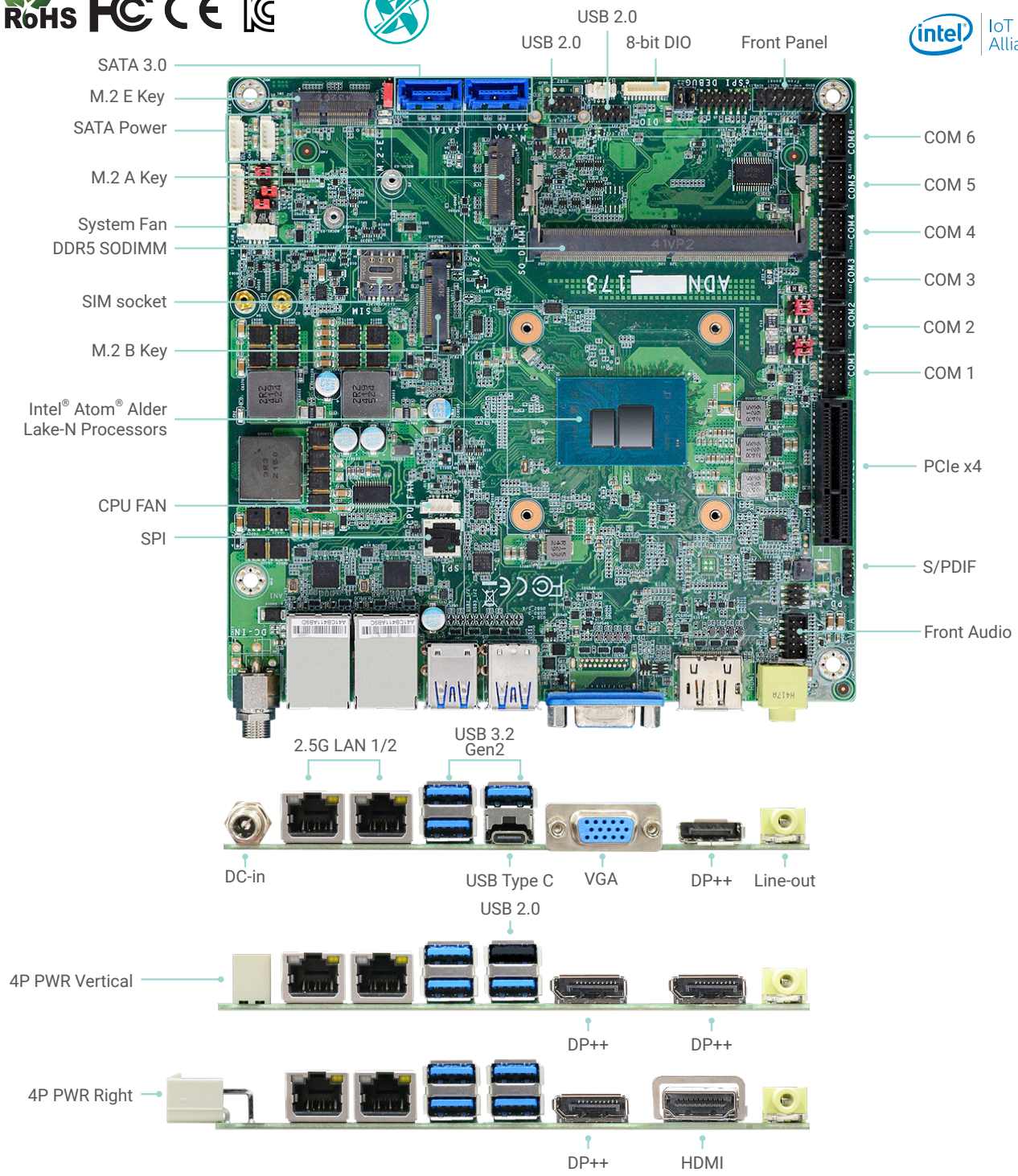
ADN171/ADN173

Intel® Atom® Alder Lake-N Processors

Mini-ITX

Atom



KEY FEATURES

DDR5

1 DDR5 4800MHz SODIMM up to 16GB

4K High Resolution

Supports 4K/ 2K resolution

Triple Displays

DP++/VGA + HDMI/ DP++ + USB-Type C + *M2A-Display(optional)

*M2A Display support (eDP/LVDS/VGA/HDMI/DP)

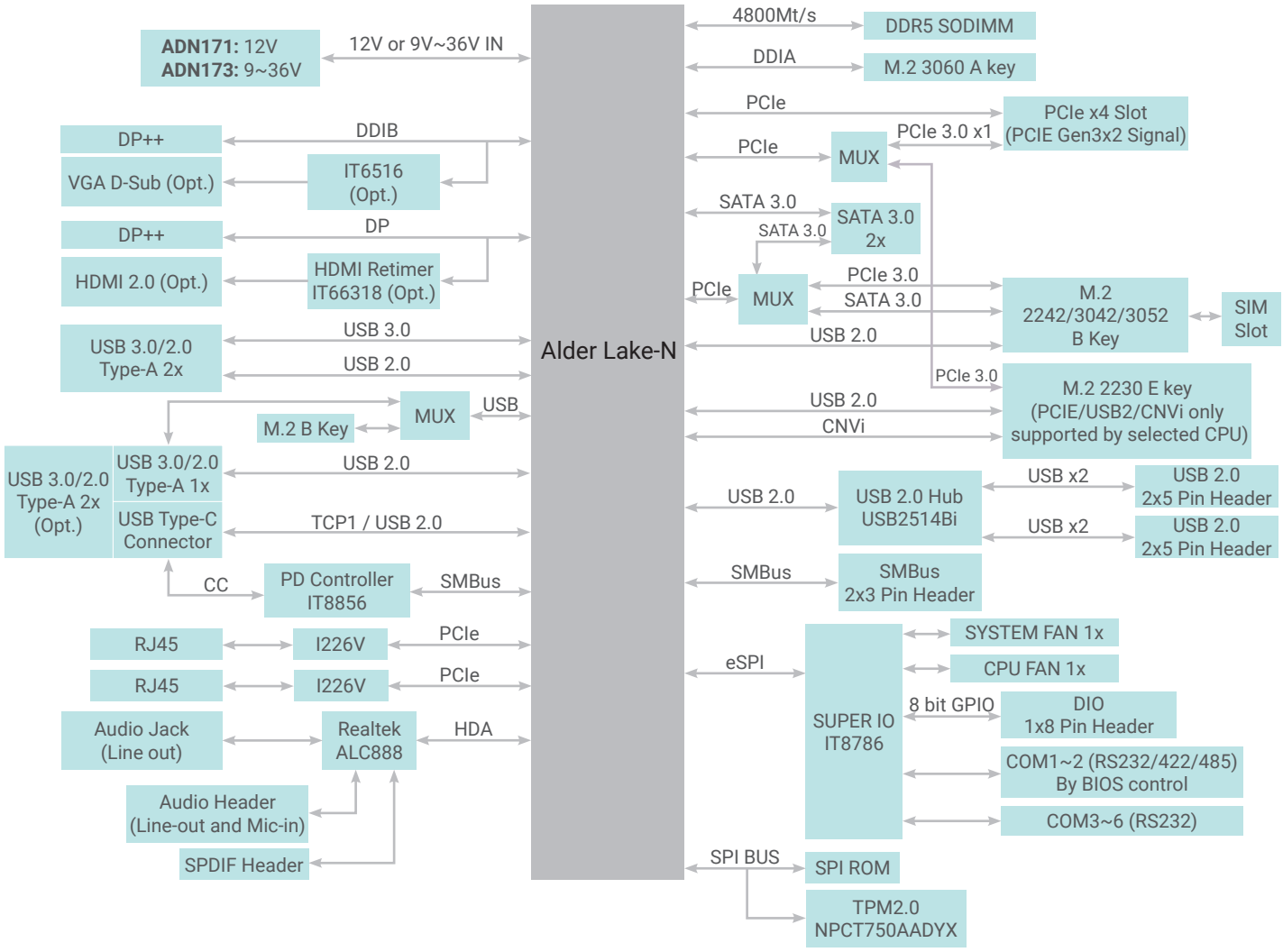
Multiple Expansion

1 M.2 A Key,
1 M.2 B Key,
1 M.2 E Key

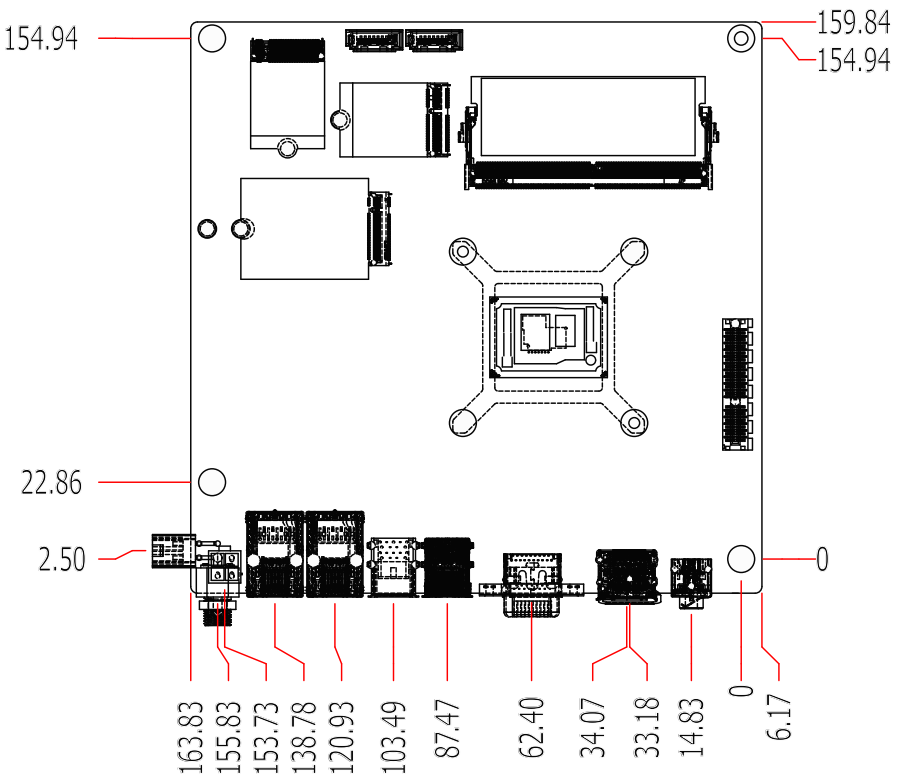
Rich I/O

2 2.5GbE LAN, up to 4 USB 3.2, 1 USB Type C, 4 USB 2.0, 2 SATA 3.0, 6 COM

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

Model Name		ADN171	ADN173
SYSTEM	Processor	Intel® Atom® Alder Lake-N Processors, TDP up to 15W · **Embedded** Intel Atom® x7425E, 4 cores, 6M Cache, up to 3.40 GHz, 12W Intel Atom® x7213E, 2 cores, 6M Cache, up to 3.20 GHz, 10W Intel Atom® x7211E, 2 cores, 6M Cache, up to 3.20 GHz, 6W · **PC Client** Intel® Core™ i3-N305, 8 cores, 6M Cache, up to 3.80 GHz, 15W Intel® Processor N200, 4 cores, 6M Cache, up to 3.70 GHz, 6W Intel® Processor N97, 4 cores, 6M Cache, up to 3.60 GHz, 12W Intel® Processor N50, 2 cores, 6M Cache, up to 3.40 GHz, 6W	
	Memory	One 262-pin SODIMM up to 16GB Single Channel DDR5 4800MHz	One 262-pin SODIMM up to 16GB Single Channel DDR5 4800MHz
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit
GRAPHICS	Controller	Intel® UHD Graphics	Intel® UHD Graphics
	Feature	OpenGL 4.6, Direct X 12.1, OpenCL 3.0 **HW Decode:** HEVC, VP9, AV1, AVC **HW Encode:** HEVC, VP9, AVC	OpenGL 4.6, Direct X 12.1, OpenCL 3.0 **HW Decode:** HEVC, VP9, AV1, AVC **HW Encode:** HEVC, VP9, AVC
	Display	1 x DP++/ VGA (Co-layout) 1 x DP++/ HDMI2.0 (Co-layout) 1 x USB Type C (DP alt-mode/USB3.2 Gen2/ PD 15W) **DP++:** resolution up to 3840x2160 @ 60Hz **VGA:** resolution up to 2048x1536 @ 60Hz **HDMI:** resolution up to 3840x2160 @ 24Hz **USB-C:** resolution up to 3840x2160 @24Hz	1 x DP++/ VGA (Co-layout) 1 x DP++/ HDMI2.0 (Co-layout) 1 x USB Type C (DP alt-mode/USB3.2 Gen2/ PD 15W) **DP++:** resolution up to 3840x2160 @ 60Hz **VGA:** resolution up to 2048x1536 @ 60Hz **HDMI:** resolution up to 3840x2160 @ 24Hz **USB-C:** resolution up to 3840x2160 @24Hz
	Triple Displays	DP++/VGA + HDMI/DP++ + USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W) + M2A-Display (optional)	DP++/VGA + HDMI/DP++ + USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W) + M2A-Display (optional)
EXPANSION	Interface	1 x PCIe x4 (PCIe signal x2) 1 x M.2 2242/3042/3052 B Key (PCIE Gen3x1 or SATA3 and USB2.0 wi USB3(opt.)) 1 x M.2 2230 E Key (PCIE Gen3x1, USB2.0, CNVi) (CNVi only support by selected CPU) 1 x M.2 3060 A Key support DFI M2A-display module (opt. MOQ required) 1 x Nano SIM socket (connected to M.2 B key)	1 x PCIe x4 (PCIe signal x2) 1 x M.2 2242/3042/3052 B Key (PCIE Gen3x1 or SATA3 and USB2.0 wi USB3(opt.)) 1 x M.2 2230 E Key (PCIE Gen3x1, USB2.0, CNVi) (CNVi only support by selected CPU) 1 x M.2 3060 A Key support DFI M2A-display module (opt. MOQ required) 1 x Nano SIM socket (connected to M.2 B key)
AUDIO	Audio Codec	Realtek ALC888S	Realtek ALC888S
ETHERNET	Controller	2 x Intel® I226V (10/100/1000/2500Mbps)	2 x Intel® I226V (10/100/1000/2500Mbps)
REAR I/O	Ethernet	2 x 2.5GbE RJ45	2 x 2.5GbE RJ45
	USB	4 x USB 3.2 Gen2 or 3 x USB 3.2 Gen2 + 1 x USB 2.0 or 3 x USB 3.2 Gen2 + 1 x USB Type C	4 x USB 3.2 Gen2 or 3 x USB 3.2 Gen2 + 1 x USB 2.0 or 3 x USB 3.2 Gen2 + 1 x USB Type C
	Display	1 x HDMI /DP++ (opt., MOQ may required) 1 x DP++ /VGA (opt., MOQ may required) 1 x USB Type C (DP alt-mode/USB3.2 Gen2/ PD 15W)	1 x HDMI /DP++ (opt., MOQ may required) 1 x DP++ /VGA (opt., MOQ may required) 1 x USB Type C (DP alt-mode/USB3.2 Gen2/ PD 15W)
	Audio	1 x Line-out	1 x Line-out
INTERNAL I/O	Serial	2 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 4 x RS-232 (2.0mm pitch)	2 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 4 x RS-232 (2.0mm pitch)
	USB	4 x USB 2.0 (2.0mm pitch) or 3 x USB 2.0 (2.00mm pitch) + 1 x Vertical USB 2.0 (type A) (opt., MOQ required)	4 x USB 2.0 (2.0mm pitch) or 3 x USB 2.0 (2.00mm pitch) + 1 x Vertical USB 2.0 (type A) (opt., MOQ required)
	Audio	1 x S/PDIF 1 x Line-out/Mic-in	1 x S/PDIF 1 x Line-out/Mic-in
	SATA	2 x SATA 3.0 (up to 6Gb/s)	2 x SATA 3.0 (up to 6Gb/s)
	DIO	1 x 8-bit DIO	1 x 8-bit DIO
	SMBus	1 x SMBus	1 x SMBus
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	dTPM (default) fTPM (option)	dTPM (default) fTPM (option)
POWER	Type	Single 12VDC (+/-5%)	Wide Range 9~36V
	Connector	DC-in Jack (Default) Right Angle Connector (4-pin) Vertical Type Connector (4-pin)	DC-in Jack (Default) Right Angle Connector (4-pin) Vertical Type Connector (4-pin)
	Consumption	**Idle:** x7213E 10W: 12V @ 0.62A (7.44W) **Max:** x7213E 10W: 12V @ 2.31A (27.72W)	**Idle:** x7213E 10W: 12V @ 0.62A (7.44W) **Max:** x7213E 10W: 12V @ 2.31A (27.72W)
	RTC Battery	CR2032 Coin Cell	CR2032 Coin Cell
OS SUPPORT	Microsoft	Windows IoT Enterprise 10 LTSB Windows 11	Windows IoT Enterprise 10 LTSB Windows 11
	Linux	Linux	Linux

SPECIFICATION

Model Name		ADN171	ADN173
ENVIRONMENT	Temperature	**Operating:** -5 to 65°C **Storage:** -40 to 85°C	**Operating:** -5 to 65°C **Storage:** -40 to 85°C
	Humidity	**Operating:** 5 to 90% RH **Storage:** 5 to 90% RH	**Operating:** 5 to 90% RH **Storage:** 5 to 90% RH
	MTBF	ADN171-CB-N200 MTBF 478,716 hrs @ 25°C; 297,120 hrs @ 45°C; 197,152 hrs @ 60°C; 148,106 hrs @ 70°C; **Calculation model:** Telcordia Issue 4 **Environment:** GB, GC – Ground Benign, Controlled	ADN173-CB-x7425 MTBF 455,085 hrs @ 25°C; 278,736 hrs @ 45°C; 183,740 hrs @ 60°C; 137,635 hrs @ 70°C; **Calculation model:** Telcordia Issue 4 **Environment:** 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")
	Height	**PCB:** 1.6mm **Top Side:** 20mm **Bottom Side:** 3mm	**PCB:** 1.6mm **Top Side:** 20mm **Bottom Side:** 3mm
CERTIFICATION	Certifications	CE, FCC, RoHS, UKCA, KC	CE, FCC, RoHS, UKCA, KC

ORDERING INFORMATION

Model Name	P/N	CPU	Memory	Rear I/O			Internal I/O			Power	Thermal	Operating Temp.	CNVi
				Display	2.5 GbE	USB	RS-232	RS-232/ 422/485	USB				
ADN171-CB-x7213E	770-ADN1711-000G	x7213E	1 DDR5	VGA/DP/ Type C	2	3 USB 3.2 Gen2, 1 USB Type C	4	2	4 USB 2.0	12VDC	Fanless	-5 to 65°C	N/A
ADN171-CB-N200	770-ADN1711-100G	N200		DP/HDMI		4 USB 3.2 Gen2				12VDC			Yes
ADN171-CB-N50	770-ADN1711-200G	N50		DP/DP		3 USB 3.2 Gen2, 1 USB 2.0				12VDC			Yes
ADN171-CB-N97	770-ADN1711-300G	N97		DP/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				12VDC			Yes
ADN171-CB-i3-N305	770-ADN1711-400G	i3-N305		DP/HDMI		3 USB 3.2 Gen2, 1 USB 2.0				12VDC			Yes
ADN173-CB-x7213E	770-ADN1731-000G	x7213E		DP/HDMI		3 USB 3.2 Gen2, 1 USB 2.0				9~36VDC			N/A
ADN173-CB-N50	770-ADN1731-100G	N50		DP/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				9~36VDC			Yes
ADN173-CB-x7425E	770-ADN1731-200G	x7425E		VGA/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				9~36VDC			Yes
ADN173-CB-N97	770-ADN1731-300G	N97		DP/DP		3 USB 3.2 Gen2, 1 USB 2.0				9~36VDC			Yes
ADN173-CB-i3-N305	770-ADN1731-400G	i3-N305		DP/HDMI		3 USB 3.2 Gen2, 1 USB 2.0				9~36VDC			Yes

PACKING LIST

- 1 ADN171/ADN173 motherboard
- 1 COM port cable (Length: 250mm, 1 x COM ports)
- 1 Serial ATA data & power cable w/lock (Length: 300mm)
- 1 Heat sink

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