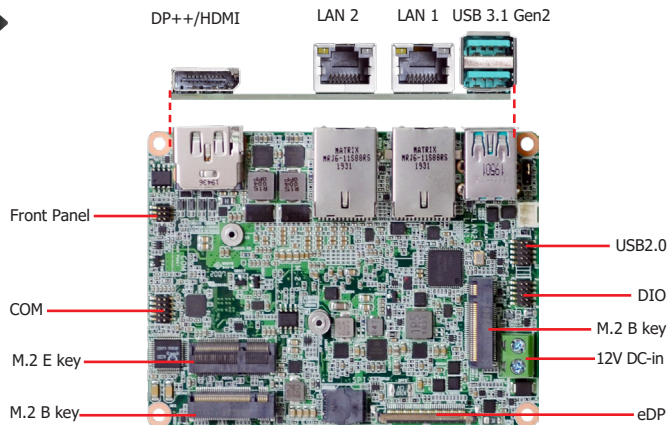
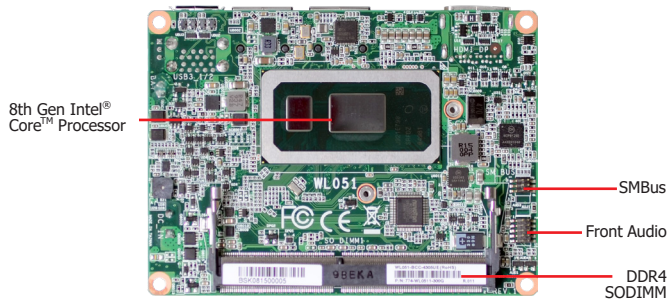


## WL051



Top View



Bottom View

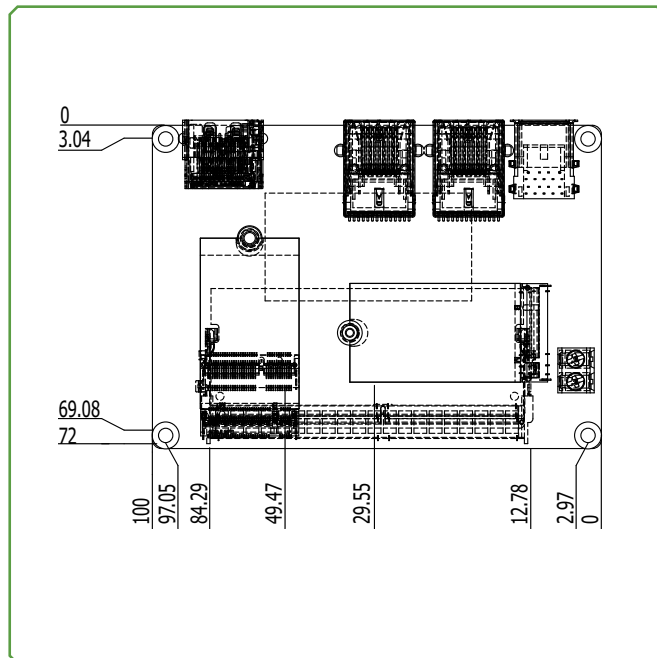
### Features

- Small form factor 2.5" Pico-ITX for space-limited applications
- 1 DDR4 SODIMM up to 32GB
- Dual independent displays: DP++/HDMI + eDP
- Expansion and Storage: 1 M.2 E key, 2 M.2 B key
- Rich I/O: 2 Intel GbE, 1 COM, 2 USB 3.1 Gen 2, 2 USB 2.0

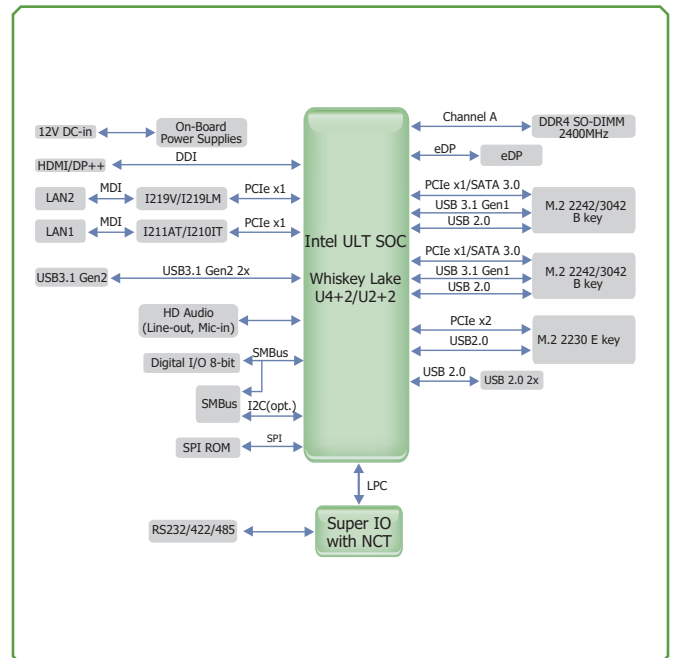
\* Populated by default



### 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>	One 260-pin SODIMM up to 32GB Single Channel DDR4 up to 2400MHz
	<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: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9
	<b>Display</b>	1 x DP++/HDMI 1 x eDP DP++: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 4096x2160 @ 30Hz eDP: resolution up to 4096x2304 @ 60Hz
	<b>Dual Displays</b>	DP++/HDMI + eDP
<b>EXPANSION</b>	<b>Interface</b>	1 x M.2 E key 2230 (PCIe x2/USB 2.0) 2 x M.2 B key 3042/2242 (PCIe x1 or SATA 3.0/USB 3.1 Gen1/USB 2.0)
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC888S-VD2-GR
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I219V/I219LM (only Core i7/i5 supports iAMT) 1 x Intel® I211AT/I210IT
<b>REAR I/O</b>	<b>Ethernet</b>	2 x GbE (RJ-45)
	<b>USB</b>	2 x USB 3.1 Gen 2
	<b>Display</b>	1 x DP++/HDMI 1 x eDP
<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>Display</b>	1 x eDP Connector
	<b>Audio</b>	1 x Audio (Line-out/Mic-in)
	<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>	fTPM2.0
<b>POWER</b>	<b>Type</b>	Single 12V +/-10% DC
	<b>Connector</b>	2-pin Terminal Block
	<b>RTC Battery</b>	CR2032 Coin Cell
	<b>Consumption</b>	Typical: 8665UE:12V @ 0.51A (6.12Watt) Max.: 8665UE:12V @ 2.26A (27.12Watt)
<b>OS SUPPORT (UEFI Only)</b>	<b>Microsoft/Linux</b>	Windows 10 IoT Enterprise (64-bit) Linux
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: -5 to 65°C, -30 to 80°C Storage: -40 to 85°C
	<b>Humidity</b>	Operating: 5 to 90% RH Storage: 5 to 90% RH
	<b>MTBF</b>	4305UE: 564,107 hrs @ 25°C; 402,731 hrs @ 45°C ; 293,920 hrs @ 60°C; 182,929 hrs @ 80°C Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled
<b>MECHANICAL</b>	<b>Dimensions</b>	2.5" Pico-ITX Form Factor 100mm (3.94") x 72mm (2.83")
	<b>Height</b>	PCB: 1.6mm Top Side: 15mm, Bottom Side: 8mm
<b>CERTIFICATIONS</b>		CE, FCC, RoHS, KC

► Ordering Information

Model Name	P/N	Processor	Memory	Display	GbE	RS-232/422/485	USB 3.1 Gen 2	USB 2.0	Power	Thermal	Temp.
WL051-BCC-8665UE	770-WL0512-000G	i7-8665UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-5 to 65°C
WL051-BCC-8365UE	770-WL0512-100G	i5-8365UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-5 to 65°C
WL051-BCC-8145UE	770-WL0512-200G	i3-8145UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-5 to 65°C
WL051-BCC-4305UE	770-WL0512-300G	4305UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-5 to 65°C
WL051-ECC-8665UE	770-WL0512-400G	i7-8665UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-30 to 80°C
WL051-ECC-8365UE	770-WL0512-500G	i5-8365UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-30 to 80°C
WL051-ECC-8145UE	770-WL0512-600G	i3-8145UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-30 to 80°C
WL051-ECC-4305UE	770-WL0512-700G	4305UE	1 SODIMM	DP++/HDMI + eDP	2	1	2	2	12VDC	Fanless	-30 to 80°C

► Packing List

• 1 WL051 board	
• 1 Heat spreader (Height: 11mm)	A71-808331-000G

► Optional Items

• Power adapter (60W, 12V, DC Jack)	671-106012-000G
• 2 pole terminal to DC Jack cable	A81-004013-000G
• USB 2.0 cable (Length: 200mm, 2 ports)	A81-001084-016G
• COM cable (Length: 300mm, 1 port)	A81-015050-016G
• Heat sink for -5 to 65°C (Height: 37.8mm)	A71-008153-010G
• Heat sink for -30 to 80°C (Height: 37.8mm)	A71-008154-000G
• DIO cable (Length: 160mm)	A81-009203-018G
• SMBus cable (Length: 240mm)	A81-009353-016G
• Audio cable (Length: 160mm)	A81-022037-016G
• Front Panel cable (Length: 200mm)	A81-020047-016G