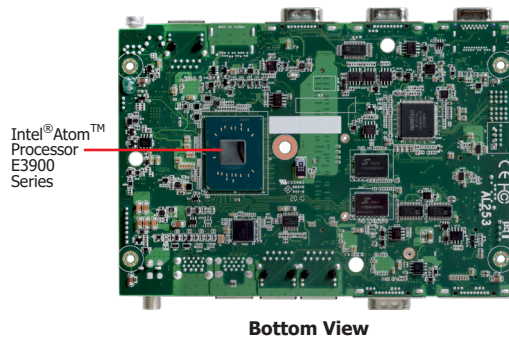
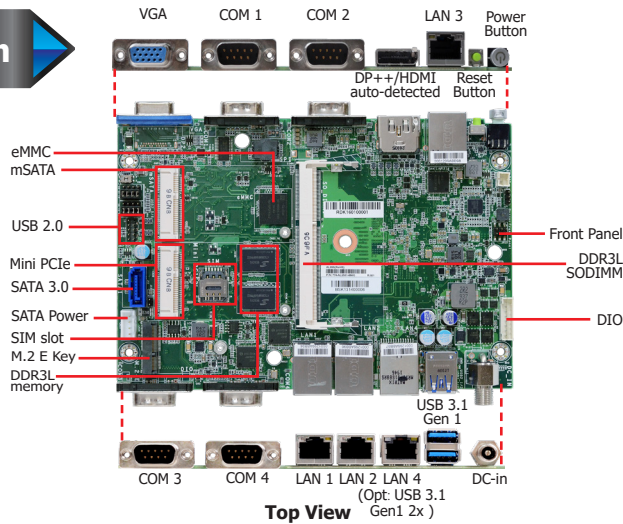


## AL253

Atom



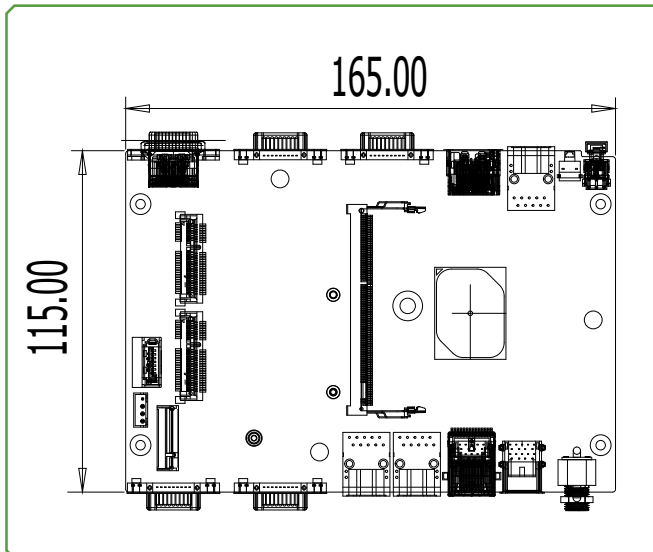
### Features

- **2GB/4GB/8GB Memory onboard + one 204-pin SO-DIMM Dual Channel DDR3L 1866MHz**  
The system supports a combined maximum memory size of 8GB total
- **Two independent displays:**  
DP++/HDMI (auto-detection) + VGA/DP(Opt.)
- **DP resolution up to 4096x2160 @ 60Hz**
- **Multiple OS support: Win 7/Win 10/Linux**
- **Rich I/O: max. 4 Intel GbE, 4 COM, 4 USB 3.1 Gen 1, 2 USB 2.0**

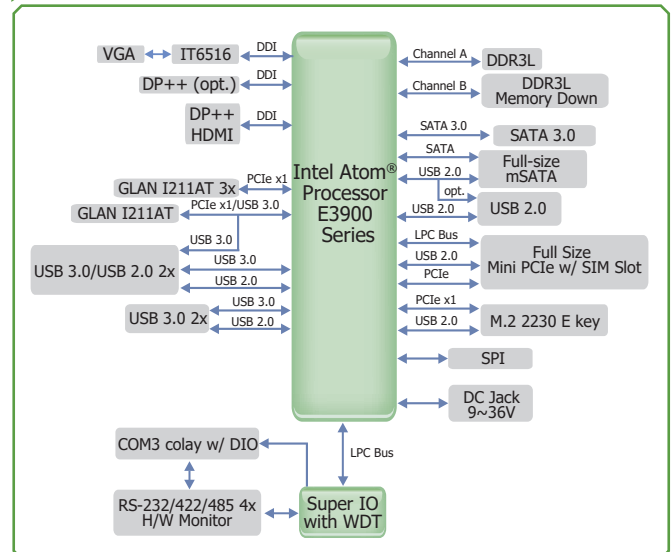
\* Populated by default



### Mechanical Drawing



### Block Diagram



## Specifications

<b>SYSTEM</b>	<b>Processor</b>	Intel Atom® Processor E3900 Series, 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), 6W Intel® Pentium® Processor N4200, Quad Core, 2M Cache, 1.1GHz (2.5GHz), 6W	
	<b>Memory</b>	2GB/4GB/8GB Memory onboard + one 204-pin SO-DIMM Dual Channel DDR3L 1866MHz The system supports a combined maximum memory size of 8GB total	
	<b>BIOS</b>	AMI SPI 128Mbit (support UEFI/legacy mode)	
<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 DP++/HDMI (auto-detection) 1 x VGA/DP(opt.)	DP: resolution up to 4096x2160 @ 60Hz HDMI: resolution up to 3840x2160 @ 30Hz VGA: resolution up to 1920x1200 @ 60Hz
	<b>Dual Displays</b>	DP++/HDMI + VGA/DP(opt.)	
<b>STORAGE EXPANSION</b>	<b>eMMC</b>	1 x 8G/16G/32G/64G (opt.)	
<b>ETHERNET REAR I/O</b>	<b>Interface</b>	1 x Full-size mSATA (SATA, USB is available by BOM option) 1 x Full-size Mini PCIe (USB2.0/LPC/Pcie, PCIe is available for config. with 4 LAN) 1 x M.2 (2230 E Key) (PCIe/USB2.0)	
	<b>Controller</b>	4 x Intel® I211AT PCIe, co-lay with I210IT (10/100/1000Mbps)	
	<b>Ethernet</b>	up to 4 x GbE (RJ-45) (1 x GbE colay 2 x USB 3.1 Gen1)	
	<b>Serial</b>	4 x RS-232/422/485 (1 x RS-232/422/485 colay 1 x 8-bit DIO by jumper setting)	
<b>INTERNAL I/O</b>	<b>USB</b>	up to 4 x USB 3.1 Gen1 (2 x USB 3.1 Gen1 colay 1 x GbE)	
	<b>Display</b>	1 x DP++/HDMI (auto-detection) 1 x VGA/DP(opt.)	
	<b>SATA</b>	2 x USB 2.0 (2.0mm pitch)	1 x SATA Power
	<b>DIO</b>	1 x SATA 3.0 (up to 6Gb/s, support SSD only)	
<b>WATCHDOG TIMER SECURITY</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds	
	<b>TPM</b>	fTPM2.0	
<b>POWER</b>	<b>Type</b>	9~36V DC input	
	<b>Connector</b>	DC Jack	
	<b>Consumption</b>	Typical: E3950:12V, 5.88Watt Max.: E3950:12V, 18.84Watt	
	<b>RTC Battery</b>	CR2032 Coin Cell, link main board with cable	
<b>OS SUPPORT</b>	<b>Microsoft/Linux</b>	Windows 10 IoT Enterprise 64-bit Windows 7 (/WES7) 32/64-bit (project support only)	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>	4305UE: 619,529 hrs @ 25°C; 407,983 hrs @ 45°C ; 281,090 hrs @ 60°C; 142,546 hrs @ 85°C Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled	
<b>MECHANICAL</b>	<b>Dimensions</b>	4" SBC Form Factor	165mm (6.49") x 115mm (4.53")
	<b>Height</b>	PCB's thickness: 1.6mm Top Side (CPU side): 6.1mm, Bottom Side: 16.4mm	
<b>STANDARD AND CERTIFICATIONS</b>	<b>Certifications</b>	CE, FCC, RoHS, UKCA	

## Ordering Information

Model Name	P/N	Processor	Memory	Display	GbE	RS232 /422/485	USB 3.1 Gen 1	USB 2.0	Power	Thermal	Temperature
AL253-BN-40E50	770-AL2531-000G	x7-E3950	1 SODIMM + 4GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	0°C to 60°C
AL253-BN-20E30	770-AL2531-100G	x5-E3930	1 SODIMM + 2GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	0°C to 60°C
AL253-TN-40E50	770-AL2531-200G	x7-E3950	1 SODIMM + 4GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	-40°C to 85°C
AL253-TN-20E30	770-AL2531-300G	x5-E3930	1 SODIMM + 2GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	-40°C to 85°C
AL253-BN-40E40	770-AL2531-400G	x5-E3940	1 SODIMM + 4GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	0°C to 60°C
AL253-TN-40E40	770-AL2531-500G	x5-E3940	1 SODIMM + 4GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	-40°C to 85°C
AL253-BN-20N00	770-AL2531-600G	N4200	1 SODIMM + 4GB memory down	DP++/HDMI + VGA	4	4	2	2	9~36V DC	Fanless	0°C to 60°C

## Packing List

• 1 AL253 board	
• 1 Heat sink for E series 0~60°C (Height: 29mm)	A71-008329-010G
for E series -40~85°C (Height: 39mm)	A71-008329-000G
for N series 0~60°C (Height: 29mm)	A71-008329-020G
• 1 Serial ATA data with power cable	A81-002008-000G

## Optional Items

• USB port cable (Length: 200mm)	A81-001032-016G
• COM port cable (Length: 250mm, 1 x COM ports)	332-753040-000G
• Power adapter (60W, 12V)	671-106012-000G
• Power adapter (120W, 19V)	671-112009-100G
• Heat spreader for E series (Height: 11mm)	A71-808330-000G
for N series (Height: 11mm)	A71-808330-010G