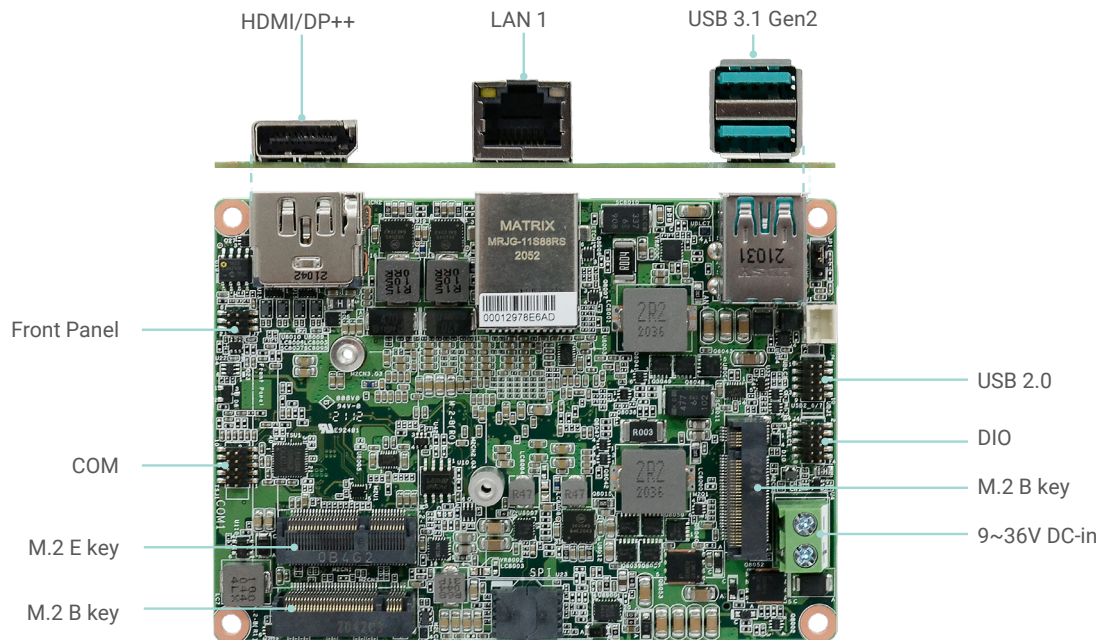


# WL053

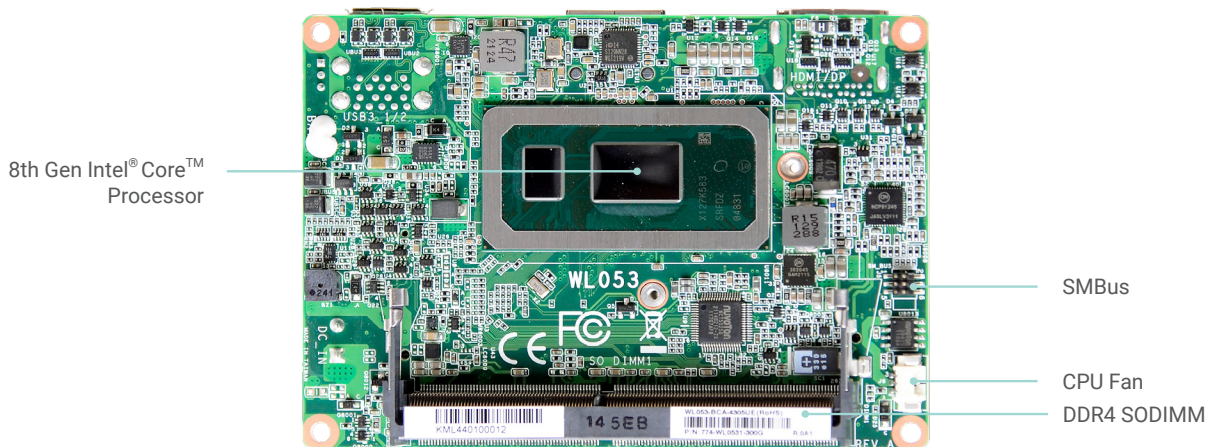
ULT



8th Gen Intel® Core™  
2.5" SBC



Top View



Bottom View

## KEY FEATURES



### DDR4

1 DDR4 2400MHz SODIMM



### 4K High Resolution

Supports 4K/2K resolution



### Dual Display

DP++ + HDMI



### Multiple Expansion

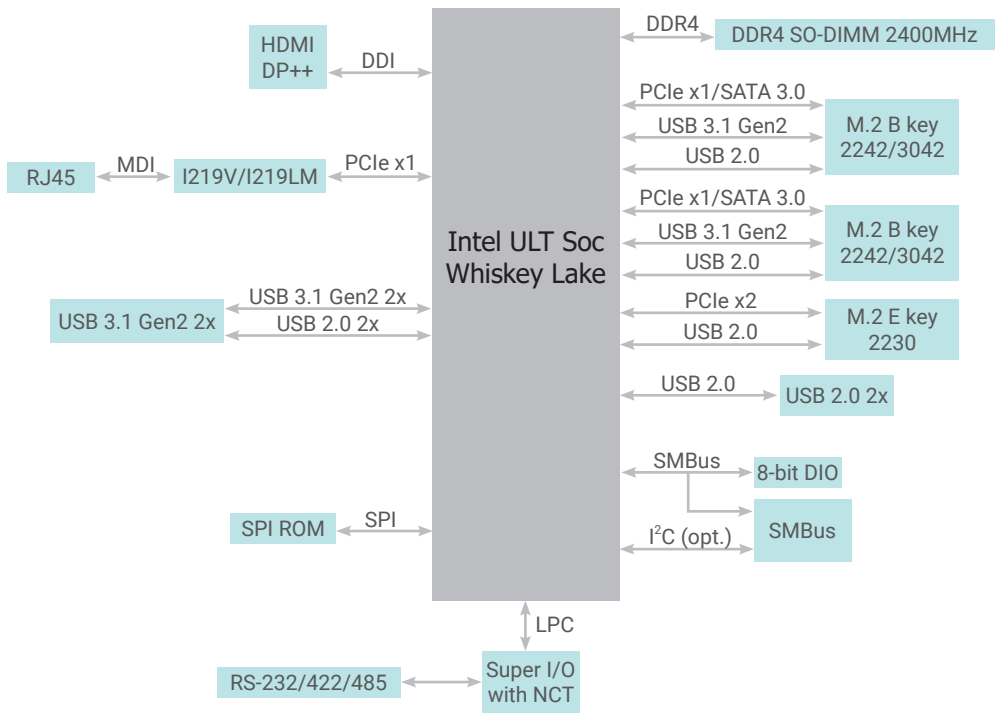
2 M.2 B Key,  
1 M.2 E Key



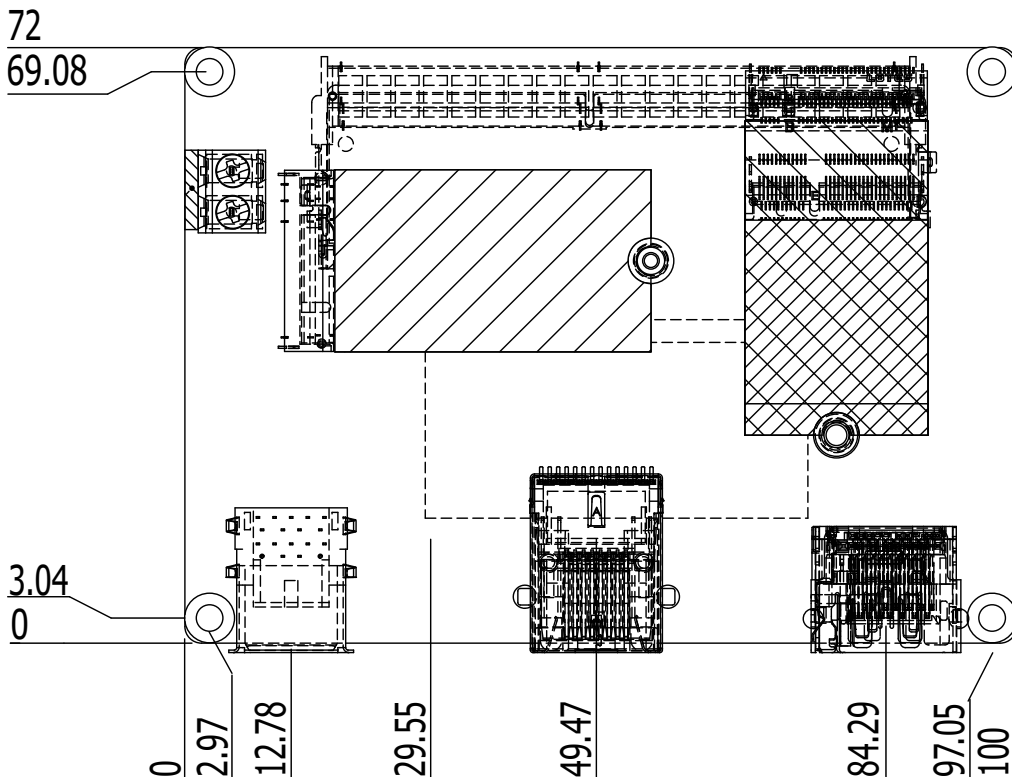
### Rich I/O

1 Intel GbE, 1 COM,  
2 USB 3.1 Gen2,  
2 USB 2.0

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

System	Processor	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	
	Memory	One 260-pin SODIMM up to 32GB Single Channel DDR4 up to 2400MHz	
	BIOS	AMI SPI 128Mbit	
Graphics	Controller	Intel® UHD Graphics 620/ Intel® UHD Graphics 610 (for Celeron 4305UE)	
	Feature	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	
	Display	1 x DP++/HDMI	DP++: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 4096x2160 @30Hz
	Dual Displays	DP++ + HDMI	
Expansion	Interface	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)	
Ethernet	Controller	1 x Intel® I219V/I219LM (only Core i7/i5 supports iAMT)	
Rear I/O	Ethernet	1 x GbE (RJ-45)	
	USB	2 x USB 3.1 Gen 2	
	Display	1 x COMBO port (DP++/HDMI)	
Internal I/O	Serial	1 x RS-232/422/485 (1.27mm pitch)	
	USB	2 x USB 2.0 (1.27mm pitch)	
	DIO	1 x 8-bit DIO	
	SMBus	1 x SMBus, or I2C (Opt.)	
Watchdog Timer	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
Security	TPM	fTPM2.0	
Power	Type	Wide Range 9~36V	
	Connector	2-pin Terminal Block	
	Consumption	Typical: 8665UE:1 2V @ 0.43A (5.1 6Watt) Max.: 8665UE:1 2V @ 2.91A (34.92Watt)	
	RTC Battery	CR2032 Coin Cell	
OS Support	OS Support (UEFI Only)	Windows 10 IoT Enterprise (64-bit)	
		Linux	
Environment	Temperature	Operating: 0 to 60°C, -30 to 80°C	Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	8665UE : 569,616 hrs @ 25°C; 410,391 hrs @ 45°C ; 301,279 hrs @ 60°C; 187,893 hrs @ 80°C Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled	
Mechanism	Dimensions	2.5" Pico-ITX Form Factor 100mm (3.94") x 72mm (2.83")	
	Height	PCB: 1.6mm	
		Top Side: 15mm Bottom Side: 8mm	
Standards and Certifications	Certifications	CE, FCC, RoHS, UKCA	

## ORDERING INFORMATION

Model Name	P/N	Processor	Memory	Display	GbE	RS-232/422/485	USB 3.1 Gen2	USB 2.0	Power	Thermal	Temp.
WL053-BCA-8665UE	770-WL0531-000G	i7-8665UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-5 to 65°C
WL053-BCA-8365UE	770-WL0531-100G	i5-8365UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-5 to 65°C
WL053-BCA-8145UE	770-WL0531-200G	i3-8145UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-5 to 65°C
WL053-BCA-4305UE	770-WL0531-300G	4305UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-5 to 65°C
WL053-ECA-8665UE	770-WL0531-400G	i7-8665UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-30 to 80°C
WL053-ECA-8365UE	770-WL0531-500G	i5-8365UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-30 to 80°C
WL053-ECA-8145UE	770-WL0531-600G	i3-8145UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-30 to 80°C
WL053-ECA-4305UE	770-WL0531-700G	4305UE	1 SODIMM	DP++/HDMI	1	1	2	2	9~36VDC	Fanless	-30 to 80°C

## PACKING LIST

1 WL053 board	
1 Heat spreader (Height: 11mm)	A71-808331-000G

## OPTIONAL ITEMS

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
Front Panel cable (Length: 200mm)	A81-020047-016G
Cooler (Height: 23mm)	A71-108144-000G