

Desktop

ADS101/ADS103

13/12th Gen Intel® Core™
Thin Mini-ITX

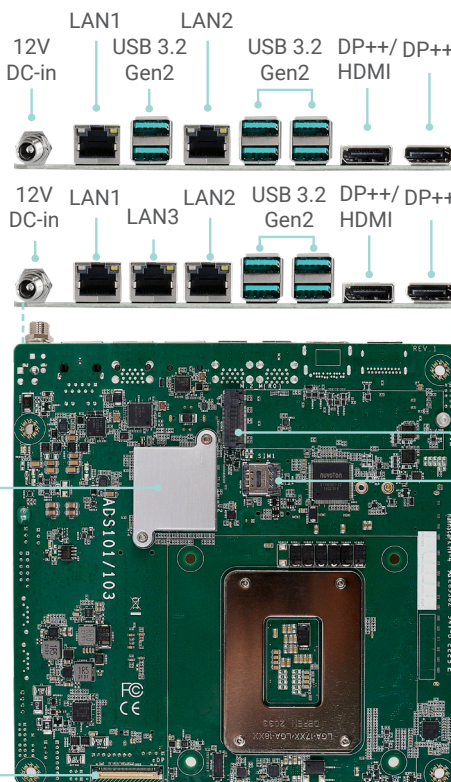


2 LAN / 6 USB

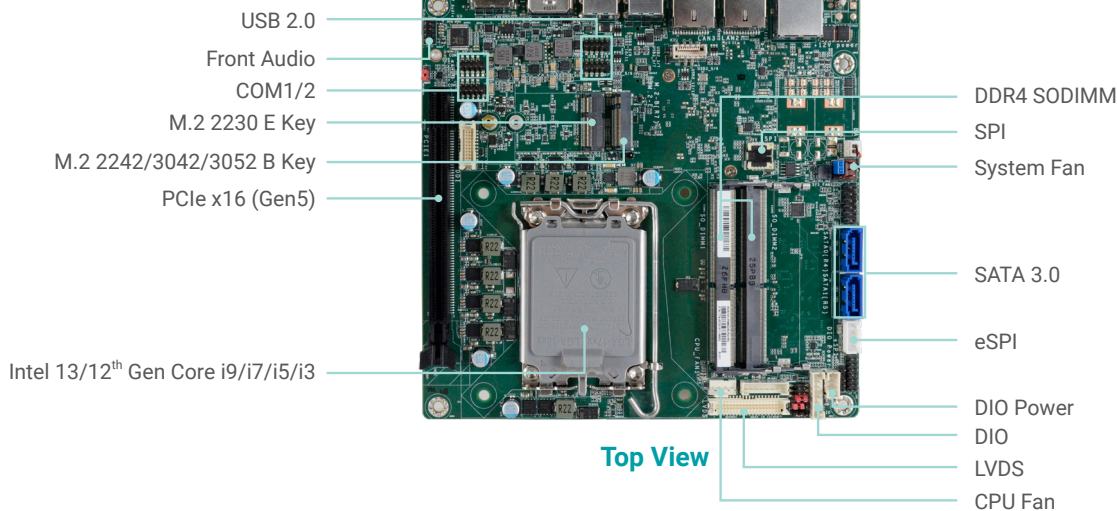
3 LAN / 4 USB

Intel® R680E/Q670E/H610E
Chipset

eDP



Bottom View



Top View

KEY FEATURES



DDR4

2 DDR4 SODIMM 3200
MHz up to 64GB



4K High Resolution

Supports 4K/ 2K
resolution



Quad Displays

1 DP++, 1 DP++/HDMI,
1 LVDS/eDP,
1 DFI display extension
port (DP/HDMI/VGA
available)



Multiple Expansion

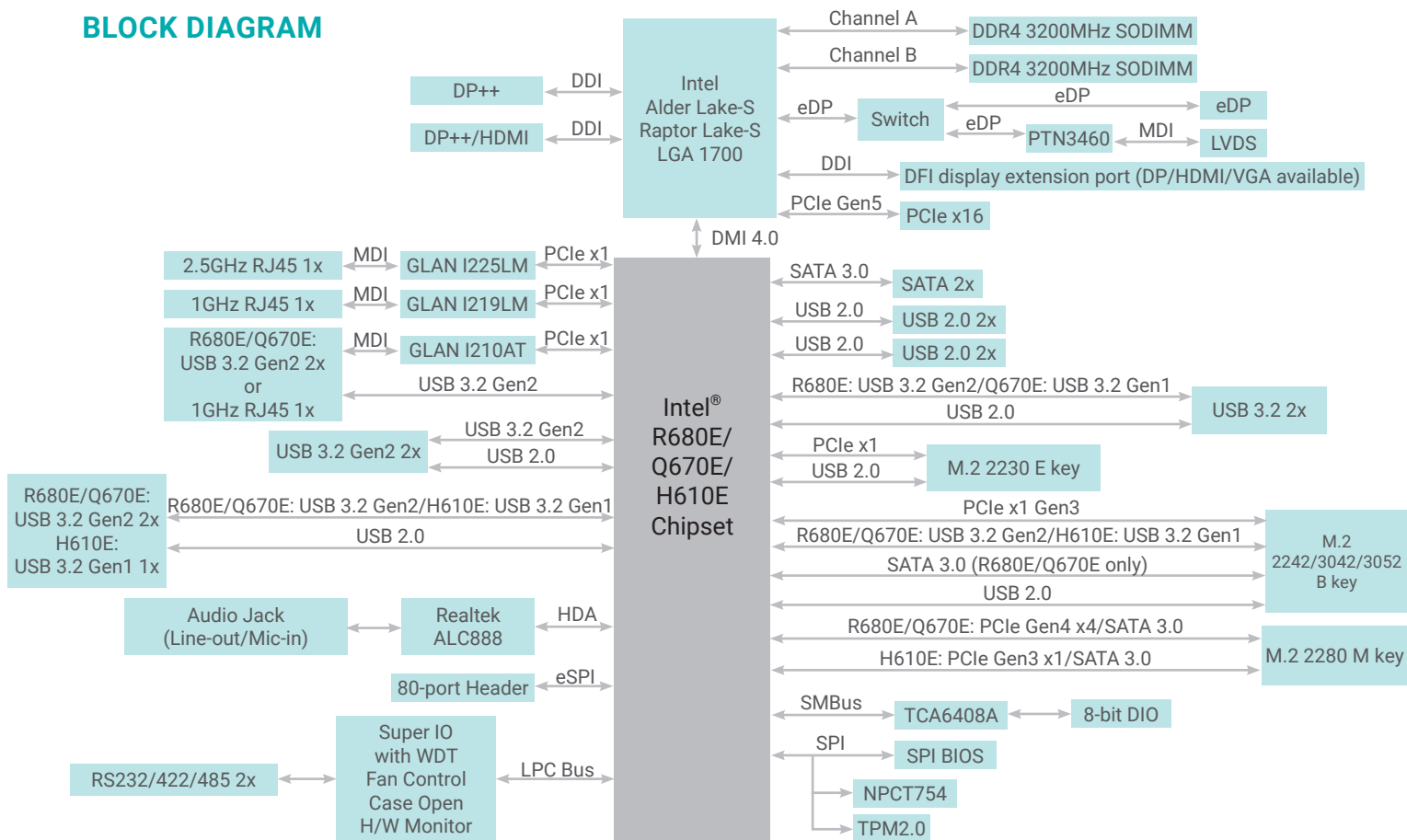
1 x PCIe x16,
1 x M.2 2230 E Key,
1 x M.2 2280 M Key,
1 x M.2 2242/3042/
3052 B Key



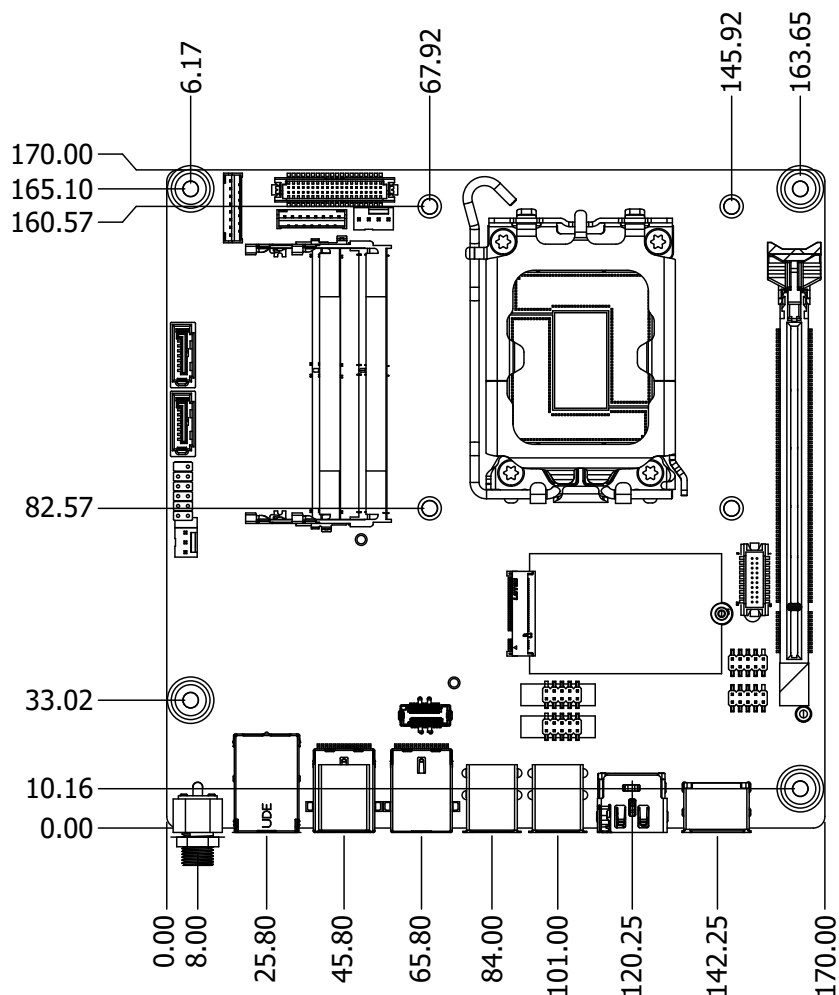
Rich I/O

1 Intel 2.5GbE, 2 COM,
up to 2 Intel GbE, up to
6 USB 3.2 Gen2, 2 USB
3.2 Gen1, 4 USB 2.0,
2 SATA 3.0

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

SYSTEM	Processor	13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 4.4 GHz); 65W Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W 12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W 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/H610E Chipset	
	Memory	Two 260-pin SODIMM up to 64GB	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 DP++ 1 x DP++/HDMI 1 x LVDS/eDP 1 x DFI display extension port (DP/HDMI/VGA available)	DP++: resolution up to 4096x2304 @60Hz LVDS: resolution up to 1920x1200 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz
	Quad Displays	DP++ + DP++/HDMI + LVDS/eDP + DFI display extension port (DP/HDMI/VGA available)	
	Interface	1 x PCIe x16 (Gen 5) 1 x M.2 2230 E Key (USB/PCIe x1) R680E/Q670E: 1 x M.2 2280 M Key (PCIe Gen4 x4/SATA) H610E: 1 x M.2 2280 M Key (PCIe Gen3 x1/SATA) R680E/Q670E: 1 x M.2 2242/3042/3052 B Key (PCIe Gen3 x1/SATA/USB 3.2 Gen2/USB 2.0) H610E: 1 x M.2 2242/3042/3052 B Key (SATA/USB 3.2 Gen1/USB 2.0)	
AUDIO	Audio Codec	Realtek ALC888	
ETHERNET	Controller	1 x Intel® I225LM PCIe(10/100/1000/2.5G speeds) 1 x Intel® I219LM PHY(10/100/1000 speeds) (support vPro/AMT) (H610E: I219V no supporting vPro/AMT) 1 x Intel® I210AT PCIe(10/100/1000 speeds)(Opt.)	
REAR I/O	Ethernet	1 x 2.5GbE (RJ-45) 1 x GbE (RJ-45) (2x by Opt.)	
	USB	R680E/Q670E: 4 x USB 3.2 Gen2 (Opt.: up to 6 x USB 3.2 Gen2) H610E: 2 x USB 3.2 Gen2 +1 x USB 3.2 Gen1	
	Display	1 x DP++ 1 x DP++/HDMI 1 x DFI display extension for (DP/HDMI/VGA) (Opt.)	
	Audio	1 x Line-out 1 x Mic-in	

SPECIFICATION

INTERNAL I/O	Serial	2 x RS-232/422/485 (without power) (2.54mm pitch)	
	USB	4 x USB 2.0 (2.54mm pitch) 2 x USB 3.2 Gen1 (R680E/Q670E only)	
	Display	1 x LVDS header 1 x eDP connector	
	Audio	1 x Front Audio Header	
	SATA	2 x SATA 3.0 (up to 6Gb/s) 1 x SATA Power	RAID 0/1/5/10 (w/ M.2 Key-M/B slot + 2 SATA Conn.)
	DIO	1 x 8-bit DIO	
	LPC	1 x LPC	
	SMBus	1 x SMBus	
	PS/2	N/A	
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
SECURITY	TPM	dTPM2.0	
POWER	Type	Single 12V +/-10% DC (ADS101)	Wide Range 15~36V (ADS103)
	Connector	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	
	Consumption	TBD	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit	
	Linux	Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C	
		Storage: -40 to 85°C	
	Humidity	Operating: 5 to 90% RH	
		Storage: 5 to 90% RH	
	MTBF	TBD	
MECHANISM	Dimensions	Mini-ITX Form Factor , 170mm (6.7") x 170mm (6.7")	
	Height	PCB: 1.6mm Top Side: 33.3mm, Bottom Side: 4mm	
STANDARDS AND CERTIFICATION	Certifications	CE, FCC Class B	

ORDERING INFORMATION

Model Name	P/N	Description
ADS101-R680DB	770-ADS1011-000G	ADS101-R680DB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 2 LAN, 6 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 12V DC-Jack, -5 to 65°C
ADS101-Q670DB	770-ADS1011-100G	ADS101-Q670DB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 2 LAN, 6 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 12V DC-Jack, -5 to 65°C
ADS101-H610IB	770-ADS1011-200G	ADS101-H610IB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 3 LAN, 2 USB 3.2 Gen2, 1 USB3.2 Gen1), Internal I/O (M.2 M/B/E Key, 4 USB 2.0), dTPM, 12V DC-Jack, -5 to 65°C
ADS101-R680IB	770-ADS1011-300G	ADS101-R680IB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 3 LAN, 4 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 12V DC-Jack, -5 to 65°C
ADS103-R680DB	770-ADS1031-000G	ADS103-R680DB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 2 LAN, 6 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 15~36V DC-IN, -5 to 65°C
ADS103-Q670DB	770-ADS1031-100G	ADS103-Q670DB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 2 LAN, 6 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 15~36V DC-IN, -5 to 65°C
ADS103-H610IB	770-ADS1031-200G	ADS103-H610IB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 3 LAN, 4 USB 3.2 Gen2, 1 USB3.2 Gen1), Internal I/O (M.2 M/B/E Key, 4 USB 2.0), dTPM, 15~36V DC-IN, -5 to 65°C
ADS103-R680IB	770-ADS1031-300G	ADS103-R680IB, 2 DDR4, Rear I/O (1DP++, 1 DP++/HDMI, 3 LAN, 4 USB 3.2 Gen2), Internal I/O (M.2 M/B/E Key, 2 USB3.2 Gen1, 4 USB 2.0), dTPM, 15~36V DC-IN, -5 to 65°C

PACKING LIST

1 ADS101/ADS103 motherboard	
1 Serial ATA data & power cable w/lock (Length: 300mm)	A81-002101-016G
1 COM port cable (Length: 250mm, 1 x COM port)	A81-015011-001G
1 I/O shield	
- w/ icon (3LAN/4USB)	A49-ADS101-000G
- w/ icon (2LAN/6USB)	A49-ADS101-010G

OPTIONAL ITEMS

COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
Serial ATA data & power cable w/lock (Length: 300mm)	A81-002101-016G
Thermal solution (For 35W, Height: 29.4mm)	A71-101136-000G
Thermal solution (For 65W, Height: 46mm)	A71-101137-000G
DT122 Chassis	761-DT1220-200G
EXT-VGA module board	770-DP2VGA-000G
EXT-HDMI module board	770-DP2HDM-000G
EXT-DP module board	770-EXTDP1-000G