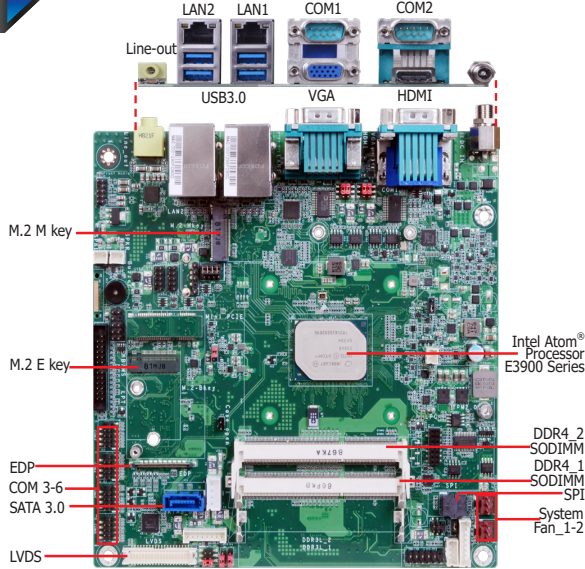




**Intel Atom® Processor E3900 Series
Mini-ITX**



AL102



Features

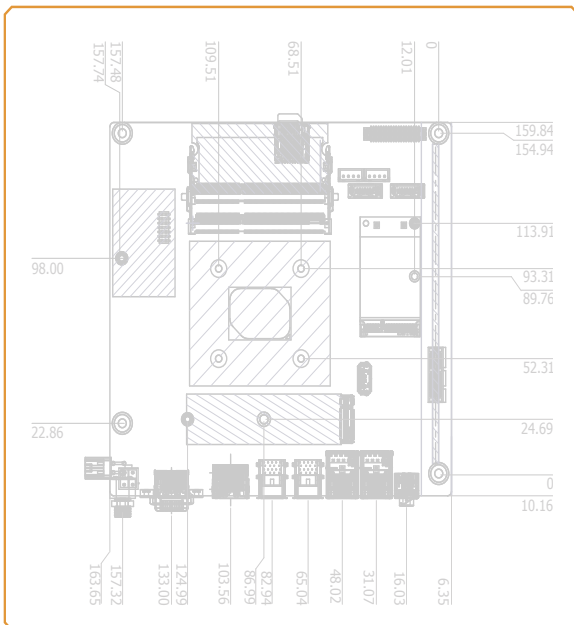
- 2 DDR3L 1867MHz SODIMM up to 8GB
- Three independent displays: VGA/HDMI/LVDS(opt.) + VGA/HDMI/eDP (opt.)
- HDMI: resolution up to 3840x2160@30Hz
- Multiple expansion: 1 M.2 M Key, 1 x M.2 E Key, 1 Full-Sized Mini PCIe (opt.)
- Rich I/O: 2 Giga LAN, up to 6 COM, 4 USB 3.0, 5 USB 2.0



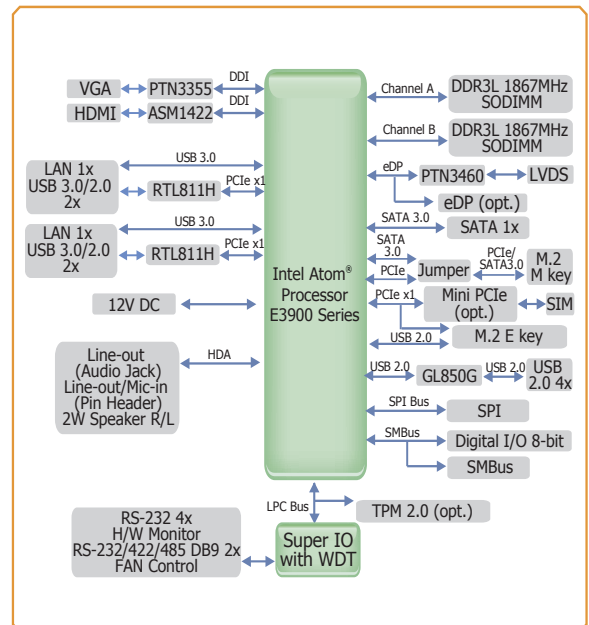
Ordering Information

Model Name	P/N	Processor	Memory	VGA/DP++	HDMI/DP++	LVDS/eDP	RS-232/422/485	RS-232	USB 3.0	USB 2.0	Power	Thermal Temp.
AL102	774-AL1021-001G	x7-E3950	2 SODIMM	VGA	HDMI	LVDS	2	4	4	6	12 VDC	Cooler 0 to 50°C

Mechanical Drawing



Block Diagram





Specifications

SYSTEM	Processor	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® 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	
	Memory	Two 204-pin SODIMM up to 8GB	Dual Channel DDR3L 1867MHz
	BIOS	Insyde SPI 128Mbit	
	GRAPHICS	Controller	Intel® HD Graphics GT Series
Feature		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	
Display		1 x VGA 1 x HDMI 1 x LVDS/eDP (opt.)	VGA: resolution up to 2560x1600 @ 60Hz HDMI: resolution up to 3840x2160@30Hz LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz
Triple Displays		VGA/HDMI/LVDS (opt.) VGA/HDMI/eDP (opt.)	
EXPANSION	Interface	1 x M.2 M key (support 2242/2280) (PCIe/SATA3.0) 1 x M.2 E key (support 2230) (PCIe/USB2.0) 1 x Full-size Mini PCIe (PCIe2.0/USB2.0) (opt.)	
AUDIO	Audio Codec	Realtek ALC269Q	
ETHERNET	Controller	2 x Realtek RTL8111H-CG	
REAR I/O	Ethernet	2 x GbE (RJ-45)	
	USB	4 x USB 3.0	
	Display	1 x VGA	1 x HDMI
	Audio	1 x Line-out	
	Serial	2 x RS-232/RS422/485 (RS422/485 opt.) (DB-9)	
INTERNAL I/O	Serial	4 x RS-232 (2.0mm pitch) (opt.)	
	USB	4 x USB 2.0 (2.0mm pitch) 1 x USB 2.0 (2.54mm pitch) or 1 x Vertical USB 2.0 Type A (opt.)	
	Display	1 x LVDS LCD Panel Connector 1 x LCD/Inverter Power 1 x eDP LCD Panel Connector (opt.)	
	Audio	1 x Audio (Line-out/Mic-in)	
	SATA	1x SATA 3.0 (up to 6Gb/s)	
	DIO	1 x 8-bit DIO	
	LPC	1 x LPC (supports LPC EXT-RS232/RS485 module)	
	SMBus	1 x SMBus	
	WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	TPM 2.0 (opt.)	
POWER	Type	Single 12V +/-10% DC	
	Connector	DC-in Jack Right Angle Connector (4-pin) (opt.) Vertical Type Connector (4-pin) (opt.)	
	Consumption	TBD	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 64bits (LTSB)	
ENVIRONMENT	Temperature	Operating: 0 to 50°C	Storage: -30 to 60°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	TBD	
	MECHANICAL	Dimensions	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")
Height		PCB: 1.6mm	Top Side: 40mm, Bottom Side: 3.3mm

Packing List

- 1 AL102 motherboard

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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