

# TGU171/TGU173

11 Gen Intel® Core™  
mini-ITX



Intel Core i7/i5/i3



SIM Card (opt.)



Top View

## KEY FEATURES



### DDR4

2 DDR4 SODIMM up to 64GB



### 4K High Resolution

Supports 4K/ 2K resolution



### 4 Independent Displays

1 LVDS, 1 eDP,  
1 DP++/HDMI,  
1 USB 4.0



### Multiple Expansion

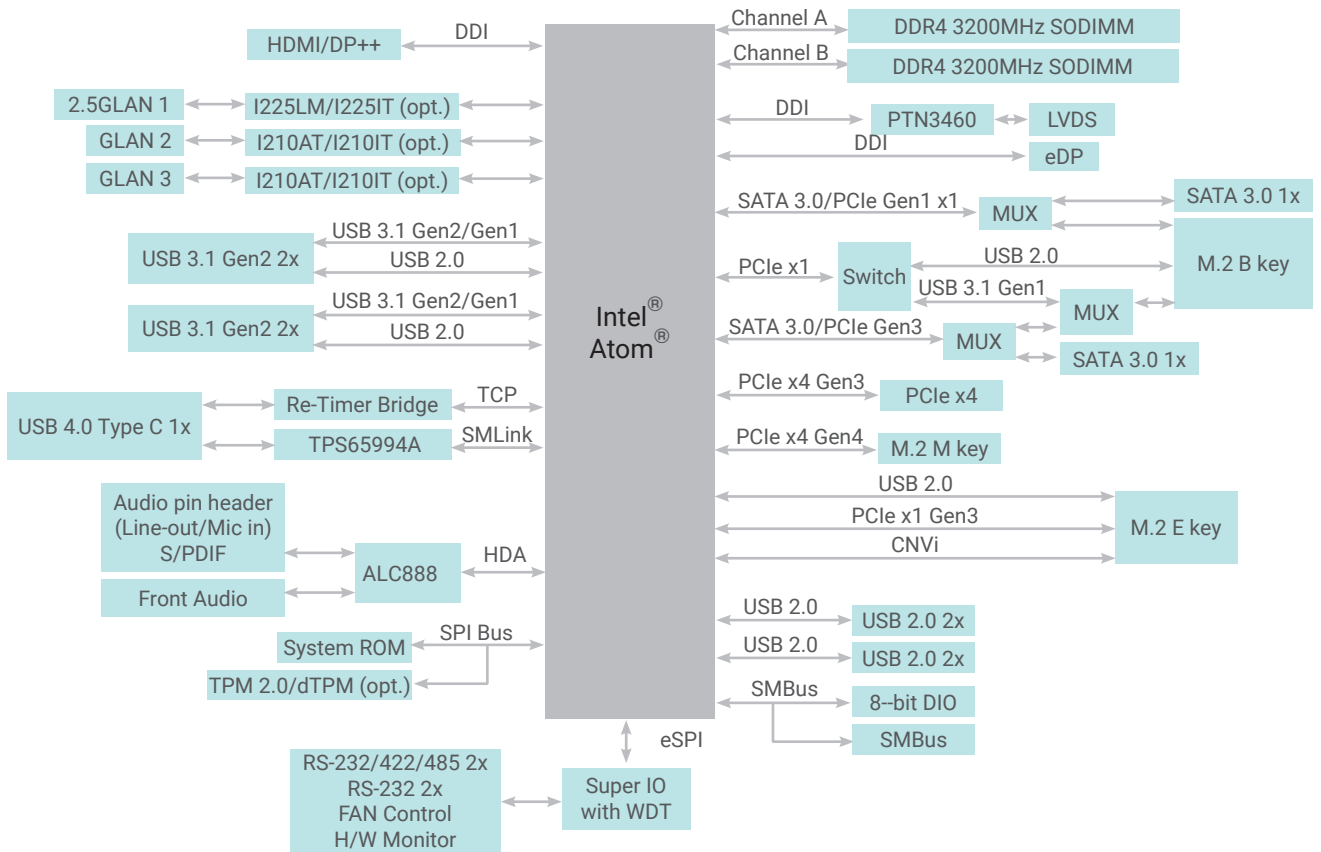
1 M.2 M Key, 1 M.2 B Key,  
1 M.2 E Key,  
1 PCIe x4



### Rich I/O

2 Intel GbE, 1 Intel 2.5GbE, 1 USB 4.0, 4 USB 3.1 Gen2, 4 USB 2.0, 4 COM

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

SYSTEM	Processor	11th Generation Intel® Core™ Processors Intel® Core™ i7 Processors Intel® Core™ i5 Processors Intel® Core™ i3 Processors Intel® Celeron® Processors	
	Memory	2 x 260-pin SO-DIMM up to 64GB (32GB per slot) Dual channel DDR4 up to 3200MHz (Support in-band ECC)	
	BIOS	Insyde SPI 256Mbit	
GRAPHICS	Controller	TBD	
	Feature	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: WMV9, AVC/H264, JPEG/MJPEG, HEVC/H265, VP9, AV1 HW Encode: AVC/H264, JPEG, HEVC/H265, VP9	
	Display	1 x LVDS 1 x eDP 1 x DP++/HDMI (Auto-detecting) 1 x USB 4.0 (Thunderbolt 3) (Support USB3.1 Gen2, 15W power delivery and DP1.4)	LVDS: resolution up to 1920x1200 @60Hz eDP: resolution up to 4096x2304 @60Hz USB 4: resolution up to 4096x2304 @60Hz DP: resolution up to 4096x2304 @60Hz HDMI: resolution up to 4096x2160 @60Hz
	Quad Displays	LVDS + eDP + DP/HDMI + USB 4.0	
EXPANSION	Interface	1 x PCIe x4 (PCIe Gen 3 x4) 1 x M.2 2242/2280 M Key (PCIe Gen4 x4) (Support NVMe and Intel® Optane memory) (Support DFI proprietary expansion module) 1 x M.2 2242/3042/3052 B Key (PCIe Gen1 x1/SATA/USB 3.1 Gen1) (Support 4G/5G and storage module) (Opt.: PCIe Gen1 x2) 1 x M.2 2230 E Key (PCIe Gen3 x1/USB2.0) (Support BT/WiFi and Intel® CNVi module and Intel® vPro) 1 x Nano-SIM Socket (Connect to M.2 Key B for 4G/5G module)	
AUDIO	Audio Codec	Realtek ALC888	
ETHERNET	Controller	2 x Intel® I211AT/I210IT PCIe (10/100/1000Mbps) 1 x Intel® I225LM/I225IT PCIe with AMT and vPro (10/100/1000Mbps/2.5Gbps)	
REAR I/O	Ethernet	3 x GbE (RJ-45)	
	USB	4 x USB 3.1 Gen2 (Type-A) 1 x USB 4.0 Type-C (Thunderbolt 3) (Support USB 3.1 Gen2, 15W power delivery and DP 1.4)	
	Display	1 x DP++/HDMI (Auto-detecting)	
INTERNAL I/O	Serial	2 x RS-232/422/485 (2.0mm pitch) 2 x RS-232 (2.0mm pitch) (RS-232 w/ power)	
	USB	4 x USB 2.0 (2.0mm pitch)	
	Display	1 x LVDS 1 x eDP	
	Audio	1 x Front Audio (2.0mm pitch)	
	SATA	2 x SATA 3.0 (up to 6Gb/s) (RAID 0/1) 2 x SATA Power	
	DIO	1 x 8-bit DIO 1 x DIO Power	
	Cooling	1 x CPU fan 1 x System fan	
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
SECURITY	TPM	dTPM 2.0/fTPM(opt.)	
POWER	Type	TGU171: Single 12V +/-5% DC (TGU171) TGU173: Wide Range 9~36V (TGU173)	
	Connector	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straightl Type Connector (4-pin) (available upon request)	
	Consumption	TBD	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit	
	Linux	Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C / -40 to 85°C	Storage: -40 to 85°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: 16.5mm, Bottom Side: 3.5mm	
CERTIFICATIONS	CE, FCC, RoHS		

## PACKING LIST

1 TGU171/TGU173 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
2 Screws	TBD
1 Heat sink	TBD
1 Driver DVD	

\*The items are subject to change in the developing stage.

## OPTIONAL ITEMS

COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
USB port cable (Length: 200mm)	A81-001032-016G
Serial ATA data cable (Length: 500mm)	332-553001-005G
Serial ATA power cable (Length: 300mm)	A81-002044-016G