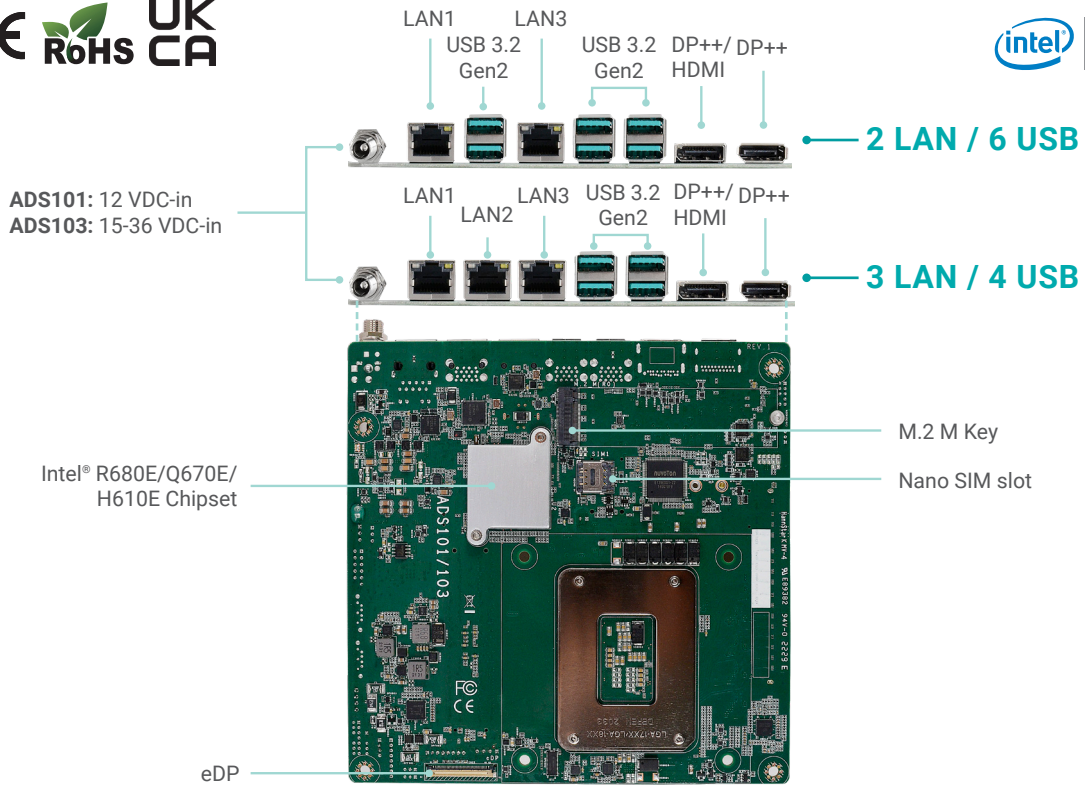
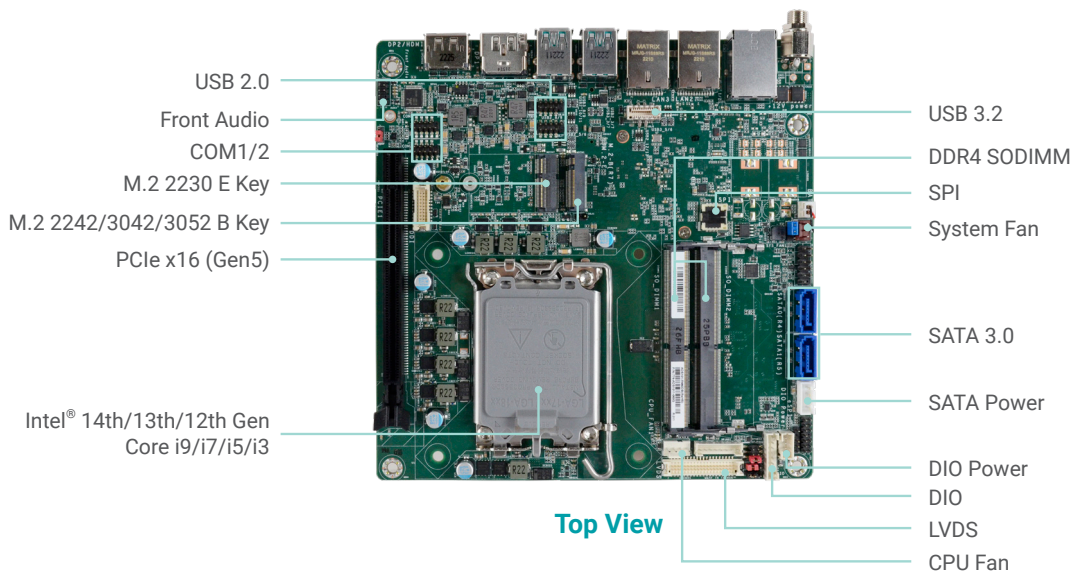


# ADS101/ADS103-R680E ADS101/ADS103-Q670E ADS101/ADS103-H610E

14th/13th/12th Gen Intel® Core™  
Desktop  
Thin Mini-ITX



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

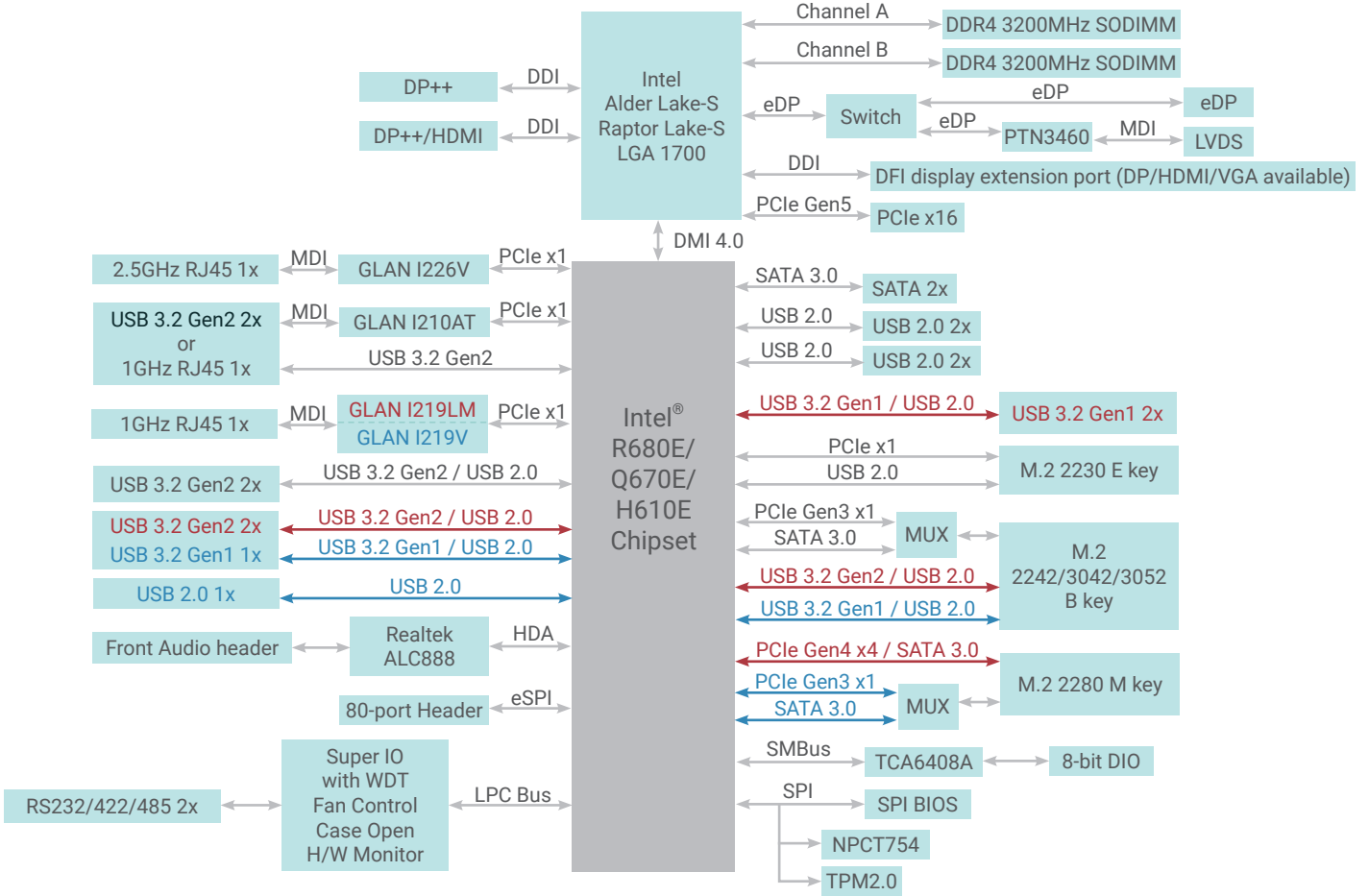


### Rich I/O

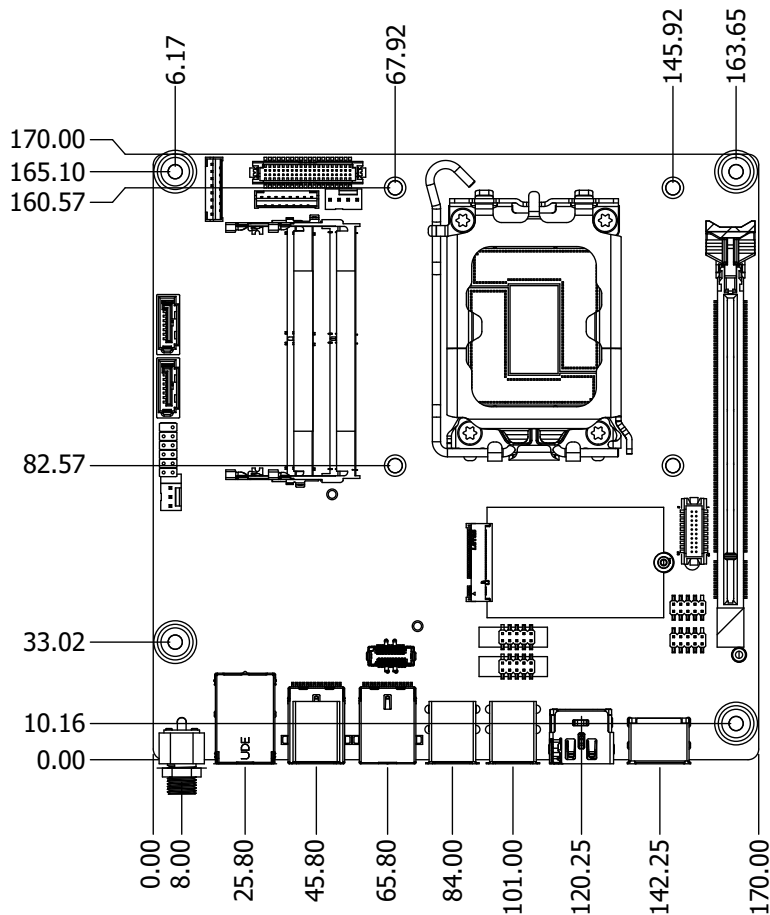
1 Intel 2.5GbE, 2 COM, up to 2 Intel GbE, up to 6 USB 3.2 Gen2, 2 USB 3.2 Gen1, 4 USB 2.0, 2 SATA 3.0

# BLOCK DIAGRAM

— R680E/Q670E Only  
 — H610E Only



# MECHANICAL DRAWING



## SPECIFICATION

Model Name	ADS101/ADS103-R680E	ADS101/ADS103-Q670E	ADS101/ADS103-H610E	
SYSTEM	Processor	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 5.8 GHz); 65W            Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 5.5 GHz); 35W            Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 5.4 GHz); 65W            Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 5.2 GHz); 35W            Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 5.0 GHz); 65W            Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 4.8 GHz); 35W            Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 4.7 GHz); 65W            Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 4.5 GHz); 35W            Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 4.7 GHz); 60W            Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 4.4 GHz); 35W            Intel® 300 (2 Cores, 6M Cache, 3.9 GHz); 46W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>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</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>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</p>		
	Chipset	Intel® R680E Chipset	Intel® Q670E Chipset	Intel® H610E Chipset
	Memory	Two 260-pin SODIMM up to 64GB Dual Channel DDR4 3200 MHz (ECC/Non-ECC)	Two 260-pin SODIMM up to 64GB Dual Channel DDR4 3200 MHz (Non-ECC)	Two 260-pin SODIMM up to 64GB Dual Channel DDR4 3200 MHz (Non-ECC)
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit
	GRAPHICS	Controller	Intel® UHD Graphics 700 series	Intel® UHD Graphics 700 series
GRAPHICS	Feature	<p>OpenGL 4.5, DirectX 12, OpenCL 2.1</p> <p><b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9</p> <p><b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9</p>	<p>OpenGL 4.5, DirectX 12, OpenCL 2.1</p> <p><b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9</p> <p><b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9</p>	<p>OpenGL 4.5, DirectX 12, OpenCL 2.1</p> <p><b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9</p> <p><b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9</p>
	Display	<p>1 x DP++            1 x DP++/HDMI            1 x LVDS/eDP            1 x DFI display extension port (DP/HDMI/VGA available)  <b>DP++:</b> resolution up to 4096x2304 @60Hz  <b>LVDS:</b> resolution up to 1920x1200 @ 60Hz  <b>eDP:</b> resolution up to 4096x2160 @ 60Hz</p>	<p>1 x DP++            1 x DP++/HDMI            1 x LVDS/eDP            1 x DFI display extension port (DP/HDMI/VGA available)  <b>DP++:</b> resolution up to 4096x2304 @60Hz  <b>LVDS:</b> resolution up to 1920x1200 @ 60Hz  <b>eDP:</b> resolution up to 4096x2160 @ 60Hz</p>	<p>1 x DP++            1 x DP++/HDMI            1 x LVDS/eDP            1 x DFI display extension port (DP/HDMI/VGA available)  <b>DP++:</b> resolution up to 4096x2304 @60Hz  <b>LVDS:</b> resolution up to 1920x1200 @ 60Hz  <b>eDP:</b> resolution up to 4096x2160 @ 60Hz</p>
	Quad Displays	DP+++ + DP++/HDMI + LVDS/eDP + DFI display extension port (DP/HDMI/VGA available)	DP+++ + DP++/HDMI + LVDS/eDP + DFI display extension port (DP/HDMI/VGA available)	DP+++ + DP++/HDMI + LVDS/eDP + DFI display extension port (DP/HDMI/VGA available)
EXPANSION	Interface	<p>1 x PCIe x16 (Gen 5) (Max. 75W)            1 x M.2 2230 E Key (USB/PCIe x1)            1 x M.2 2280 M Key (PCIe Gen4 x4/SATA)            1 x M.2 2242/3042/3052 B Key (PCIe Gen3 x1/SATA/USB 3.2 Gen2/USB 2.0)</p>	<p>1 x PCIe x16 (Gen 5) (Max. 75W)            1 x M.2 2230 E Key (USB/PCIe x1)            1 x M.2 2280 M Key (PCIe Gen4 x4/SATA)            1 x M.2 2242/3042/3052 B Key (PCIe Gen3 x1/SATA/USB 3.2 Gen2/USB 2.0)</p>	<p>1 x PCIe x16 (Gen 5) (Max. 75W)            1 x M.2 2230 E Key (USB/PCIe x1)            1 x M.2 2280 M Key (PCIe Gen3 x1/SATA)            1 x M.2 2242/3042/3052 B Key (PCIe Gen3 x1/SATA/USB 3.2 Gen1/USB 2.0)</p>
AUDIO	Audio Codec	Realtek ALC888	Realtek ALC888	

## SPECIFICATION

Model Name		ADS101/ADS103-R680E	ADS101/ADS103-Q670E	ADS101/ADS103-H610E
ETHERNET	Controller	<b>LAN1:</b> 1 x Intel® I226V PCIe (10/100/1000/2.5G speeds) <b>LAN2:</b> 1 x Intel® I210AT PCIe (10/100/1000 speeds)(Opt.) <b>LAN3:</b> 1 x Intel® I219LM PHY (10/100/1000 speeds) (support vPro/AMT)	<b>LAN1:</b> 1 x Intel® I226V PCIe (10/100/1000/2.5G speeds) <b>LAN2:</b> 1 x Intel® I210AT PCIe (10/100/1000 speeds)(Opt.) <b>LAN3:</b> 1 x Intel® I219LM PHY (10/100/1000 speeds) (support vPro/AMT)	<b>LAN1:</b> 1 x Intel® I226V PCIe (10/100/1000/2.5G speeds) <b>LAN2:</b> 1 x Intel® I210AT PCIe (10/100/1000 speeds)(Opt.) <b>LAN3:</b> 1 x Intel® I219V PHY (10/100/1000 speeds)
REAR I/O	Ethernet	1 x 2.5GbE (RJ-45) 1 x GbE (RJ-45) (2x by Opt.)	1 x 2.5GbE (RJ-45) 1 x GbE (RJ-45) (2x by Opt.)	1 x 2.5GbE (RJ-45) 1 x GbE (RJ-45) (2x by Opt.)
	USB	4 x USB 3.2 Gen2 (Opt.: up to 6 x USB 3.2 Gen2)	4 x USB 3.2 Gen2 (Opt.: up to 6 x USB 3.2 Gen2)	2 x USB 3.2 Gen2 + 1 x USB 3.2 Gen1 + 1 x USB 2.0
	Display	1 x DP++ 1 x DP++/HDMI 1 x DFI display extension for (DP/HDMI/VGA) (Opt.)	1 x DP++ 1 x DP++/HDMI 1 x DFI display extension for (DP/HDMI/VGA) (Opt.)	1 x DP++ 1 x DP++/HDMI 1 x DFI display extension for (DP/HDMI/VGA) (Opt.)
INTERNAL I/O	Serial	2 x RS-232/422/485 (without power) (2.0mm pitch)	2 x RS-232/422/485 (without power) (2.0mm pitch)	2 x RS-232/422/485 (without power) (2.0mm pitch)
	USB	4 x USB 2.0 (2.0mm pitch) 2 x USB 3.2 Gen1	4 x USB 2.0 (2.0mm pitch) 2 x USB 3.2 Gen1	4 x USB 2.0 (2.0mm pitch)
	Display	1 x LVDS header 1 x eDP connector	1 x LVDS header 1 x eDP connector	1 x LVDS header 1 x eDP connector
	Audio	1 x Front Audio Header	1 x Front Audio Header	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.)	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.)	2 x SATA 3.0 (up to 6Gb/s) 1 x SATA Power
	DIO	1 x 8-bit DIO	1 x 8-bit DIO	1 x 8-bit DIO
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	dTPM2.0	dTPM2.0	dTPM2.0
POWER	Type	<b>ADS101:</b> Single 12V +/-10% DC <b>ADS103:</b> Wide Range 15~36V	<b>ADS101:</b> Single 12V +/-10% DC <b>ADS103:</b> Wide Range 15~36V	<b>ADS101:</b> Single 12V +/-10% DC <b>ADS103:</b> Wide Range 15~36V
	Connector	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)
	Consumption	<b>Idle:</b> i9-13900E 65W: 24V @ 3.14A (75.36W), 12V @ 5.52A (66.24W) <b>Max:</b> i9-13900E 65W: 24V @ 4.82A (115.68W), 12V @ 9.38A (112.56W)	<b>Idle:</b> i9-13900E 65W: 24V @ 3.14A (75.36W), 12V @ 5.52A (66.24W) <b>Max:</b> i9-13900E 65W: 24V @ 4.82A (115.68W), 12V @ 9.38A (112.56W)	<b>Idle:</b> i9-13900E 65W: 24V @ 3.14A (75.36W), 12V @ 5.52A (66.24W) <b>Max:</b> i9-13900E 65W: 24V @ 4.82A (115.68W), 12V @ 9.38A (112.56W)
	RTC Battery	CR2032 Coin Cell	CR2032 Coin Cell	CR2032 Coin Cell
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC
	Linux	Linux	Linux	Linux
ENVIRONMENT	Temperature	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C
	Humidity	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH
	MTBF	ADS101-R680DB 547,831 hrs @ 25°C; 320,230 hrs @ 45°C; 204,129 hrs @ 60°C; <b>Calculation model:</b> Telcordia Issue 4 <b>Environment:</b> GB, GC – Ground Benign, Controlled	ADS101-R680DB 547,831 hrs @ 25°C; 320,230 hrs @ 45°C; 204,129 hrs @ 60°C; <b>Calculation model:</b> Telcordia Issue 4 <b>Environment:</b> GB, GC – Ground Benign, Controlled	ADS101-R680DB 547,831 hrs @ 25°C; 320,230 hrs @ 45°C; 204,129 hrs @ 60°C; <b>Calculation model:</b> Telcordia Issue 4 <b>Environment:</b> GB, GC – Ground Benign, Controlled
MECHANISM	Dimensions	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")
	Height	<b>PCB:</b> 1.6mm <b>Top Side:</b> 33.3mm <b>Bottom Side:</b> 4mm	<b>PCB:</b> 1.6mm <b>Top Side:</b> 33.3mm <b>Bottom Side:</b> 4mm	<b>PCB:</b> 1.6mm <b>Top Side:</b> 33.3mm <b>Bottom Side:</b> 4mm
STANDARDS AND CERTIFICATION	Certifications	CE, FCC Class B, RoHS, UKCA	CE, FCC Class B, RoHS, UKCA	CE, FCC Class B, RoHS, UKCA

## ORDERING INFORMATION

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

## 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
• USB 3.1 cable (2-port USB3.1 Gen1/2, Length: 300mm, w/bracket)	A81-001075-017G
• 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