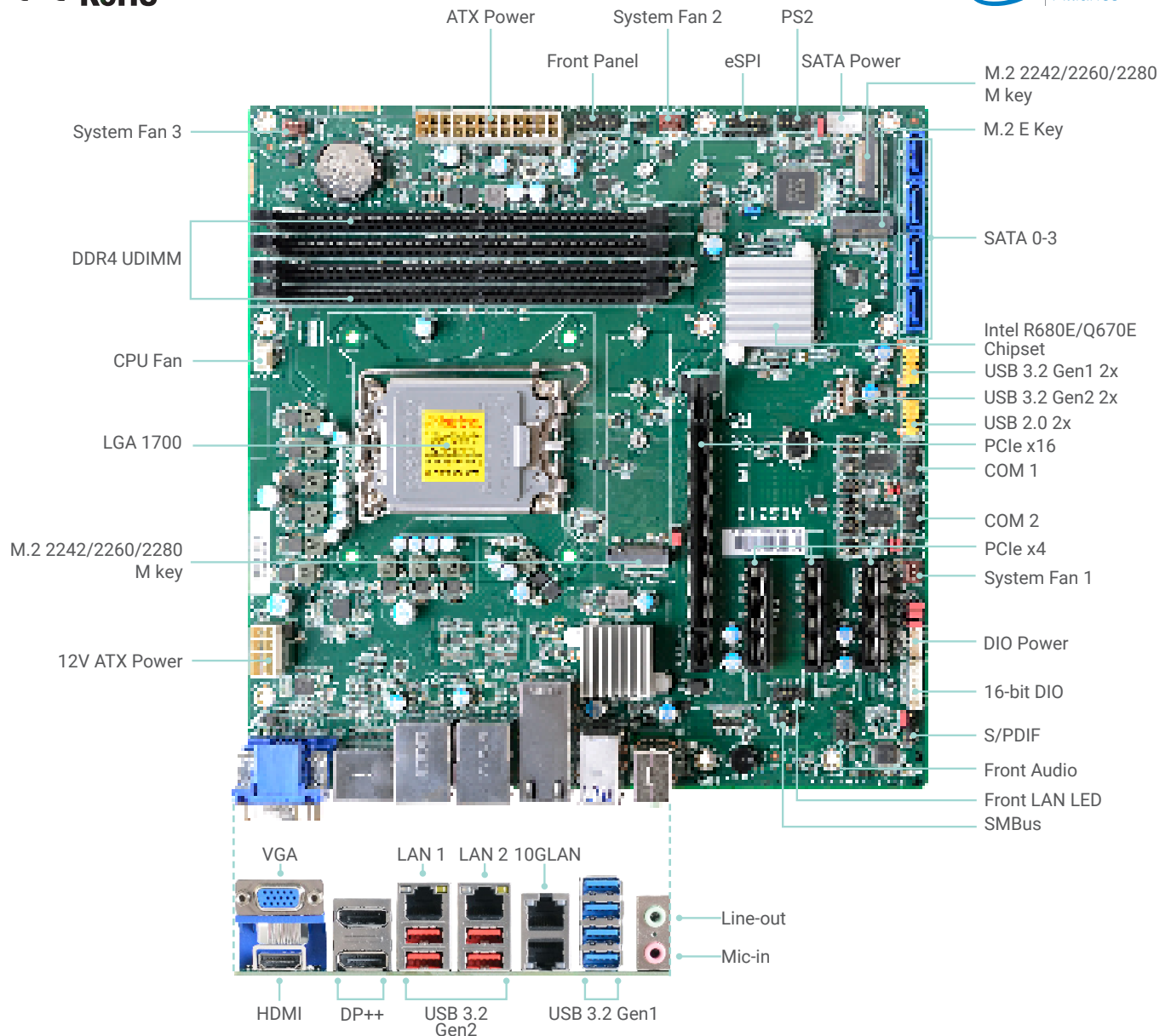


ADS310-R680E/Q670E

12th Gen Intel® Core™
Desktop
microATX



Top View

KEY FEATURES



DDR4

4 DDR4 UDIMM up to 128GB



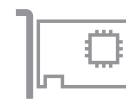
8K High Resolution

Supports 8K/ 4K resolution



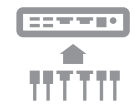
Quad Displays

VGA, 2 DP++, HDMI 2.0a



Multiple Expansion

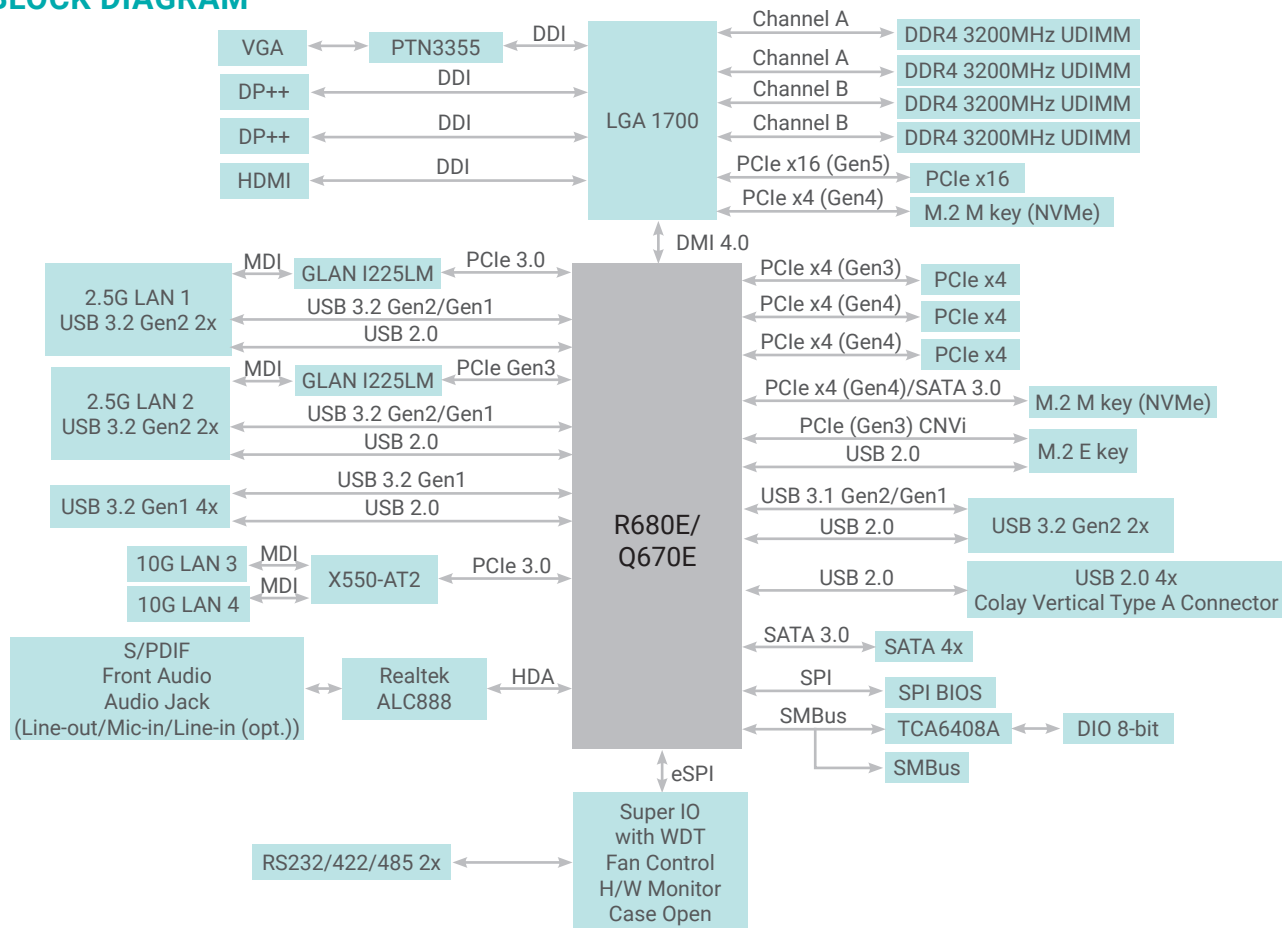
1 PCIe x16, 3 PCIe x4, 1 M.2 E key, 2 M.2 M key, 4 SATA 3.0



Rich I/O

2 Intel 10GbE, 2 Intel 2.5GbE, 2 COM, 6 USB 3.2 Gen 2, 10 USB 3.2 Gen 1, 14 USB 2.0

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

System	Processor	12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W Intel® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W	
	Chipset	Intel® R680E/Q670E Chipset	
	Memory	Four 288-pin DIMM up to 128GB Dual Channel DDR4 3200 MHz (ECC support: R680E only)	
	BIOS	AMI SPI 256Mbit	
	Controller	Intel® HD Gen 9 Graphics	
Graphics	Feature	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9	
	Display	1 x VGA	VGA: resolution up to 1920x1200 @ 60Hz
		2 x DP++	DP++: resolution up to 7680x4320 @ 60Hz
		1 x HDMI 2.0a	HDMI: resolution up to 4096x2160 @ 24Hz
	Quad Displays	VGA + 2 DP++ + HDMI	
Expansion	Interface	1 x PCIe x16 (Gen 5)	
		2 x PCIe x4 (Gen 4)	
		1 x PCIe x4 (Gen 3) (R680E: x4 signal; Q670E: x1 signal)	
		1 x M.2 2230 E key (PCIe/USB 2.0/Intel CNVi support) (Discrete Wifi 6E support)	
		1 x M.2 2242/2260/2280 M key (PCIe x4 Gen3 NVMe/SATA/Intel Optane Memory support)	
		1 x M.2 2242/2260/2280 M key (PCIe x4 Gen3 NVMe/Intel Optane Memory support)	
Audio	Audio Codec	Realtek ALC888	
Ethernet	Controller	2 x Intel® I225LM PCIe (10M/100M/1000Mbps/2.5G) (only Xeon, Core i9/i7/i5 support iAMT)	
		2 x Intel® x550-AT2 (10 GBASE-T/1 GbE/100 Mbps)	
Rear I/O	Ethernet	2 x 2.5GbE (RJ-45)	
		2 x 10GbE (RJ-45)	
	USB	4 x USB 3.2 Gen 2	
		4 x USB 3.2 Gen 1	
	Display	1 x VGA	
		2 x DP++ 1 x HDMI 2.0a	
	Audio	1 x Line-out 1 x Mic-in	1 x Line-in (opt. by request, MOQ required)
Internal I/O	Serial	2 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch)	
	USB	2 x USB 3.2 Gen2 Key B box header	
		4 x USB 2.0 (2.54mm pitch) (colay vertical Type A, MOQ required)	
	Audio	1 x Front Audio Header	
		1 x S/PDIF	
	SATA	4 x SATA 3.0 (up to 6Gb/s)	RAID 0/1/5/10
	PS/2	1 x PS/2 (2.54mm pitch)	
	DIO	1 x 8-bit DIO	
	SMBus	1 x SMBus	
Watchdog Timer	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
Security	TPM	Nuvoton TPM 2.0 (opt., MOQ required)	
Power	Type	ATX	
	Connector	8-pin ATX 12V power	
		24-pin ATX power	
	Consumption	TBD	
OS Support	RTC Battery	CR2032 Coin Cell	
	Microsoft	Windows 10 IoT Enterprise 64-bit	
	Linux	Linux	

ORDERING INFORMATION

Model Name	P/N	Memory	GbE	RS-232/422/485	USB 3.2 Gen2	USB 3.2 Gen1	USB 2.0	Power	Thermal	Temp.
ADS310-R680EIRM	770-ADS3101-000G	4 UDIMM	4	2	6	10	14	24-pin ATX/8-pin ATX 12V	Active	-5 to 65°C
ADS310-Q670EIRM	770-ADS3101-100G	4 UDIMM	4	2	6	10	14	24-pin ATX/8-pin ATX 12V	Active	-5 to 65°C

PACKING LIST

1 ADS310-R680E/Q670E motherboard	
1 COM port cable (Length: 300mm, 2 x COM ports)	A81-015026-023G
1 Serial ATA data cable (Length: 500mm)	332-553001-005G
1 I/O shield	TBD

OPTIONAL ITEMS

USB 2.0 port cable (Length: 350/398mm)	A81-001066-016G
USB 3.2 Gen2 port cable (Length: 350mm)	A81-001075-017G
COM port cable (Length: 300mm, 2 x COM ports)	A81-015026-023G
Serial ATA data cable (Length: 500mm, W/LOCK)	332-553001-005G
Thermal solution (For 35W, Height: 29.39mm)	A71-101136-000G
Thermal solution (For 65W, Height: 46mm)	A71-101137-000G
Thermal solution (For 95W/125W, Height: 125.3mm)	A71-101138-000G
DP to HDMI Dongle	612-D2H13M-000G
EXT-RS232 (4 ports RS-232 LPC module)	770-EXTRS1-000G
EXT-RS485 (4 ports RS-485 LPC module)	770-EXTRS1-100G
M.2-COM4 (M.2 serial port module)	770-M2COM1-000G
M.2-2LAN (M.2 LAN port module)	770-M22LN1-000G
M.2-2PSE (M.2 PSE module)	770-M22PS1-000G