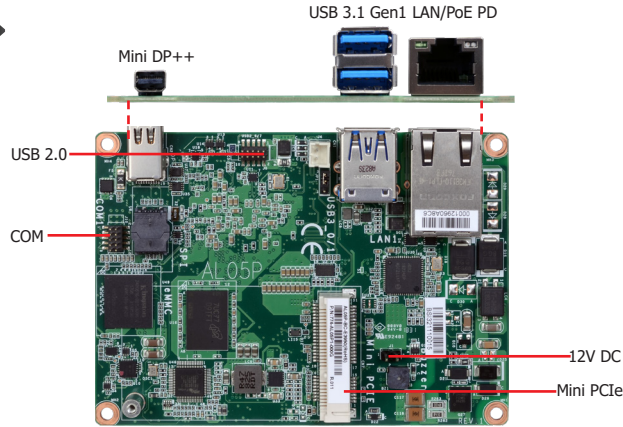
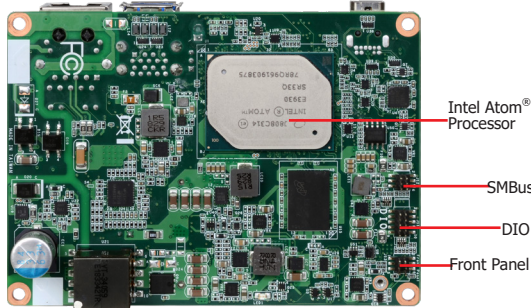


## AL05P

Atom



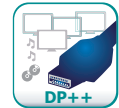
Top View



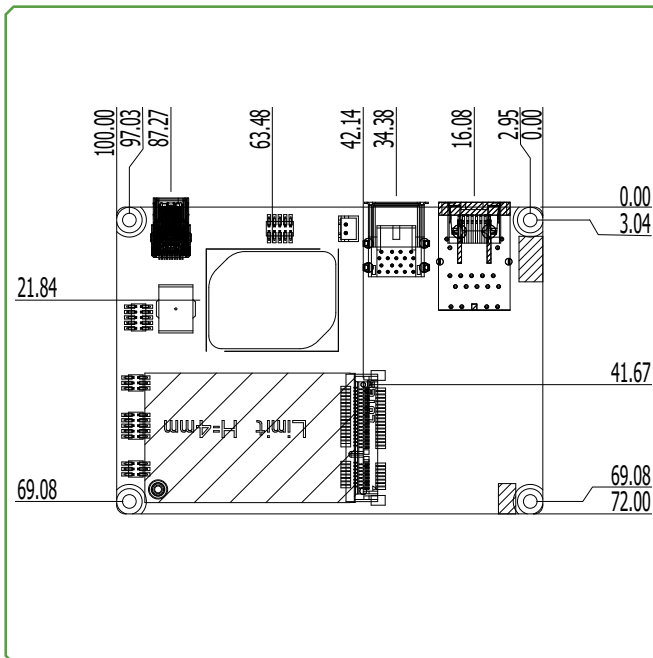
Bottom View

### Features

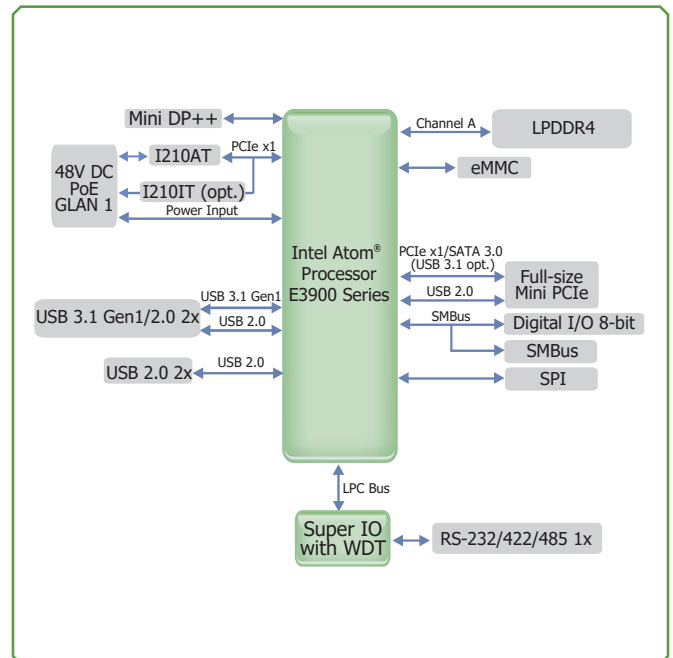
- Small form factor 2.5" Pico-ITX for space-limited applications
- PoE single board solution support PoE PD 48VDC
- PoE PD IEEE 802.3AF with isolation protection +0.5KV
- Support LPDDR4 memory down up to 4GB
- Expansion and Storage: 1 Mini PCIe, 1 SMBus, 1 eMMC
- Rich I/O: 1 LAN, 1 COM, 2 USB 3.1 Gen1, 2 USB 2.0



### Mechanical Drawing



### Block Diagram



## Specifications

<b>SYSTEM</b>	<b>Processor</b>	Intel Atom® Processor E3900 Series, BGA 1296 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® Processor N4200, 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>	SDRAM Memory Down up to 4GB	Single Channel DDR4 2400MHz
	<b>BIOS</b>	Insyde SPI 128Mbit (supports UEFI boot only)	
<b>GRAPHICS</b>	<b>Controller</b>	Intel® HD Graphics	
	<b>Feature</b>	OpenGL 4.2, Direct X 11.1, OpenCL 1.2, OGL ES 3.0 HW Decode: H.264, MPEG2, VC1, VP8, H.265, MPEG4 HW Encode: H.264, MPEG2, MPEG4	
	<b>Display</b>	1 x Mini DP++ Mini DP++: resolution up to 4096x2160 @ 60Hz	
<b>EXPANSION</b>	<b>Interface</b>	1 x Full-size Mini PCIe (PCIe/USB 2.0, optional USB 3.1 Gen1/USB 2.0)	
<b>Storage</b>	<b>Storage</b>	1 x 16GB/32GB/64GB eMMC	
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I210IT PCIe (10/100/1000Mbps) (available upon request)	
<b>REAR I/O</b>	<b>Ethernet</b>	1 x GbE (RJ-45)	
	<b>USB</b>	2 x USB 3.1 Gen1	
	<b>Display</b>	1 x Mini DP++	
<b>INTERNAL I/O</b>	<b>Serial</b>	1 x RS-232/422/485 (1.27mm pitch)	
	<b>USB</b>	2 x USB 2.0 (1.27mm pitch)	
	<b>DIO</b>	1 x 8-bit DIO	
	<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>	fTPM 2.0	
<b>POWER</b>	<b>Type</b>	48VDC PoE	
	<b>Connector</b>	PoE LAN	
	<b>RTC Battery</b>	CR2032 Coin Cell	
	<b>Consumption</b>	Typical: E3950:12V @ 0.33A (3.96Watt) Max.: E3950:12V @ 1.76A (21.12Watt)	
	<b>OS SUPPORT (UEFI Only)</b>	<b>Microsoft/Linux</b>	Windows 10 IoT Enterprise (64-bit)
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: 0 to 60°C, -20 to 70°C Storage: -40 to 85°C	
	<b>Humidity</b>	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	<b>MTBF</b>	TBD	
	<b>MECHANICAL</b>	<b>Dimensions</b>	2.5" Pico-ITX Form Factor
<b>Height</b>		PCB: 1.6mm	Top Side: 15mm, Bottom Side: 8mm

## Ordering Information

Model Name	P/N	Processor	Memory	eMMC	Display	GbE	RS-232/422/485	USB 3.1 Gen1	USB 2.0	Power	Thermal	Temp.
AL05P-BC-23E30	770-AL05P1-000G	X5-E3930	2GB	32GB	1	1	1	2	2	PoE PD 48V	Fanless	0 to 60°C
AL05P-BC-23E40	770-AL05P1-100G	X5-E3940	2GB	32GB	1	1	1	2	2	PoE PD 48V	Fanless	0 to 60°C
AL05P-BC-23N50	770-AL05P1-200G	N3350	2GB	32GB	1	1	1	2	2	PoE PD 48V	Fanless	0 to 60°C
AL05P-EC-23E30	770-AL05P1-400G	X5-E3930	2GB	32GB	1	1	1	2	2	PoE PD 48V	Fanless	-20 to 70°C
AL05P-EC-23E40	770-AL05P1-500G	X5-E3940	2GB	32GB	1	1	1	2	2	PoE PD 48V	Fanless	-20 to 70°C

Note: N4200 is supported upon request with MOQ requirement.

## Packing List

• 1 AL05P board	
• 1 Heat spreader (Height: 15mm)	E Series CPU: A71-808315-000G N Series CPU: A71-808315-010G

## Optional Items

• USB port cable (Length: 200mm)	A81-001061-016G
• 1 COM port cable (Length: 300mm)	A81-015038-016G
• Heat sink for E series CPU (0 to 60°C / Wide temp., Height: 27mm)	A71-008116-000G
• Heat sink for N series CPU (0 to 60°C, Height: 28.1mm)	A71-008116-010G