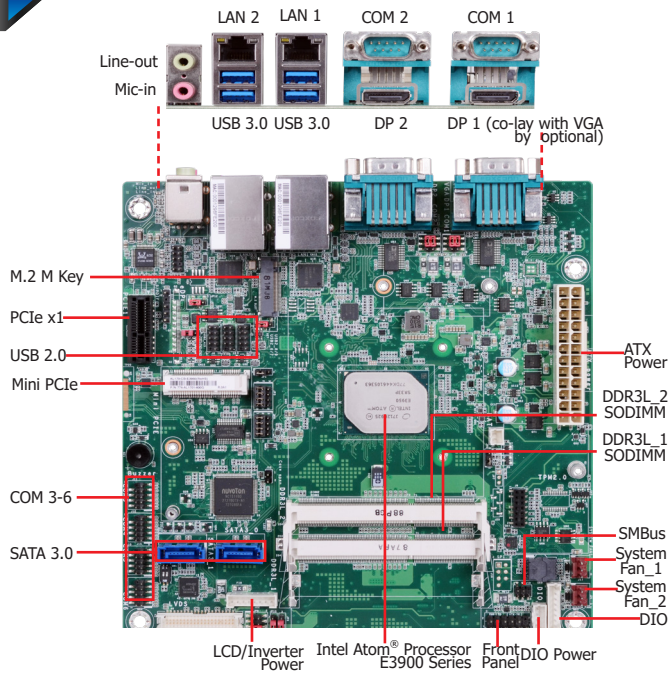


## AL170

Atom

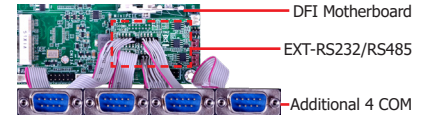


### Features

- 2 DDR3L 1867MHz SODIMM up to 8GB
- Three independent displays: (VGA/DP++) + (DP++) + (LVDS/eDP)
- DP++ resolution supports up to 4096x2160 @ 60Hz
- Multiple expansion: 1 M.2 M Key, 1 PCIe x1 (Gen 2), 1 Full-Sized Mini PCIe
- LPC EXT-RS232/485 module extends additional 4 COM ports
- Rich I/O: 2 Intel GbE, 6 COM, 4 USB 3.0, 6 USB 2.0



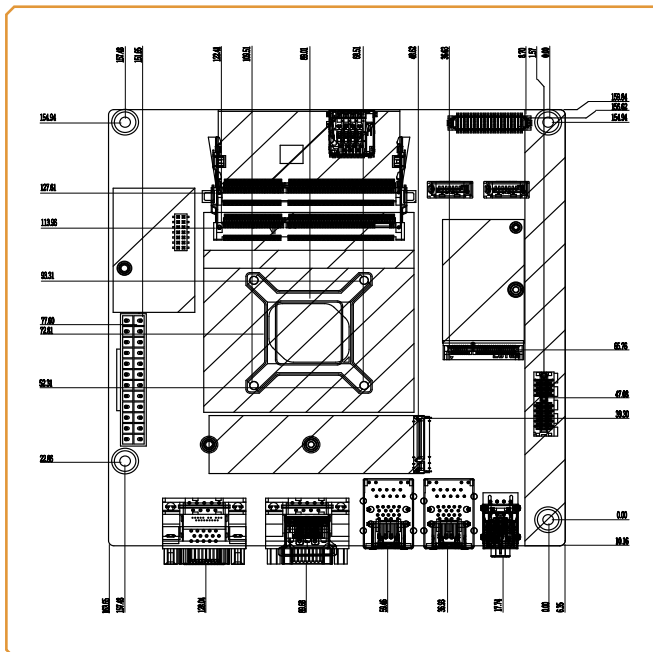
### 2 Extension Modules for Additional 4 COM Ports (via the LPC connector)



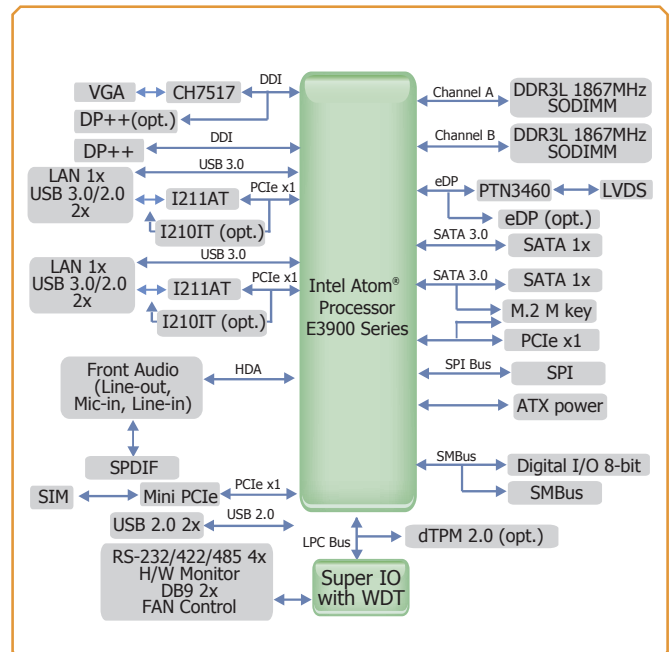
### Ordering Information

Model Name	P/N	Processor	Memory	VGA/DP++	DP++/DP++	LVDS/eDP	RS-232/422/485	RS-232	USB 3.0	USB 2.0	Power	Thermal Temp.
AL170-CT-E3950	770-AL1701-000G	E3950	2 SODIMM	VGA	DP++	LVDS	2	4	4	6	ATX	Fanless -40 to 85°C
AL170-CB-N4200	770-AL1701-300G	N4200	2 SODIMM	DP++	DP++	eDP	2	4	4	6	ATX	Fanless 0 to 60°C
AL170-CB-N3350	770-AL1701-400G	N3350	2 SODIMM	DP++	DP++	eDP	2	4	4	6	ATX	Fanless 0 to 60°C
AL170-CB-E3940	770-AL1701-500G	E3940	2 SODIMM	DP++	DP++	LVDS	2	4	4	6	ATX	Fanless 0 to 60°C
AL170-CB-E3950	770-AL1701-600G	E3950	2 SODIMM	DP++	DP++	LVDS	2	4	4	6	ATX	Fanless 0 to 60°C

### Mechanical Drawing



### Block Diagram



## Specifications

<b>SYSTEM</b>	<b>Processor</b>	Intel Atom® Processor E3900 Family, BGA 1296 Intel Atom® x7-E3950 Processor, Quad Core, 2M Cache, 1.6GHz (2.0GHz), 12W Intel Atom® x5-E3940 Processor, Quad Core, 2M Cache, 1.6GHz (1.8GHz), 9.5W Intel Atom® x5-E3930 Processor, Dual Core, 2M Cache, 1.3GHz (1.8GHz), 6.5W Intel® Pentium® N4200 Processor, Quad Core, 2M Cache, 1.1GHz (2.5GHz), 6W Intel® Celeron® Processor N3350, Dual core, 2M Cache 1.1GHz (2.4GHz), 6W	
	<b>Memory</b>	Two 204-pin SODIMM up to 8GB	Dual Channel DDR3L 1867MHz
	<b>BIOS</b>	SPI 64Mbit (supports UEFI boot only)	
<b>GRAPHICS</b>	<b>Controller</b>	Intel® HD Graphics GT Series	
	<b>Feature</b>	OpenGL 5.0, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H.265, VP8, VP9, MVC HW Encode: AVC/H.264, JPEG/MJPEG, HEVC/H.265, VP8, VP9, MVC	
	<b>Display</b>	1 x VGA/DP++ 1 x DP++ 1 x LVDS/eDP VGA: resolution up to 2560x1600 @ 60Hz LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz DP++: resolution up to 4096x2160 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz	
<b>Triple Displays</b>	VGA + DP++ + LVDS VGA + DP++ + eDP	DP++ + DP++ + LVDS DP++ + DP++ + eDP	
<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe (Gen2, signal share w/M.2) 1 x M.2 M key (support 2242/2280, PCIe&SATA signal, default SATA) 1 x Full-size Mini PCIe (PCIe2.0/USB2.0)(USB3.1 Gen 1)(opt.)	
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC262-VC2-GR	
<b>ETHERNET</b>	<b>Controller</b>	-40 to 85°C: 2 x Intel® I210IT PCIe (10/100/1000Mbps) or 0 to 60°C: 2 x Intel® I211AT PCIe (10/100/1000Mbps)	
<b>REAR I/O</b>	<b>Ethernet</b>	2 x GbE (RJ-45)	
	<b>USB</b>	4 x USB 3.0	
	<b>Display</b>	1 x VGA/DP++	1 x DP++
	<b>Audio</b>	1 x Line-out 1 x Line-in (available upon request) 1 x Mic-in	
	<b>Serial</b>	2 x RS-232/422/485 (RS-232 w/ power) (DB-9)	
<b>INTERNAL I/O</b>	<b>Serial</b>	4 x RS-232 (2.0mm pitch)	
	<b>USB</b>	6 x USB 2.0 (2.0mm pitch)	
	<b>Display</b>	1 x LVDS LCD Panel connector or 1 x eDP LCD panel connector 1 x LCD/inverter Power	
	<b>Audio</b>	1 x S/PDIF	
	<b>SATA</b>	2 x SATA 3.0 (up to 6Gb/s) colay with M.2 M key	
	<b>DIO</b>	1 x 8-bit DIO	
	<b>LPC</b>	1 x LPC (supports LPC EXT-RS232/RS485 module)	
	<b>SMBus</b>	1 x SMBus	
<b>WATCHDOG TIMER</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds	
<b>SECURITY</b>	<b>TPM</b>	dTPM 2.0 (opt.)	
<b>POWER</b>	<b>Type</b>	ATX	
	<b>Connector</b>	24-pin ATX power	
	<b>Consumption</b>	TDP 6~12W	
	<b>RTC Battery</b>	CR2032 Coin Cell	
<b>OS SUPPORT (UEFI Only)</b>	<b>Microsoft/Linux</b>	Windows 10 64bits (LTSB) Linux	
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: 0 to 60°C, -40 to 85°C	Storage: -40 to 85°C
	<b>Humidity</b>	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	<b>MTBF</b>	357,197 hrs @ 25°C; 206,214 hrs @ 45°C ; 130,208 hrs @ 60°C Calculation model: Telcordia Issue 2, Method I Case 3 Environment: GB, GC – Ground Benign, Controlled	
<b>MECHANICAL</b>	<b>Dimensions</b>	Mini-ITX Form Factor	170mm (6.7") x 170mm (6.7")
	<b>Height</b>	PCB: 1.6mm	Top Side: 38.5mm, Bottom Side: 3.00mm

## Packing List

• 1 AL170 motherboard	
• I/O shield	A49-AL1700-010G (VGA/DP++) or A49-AL1700-000G (DP++/DP++)
• Serial ATA data cable (Length: 500mm)	332-553001-005G
• COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• 1 Heat sink	A71-008106-000G (for E series CPU 0 to 60°C/-40 to 85°C) A71-008101-020G (for N series CPU 0 to 60°C)

## Optional Items

• COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• USB 2.0 port cable (Length: 200mm)	A81-001032-016G
• LPC EXT-RS232 module (4 x RS232 ports)	770-EXTRS1-000G
• LPC EXT-RS485 module (4 x RS485 ports)	770-EXTRS1-100G
• Heat sink for E series CPU 0 to 60°C/-40 to 85°C	A71-008106-000G
• Heat sink for N series CPU 0 to 60°C	A71-008101-020G
• Serial ATA data cable (Length: 500mm)	332-553001-005G