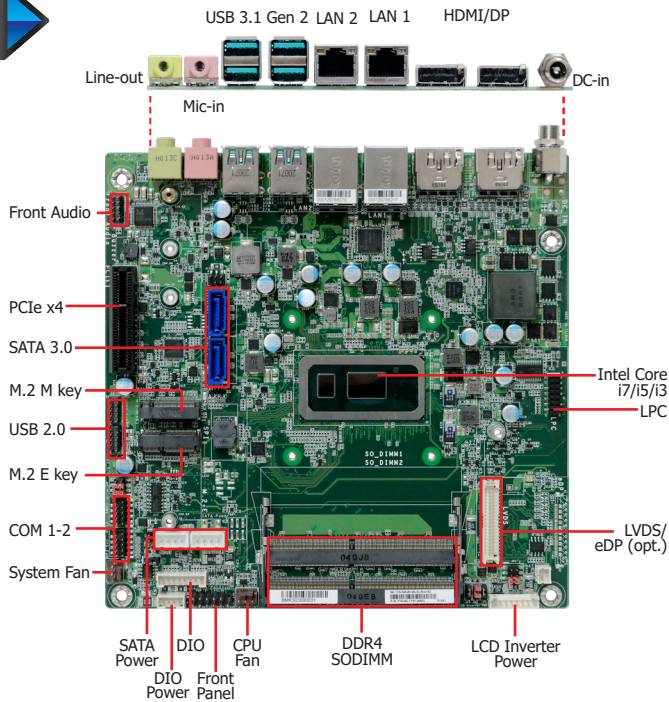


# WL171/WL173

ULT



## Features

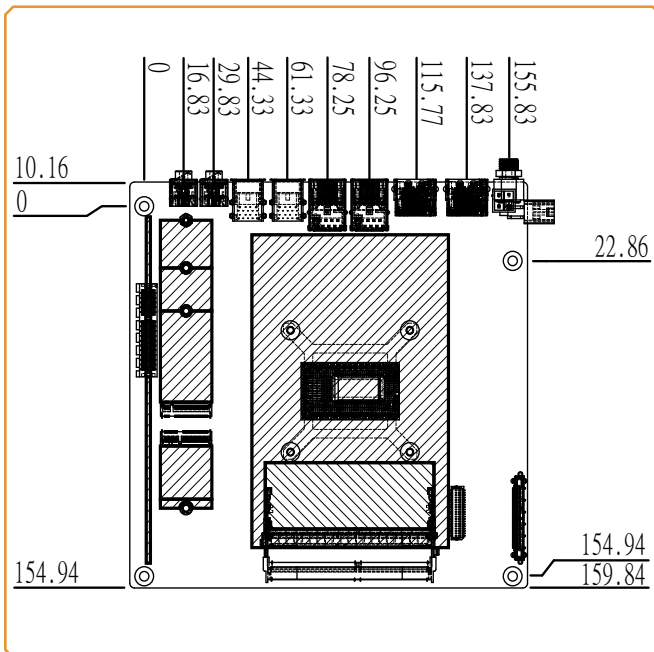
- **DDR4 2400MHz SODIMM up to 32GB**
- **Three independent displays: LVDS/eDP + DP++ + HDMI + DP++/HDMI (Auto-detecting)**
- **DP++ resolution supports up to 4096x2304 @ 60Hz**
- **Multiple expansion: 1 PCIe x4, 1 M.2 M Key (PCIe x4/SATA), 1 M.2 E key (PCIe/USB)**
- **Storage: 2 SATA 3.0**
- **Rich I/O: 2 Intel GbE, 4 USB 3.1, 4 USB 2.0**

\* Populated by default

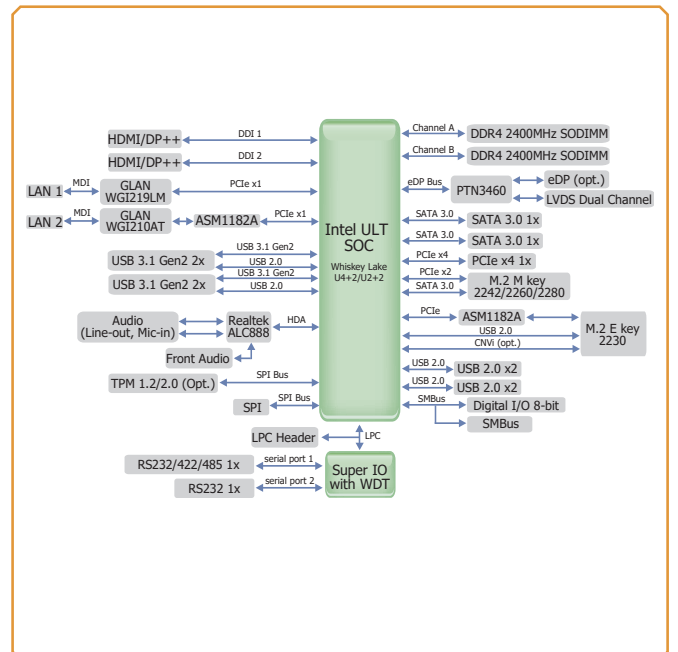


Note: If you would like to have the CPU configuration which is not listed on our ordering, please contact our sales representative.

## Mechanical Drawing



## Block Diagram



**Specifications**

<b>SYSTEM</b>	<b>Processor</b>	8th Generation Intel® Core™ Processors, BGA 1528 Intel® Core™ i7-8665UE, Quad Core, 8M Cache, 1.7GHz (4.4GHz), 15W Intel® Core™ i5-8365UE, Quad Core, 6M Cache, 1.6GHz (4.1GHz), 15W Intel® Core™ i3-8145UE, Dual Core, 4M Cache, 2.2GHz (3.9GHz), 15W Intel® Core™ Celeron® 4305UE, Dual Core, 2M Cache, 2.0GHz (2.0GHz), 15W		
	<b>Memory</b>	2 x 260-pin SODIMM up to 32GB	DDR4 2400MHz/DDR4 2133MHz (for Celeron 4305UE)	
	<b>BIOS</b>	AMI SPI 128Mbit		
<b>GRAPHICS</b>	<b>Controller</b>	Intel® UHD Graphics 620/ Intel® UHD Graphics 610 (for Celeron 4305UE)		
	<b>Feature</b>	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: H.264/AVC, VP8, VP9, VP9 10 Bit, H.265/HEVC 8 bit, H.265/HEVC 10 bit, MPEG2, MJPEG, VC-1 HW Encode: H.264/AVC, VP8*, VP9*, H.265/HEVC 8 bit, H.265/HEVC 10 bit, MPEG2, MJPEG (*VP8 and VP9 encode is not supported by Windows OS)		
	<b>Display</b>	1 x LVDS/eDP (opt.) 2 x DP++/HDMI (Auto-detecting)	LVDS: resolution up to 1920x1200 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz DP++: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 4096x2160 @ 30Hz	
	<b>Triple Displays</b>	LVDS/eDP + DP++/HDMI + DP++/HDMI (Auto-detecting)		
<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe x4 (Gen 3) 1 x M.2 2242/2260/2280 M key (PCIe x4/SATA) (Support NVMe and Intel® Optane memory) 1 x M.2 2230 E key (PCIe/USB)		
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC888S-VD2-GR		
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PCIe with iAMT11.6 and vPro (10/100/1000Mbps) (only Core i7/i5 supports iAMT)		
<b>REAR I/O</b>	<b>Ethernet</b>	2 x GbE (RJ-45)		
	<b>USB</b>	4 x USB 3.1 Gen2		
	<b>Display</b>	2 x DP++/HDMI		
	<b>Audio</b>	1 x Line-out	1 x Mic-in	
<b>INTERNAL I/O</b>	<b>Serial</b>	1 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 1 x RS-232 (2.0mm pitch)		
	<b>USB</b>	4 x USB 2.0 (2.0mm pitch)		
	<b>Display</b>	1 x LVDS Header (default) 1 x eDP Connector (opt.)		
	<b>Audio</b>	1 x Front Audio Header		
	<b>SATA</b>	2 x SATA 3.0 (up to 6Gb/s) 2 x SATA Power	RAID 0/1/5	
	<b>DIO</b>	1 x 8-bit DIO	1 x DIO Power	
	<b>LPC</b>	1 x LPC		
	<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		
<b>POWER</b>	<b>Type</b>	Single 12V +/-5% DC (WL171)	Wide Range 9~36V (WL173)	
	<b>Connector</b>	DC-in Jack	Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	
	<b>RTC Battery</b>	CR2032 Coin Cell		
<b>OS SUPPORT</b>	<b>Microsoft/Linux</b>	Windows 10 IoT Enterprise 64-bit	Debian 8 (with VESA graphic driver) Fedora CentOS 7 (with VESA graphic driver) Yocto 2.6 Linux	
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: -5 to 65°C / -20 to 70°C	Storage: -40 to 85°C	
	<b>Humidity</b>	Operating: 5 to 90% RH		
	<b>MTBF</b>	TBD		
<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: 16.5mm, Bottom Side: 3.5mm	

**Ordering Information**

Model Name	P/N	Processor	HDMI/DP++	LVDS/eDP	GbE	SATA3.0	COM	USB3.1 Gen2	USB2.0	Power Connector	TPM 2.0	Voltage	Temp.
WL171-NE-8665UE	770-WL1711-000G	I7-8665UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	12V	-20 to 70°C
WL171-NE-8365UE	770-WL1711-100G	I5-8365UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	12V	-20 to 70°C
WL171-NB-8145UE	770-WL1711-200G	I3-8145UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	12V	-5 to 65°C
WL171-NB-4305UE	770-WL1711-300G	Celeron 4305UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	12V	-5 to 65°C
WL173-NE-8665UE	770-WL1731-000G	I7-8665UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	9-36V	-20 to 70°C
WL173-NE-8365UE	770-WL1731-100G	I5-8365UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	9-36V	-20 to 70°C
WL173-NB-8145UE	770-WL1731-200G	I3-8145UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	9-36V	-5 to 65°C
WL173-NB-4305UE	770-WL1731-300G	Celeron 4305UE	2	LVDS	2	2	2	4	4	DC jack	Onboard	9-36V	-5 to 65°C

**Packing List**

• 1 WL171/WL173 motherboard	
• 1 COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• 1 Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• 1 Heat sink	

**Optional Items**

• USB 2.0 port cable (Length: 200mm)	A81-001032-016G
• COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• I/O shield	A49-WL1710-000G