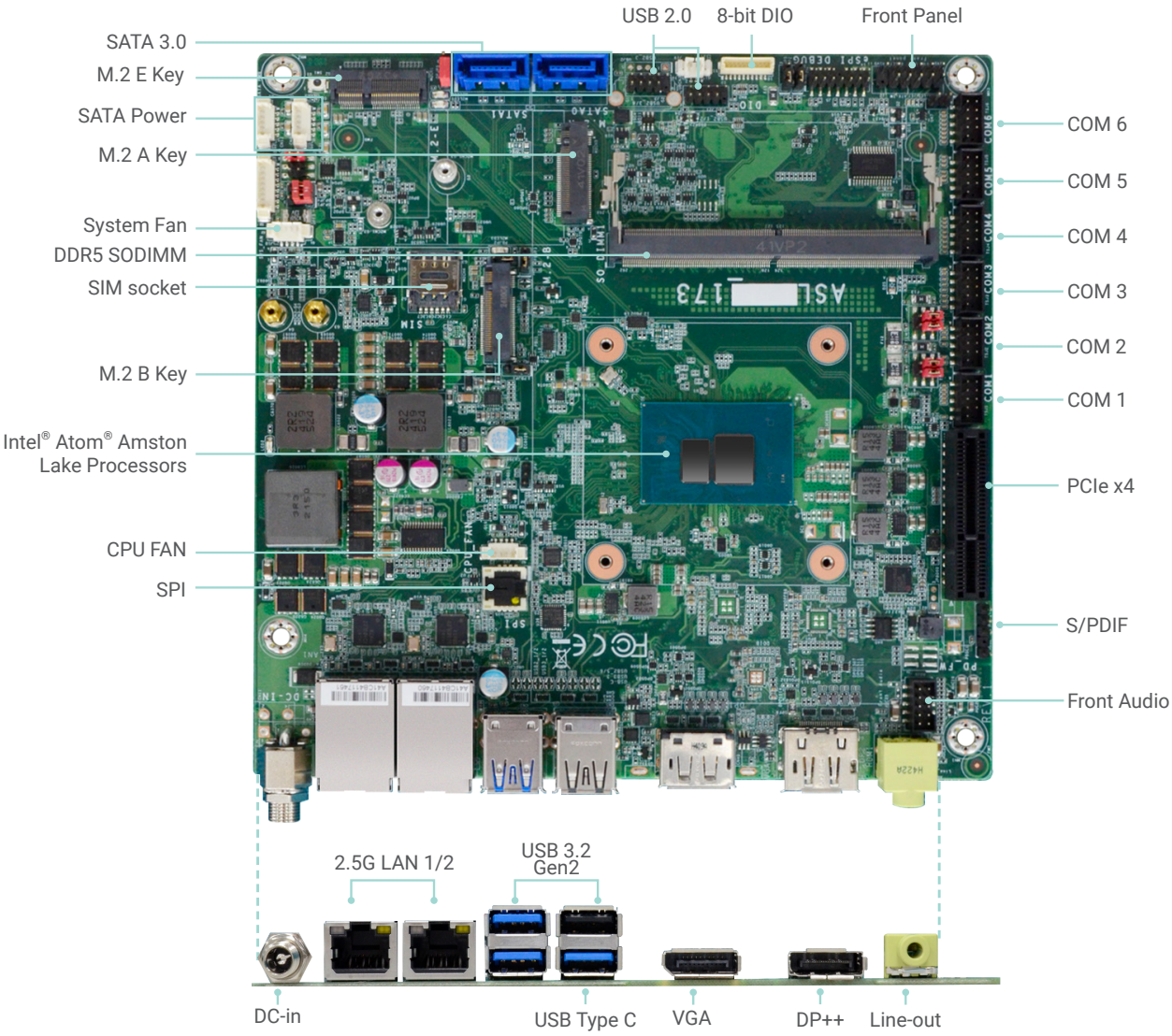
ASL171/ASL173

Intel® Atom® Amston Lake Processors

Atom

Mini-ITX

intel IoT Solutions Alliance



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)

Multiple Expansion

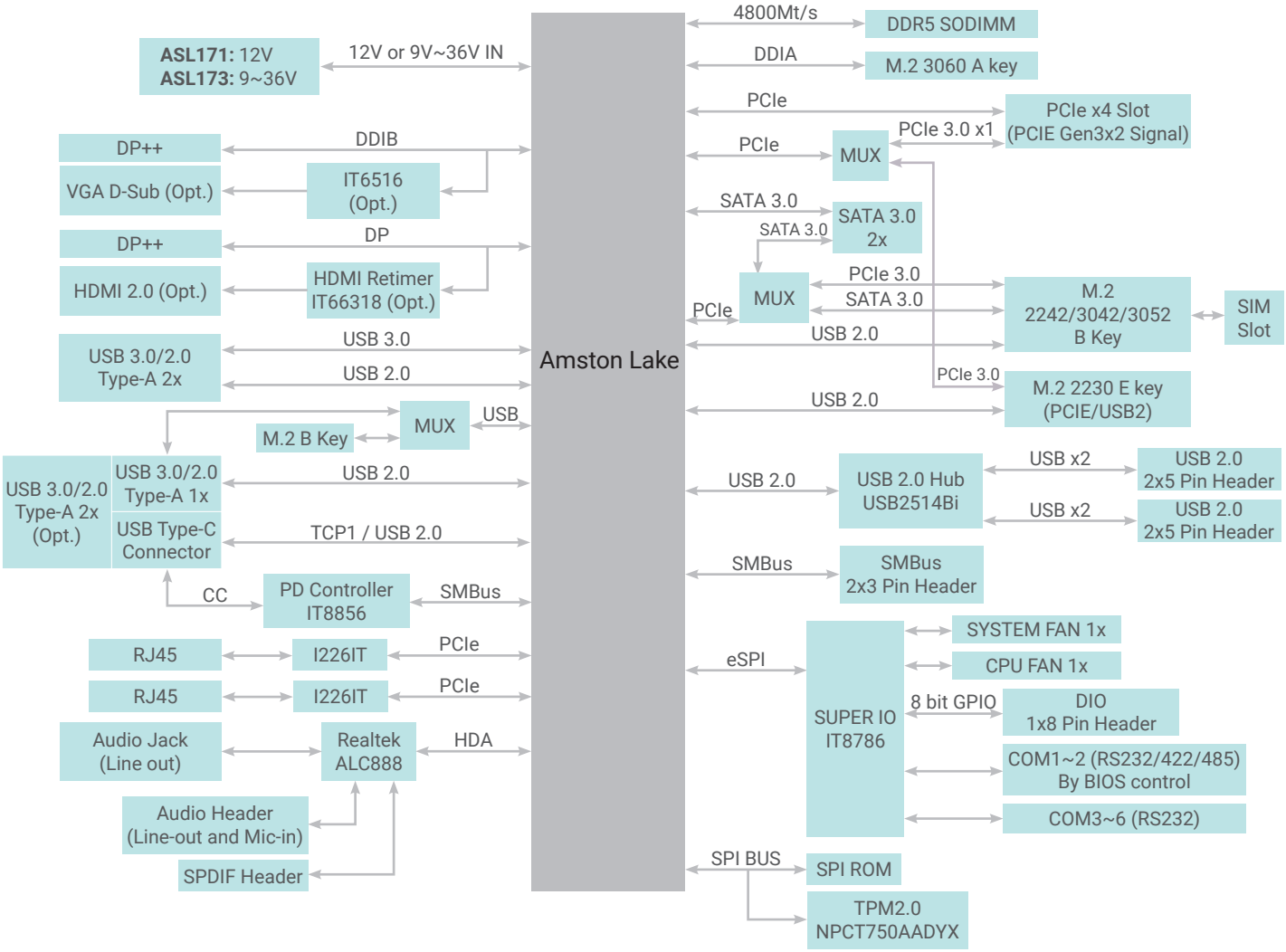
1 M.2 A Key,
1 M.2 B Key,
1 M.2 E Key

Rich I/O

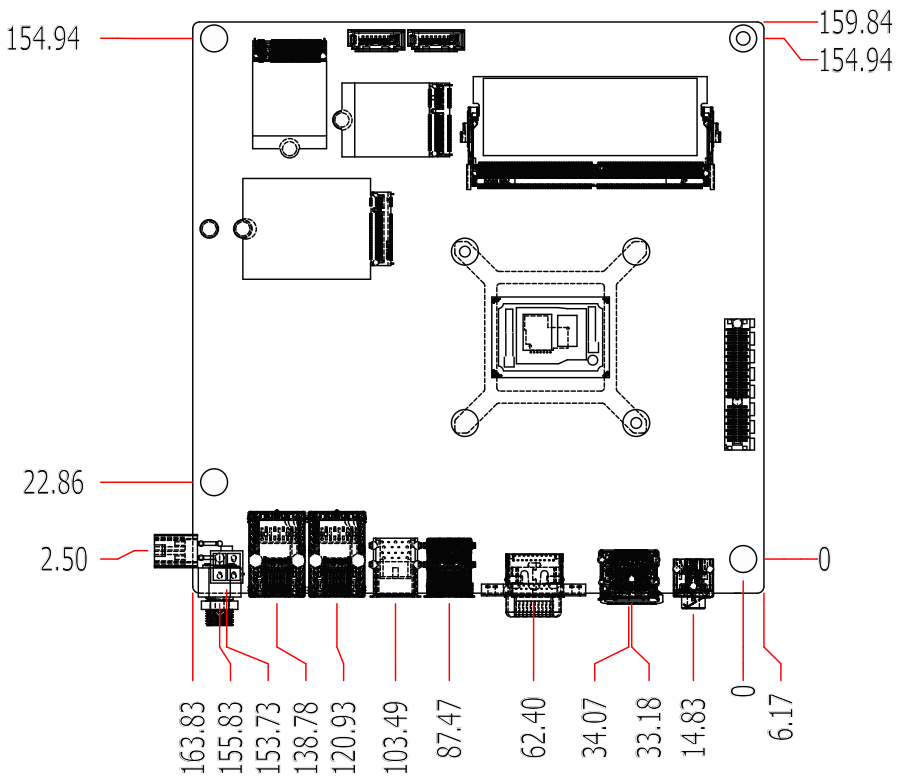
2 2.5GbE LAN, up to 4 USB 3.2, 1 USB Type C, 2 USB2.0, 2 SATA3.0, 6 COM

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

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

Model Name		ASL171	ASL173
SYSTEM	Processor	Intel® Atom x7000RE series processors (Code Name : Amston Lake) Intel® Atom Processor x7835RE, 8 Cores, 1.3~3.6GHz, 12W Intel® Atom Processor x7433RE, 4 Cores, 1.5~3.4GHz, 9W Intel® Atom Processor x7213RE, 2 Cores, 2.0~3.4GHz, 9W Intel® Atom Processor x7211RE, 2 Cores, 1.0~3.2GHz, 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) **HDMI:** resolution up to 3840x2160 @ 24Hz **DP++:** resolution up to 3840x2160 @ 60Hz **VGA:** resolution up to 2048x1536 @ 60Hz **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) **HDMI:** resolution up to 3840x2160 @ 24Hz **DP++:** resolution up to 3840x2160 @ 60Hz **VGA:** resolution up to 2048x1536 @ 60Hz **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) 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) 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® I226IT (10/100/1000/2500Mbps)	2 x Intel® I226IT (10/100/1000/2500Mbps)
REAR I/O	Ethernet	2 x 2.5GHz RJ45	2 x 2.5GHz 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%) (DC-In jack by default)	Wide Range 9~36V (4P vertical type by default)
	Connector	DC-in Jack Right Angle Connector (4-pin) Vertical Type Connector (4-pin)	DC-in Jack Right Angle Connector (4-pin) Vertical Type Connector (4-pin)
	Consumption	**Idle:** x7835RE 12W: 9V @ 0.82A (7.38W) **Max:** x7835RE 12W: 9V @ 6.12A (55.08W) **Idle:** x7835RE 12W: 36V @ 0.3A (10.8W) **Max:** x7835RE 12W: 36V @ 1.52A (54.72W)	**Idle:** x7835RE 12W: 9V @ 0.82A (7.38W) **Max:** x7835RE 12W: 9V @ 6.12A (55.08W) **Idle:** x7835RE 12W: 36V @ 0.3A (10.8W) **Max:** x7835RE 12W: 36V @ 1.52A (54.72W)
	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
ENVIRONMENT	Temperature	**Operating:** -40 to 85°C **Storage:** -40 to 85°C	**Operating:** -40 to 85°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

SPECIFICATION

Model Name		ASL171	ASL173
ENVIRONMENT	MTBF	ASL171-CT-x7211RE MTBF 472,343 hrs @ 25°C; 291,391 hrs @ 45°C; 192,586 hrs @ 60°C; 144,364 hrs @ 70°C; 93,242 hrs @ 85°C **Calculation model:** Telcordia Issue 4 **Environment:** GB, GC – Ground Benign, Controlled	ASL173-CT-x7835RE MTBF 455,085 hrs @ 25°C; 278,736 hrs @ 45°C; 183,740 hrs @ 60°C; 137,635 hrs @ 70°C; 88,893 hrs @ 85°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
STANDARDS AND CERTIFICATION	Certifications	CE, FCC, RoHS, UKCA	CE, FCC, RoHS, UKCA

ORDERING INFORMATION

Model Name	P/N	CPU	Memory	Rear I/O			Internal I/O			Power	Thermal	Operating Temp.
				Display	2.5 GbE	USB	RS-232	RS-232/ 422/485	USB			
ASL171-CT-x7835RE	770-ASL1711-000G	x7835RE	1 DDR5	DP/DP/ Type C	2	3 USB 3.2 Gen2, 1 USB Type C	4	2	4 USB 2.0	12VDC	Fanless	-40 to 85°C
ASL171-CT-x7433RE	770-ASL1711-100G	x7433RE		VGA/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				12VDC		
ASL171-CT-x7213RE	770-ASL1711-200G	x7213RE		DP/ HDMI		4 USB 3.2 Gen2				12VDC		
ASL171-CT-x7211RE	770-ASL1711-300G	x7211RE		DP/DP		3 USB 3.2 Gen2, 1 USB 2.0				12VDC		
ASL173-CT-x7835RE	770-ASL1731-000G	x7835RE		VGA/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				9~36VDC		
ASL173-CT-x7433RE	770-ASL1731-100G	x7433RE		DP/DP		3 USB 3.2 Gen2, 1 USB 2.0				9~36VDC		
ASL173-CT-x7213RE	770-ASL1731-200G	x7213RE		DP/ HDMI		3 USB 3.2 Gen2, 1 USB 2.0				9~36VDC		
ASL173-CT-x7211RE	770-ASL1731-300G	x7211RE		DP/DP/ Type C		3 USB 3.2 Gen2, 1 USB Type C				9~36VDC		

PACKING LIST

- 1 ASL171/ASL173 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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