMe</li> <li>1* M.2 M-Key (2242/2280, PCIe Gen.4 x4/SATA interface) support NVMe</li> <li>1* M.2 E-Key (2230, PCIe Gen.3 x1/USB2.0 interface) support CNVi</li> <li>1* M.2 B-key (3042/3052, PCIe Gen.3 x1/USB3.2 Gen.2/USB2.0 interface) support 4G/5G Module</li> <li>1* Nano SIM card slot</li> <li>1* PS/2</li> <li>1* GPIO (8 bit)</li> <li>1* Chassis intrusion</li> <li>1* Audio Header</li> <li>1* SMBUS</li> <li>1* AT mode</li> <li>Support onboard TPM2.0 (MA20-Q6702)</li> </ul>
<b>External I/O</b>	<ul style="list-style-type: none"> <li>1* HDMI</li> <li>1* DP</li> <li>1* VGA</li> <li>3* 2.5GbE RJ45</li> <li>6* USB3.2 (Gen.2)</li> <li>2* COM (RS232/422/485) support 5V/12V TTL</li> <li>Line-in, Line-out, MIC</li> </ul>
<b>Power</b>	<p>ATX PWR (8+24 pin), AT/ATX Supported</p> <ul style="list-style-type: none"> <li>- AT: Directly PWR on as Power input ready</li> <li>- ATX: Press Button to PWR on after Power input ready</li> </ul>
<b>Compliance</b>	CE, FCC, LVD, RoHS, REACH
<b>Temperature</b>	<ul style="list-style-type: none"> <li>Operating Temperature: 0 ~ 60° C (with 0.7 m/s air flow)</li> <li>Storage Temperature: -20 ~ 85° C</li> <li>Humidity: 10% ~ 90% RH @40°C (non-condensing)</li> </ul>
<b>OS Support</b>	UEFI Win10 64-bit (Build 10.0.19044.1288), Win 10 IoT Enterprise 64-bit LTSC 2019 (Build 17763.107), Win 10 IoT Enterprise 64-bit LTSC 2021 (Build 19044.1288), UEFI Win 11 64-bit (Build 22000.318), UEFI Win 11 IoT Enterprise (Build 22621.1), CentOS 7 (Version 7), CentOS 8 (Version 8-latest), CentOS 9 (Version 9), Debian 11 (Version 11.4), Fedora-LXDE (Version 36-1.5), Fedora Workstation (Version 36-1.5), Fedora Server (Version 36-1.5), OpenSUSE (Version 15.4), OpenBSD (Version 7.1), Ubuntu

	Standard / LTS (Version 22.04), Ubuntu Server (Version 22.04), Vmware ESXi (Version 8).
<b>Warranty</b>	• 2 Years limited warranty

\* Specifications subject to change without notice, not responsible for typographical errors. Does not include HDD or OS

## Standard Accessories

Part Number	Description
MA20-Q6700 Series	MA20-Q6700 Series M/B
F04-MB-093-F	MA20 I/O shield
G01-COM9-30A-1F	2* COM cable
G01-SATA3-BL-1F	2* SATA cable

## Mechanical Drawings (Unit=mm)

