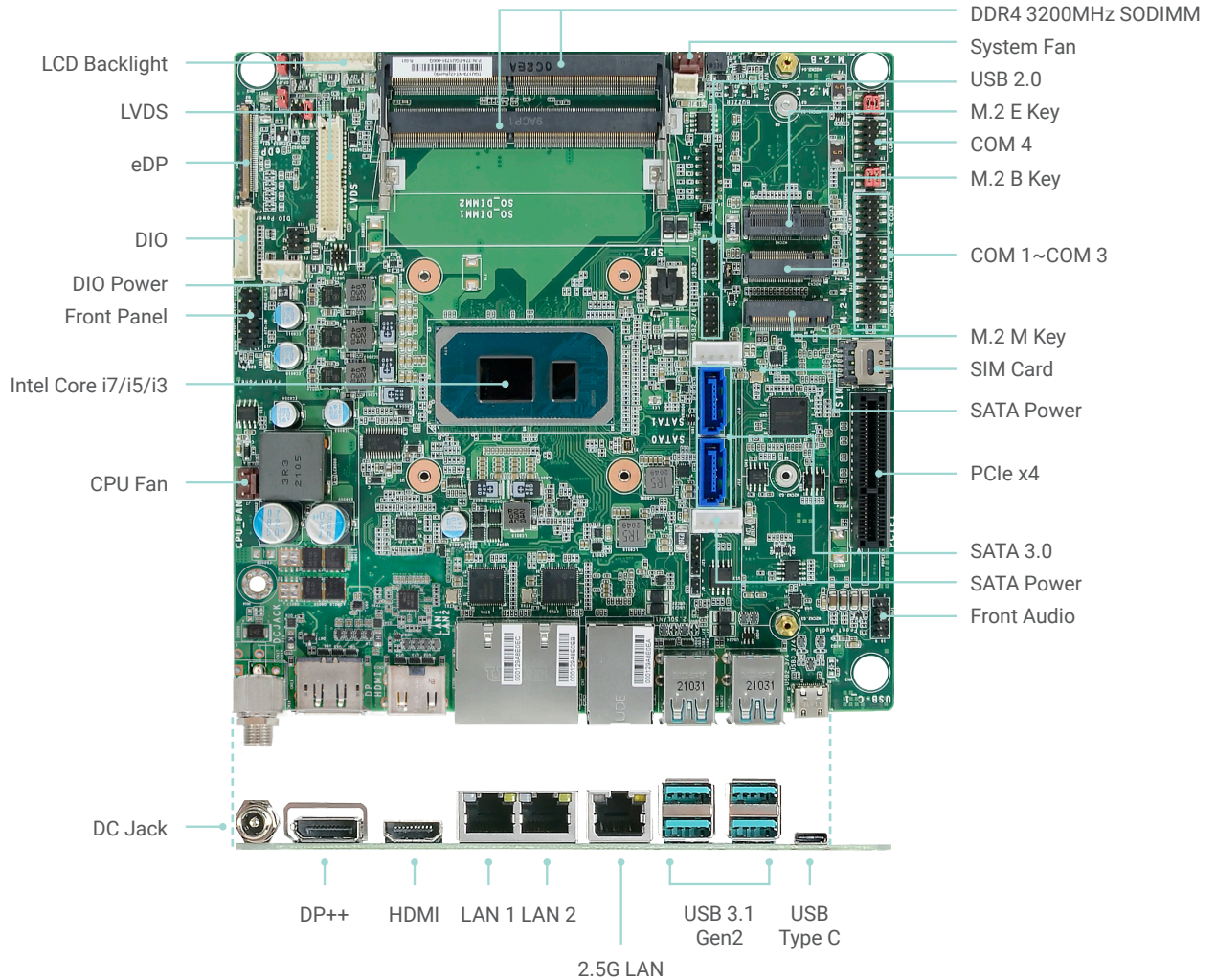


TGU171/TGU173



11 Gen Intel® Core™
mini-ITX



Top View

KEY FEATURES



DDR4

2 DDR4 SODIMM up to 64GB



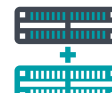
4K High Resolution

Supports 4K/ 2K resolution



4 Independent Displays

1 LVDS, 1 eDP, 1 DP++, 1 HDMI, 1 USB Type C



Multiple Expansion

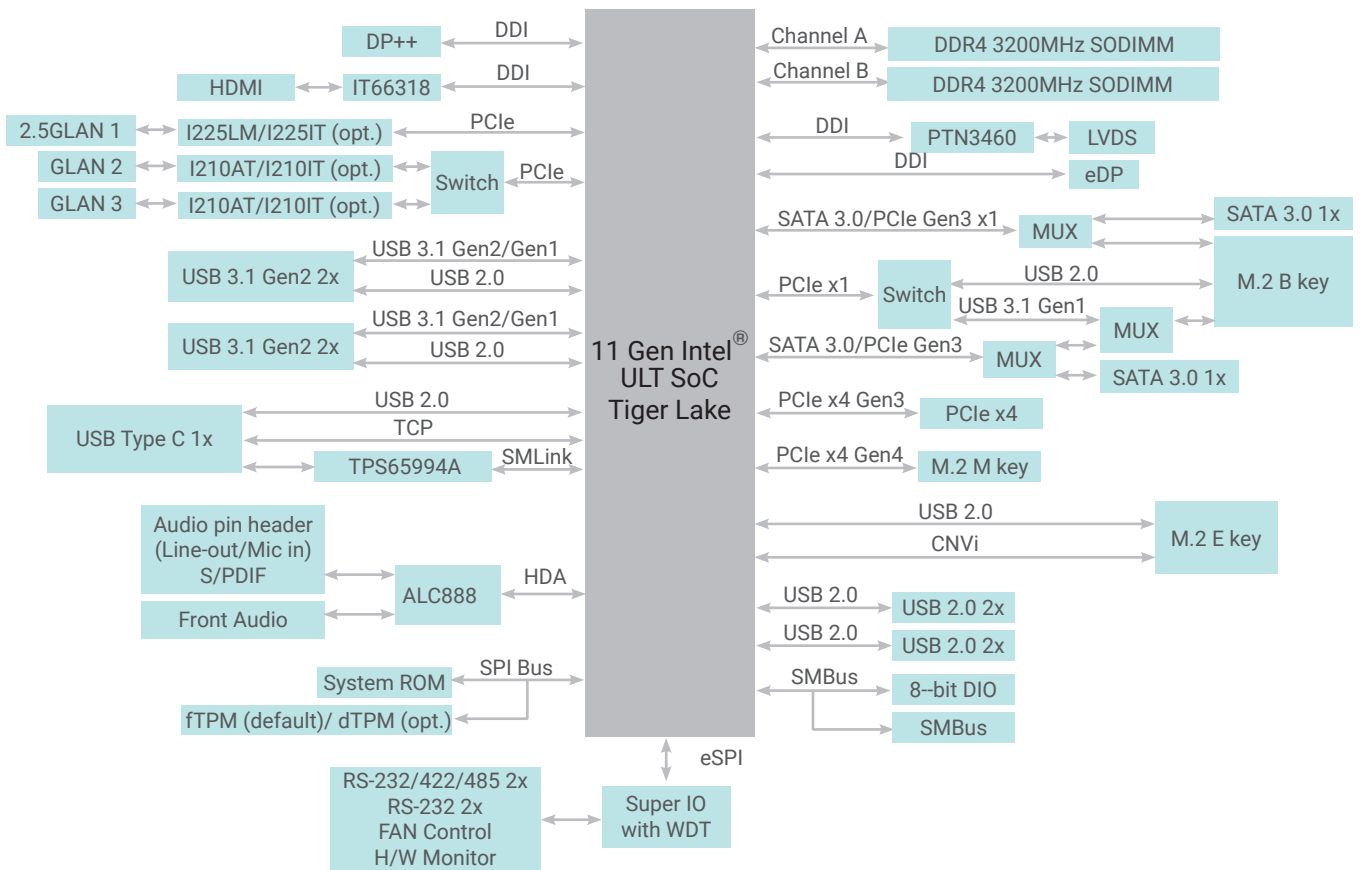
1 M.2 M Key, 1 M.2 B Key, 1 M.2 E Key, 1 PCIe x4



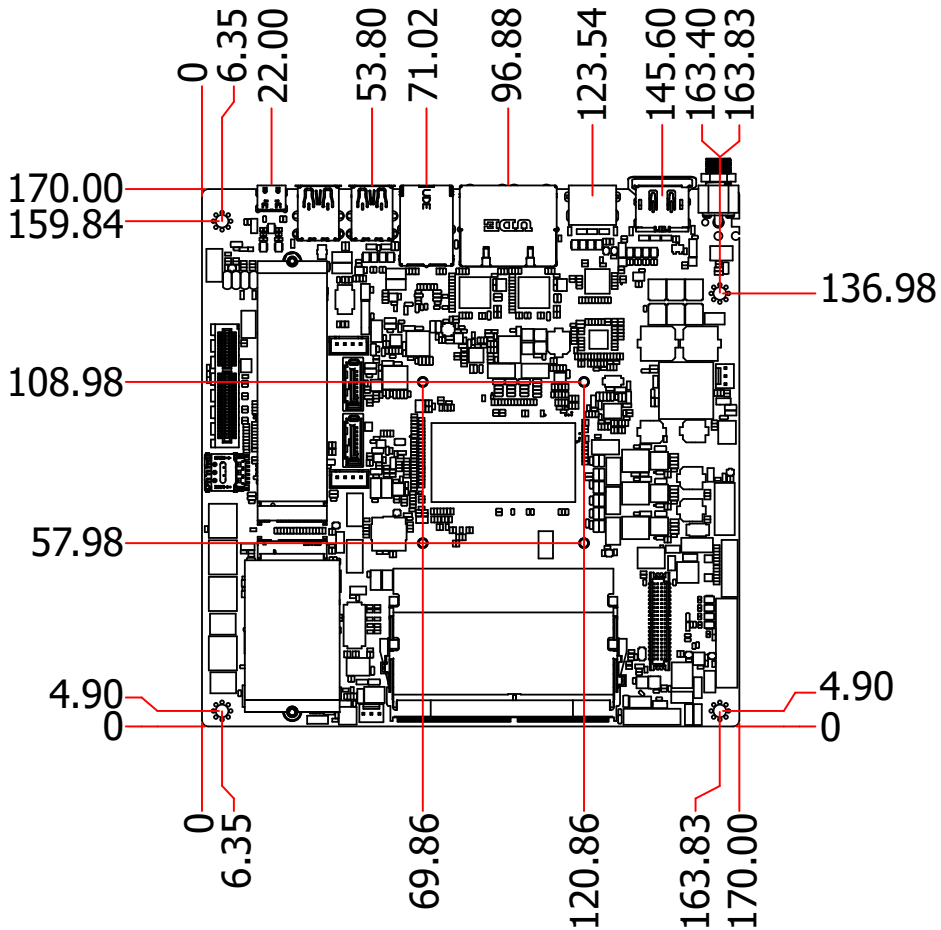
Rich I/O

2 Intel GbE, 1 Intel 2.5GbE, 1 USB Type C, 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™ i7-1185GRE, Quad Core, 12M Cache, 1.8GHz (4.4GHz), 15W Intel® Core™ i5-1145GRE, Quad Core, 8M Cache, 1.5GHz (4.1GHz), 15W Intel® Core™ i3-1115GRE, Dual Core, 6M Cache, 2.2GHz (3.9GHz), 15W Intel® Celeron® 6305E, Dual Core, 4M Cache, 1.8GHz (1.8GHz), 15W	
	Memory	2 x 260-pin SO-DIMM up to 64GB (32GB per slot) Dual channel DDR4 up to 3200MHz (Support in-band ECC)	
	BIOS	AMI SPI 256Mbit	
GRAPHICS	Controller	Intel® Iris® Xe Graphics for i7/i5 Processors Intel® UHD Graphics for i3/Celeron Processors	
	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++ 1 x HDMI 1 x USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W)	LVDS: resolution up to 1920x1200 @60Hz eDP: resolution up to 3840x2160 @60Hz DP: resolution up to 3840x2160 @60Hz HDMI: resolution up to 3840x2160 @60Hz USB Type C: resolution up to 3840x2160 @60Hz
	Quad Displays	LVDS + eDP + DP++ + HDMI + USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W)	
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 Gen3 x1/SATA/USB 3.1 Gen1) (Support 4G/5G and storage module) (Opt.: PCIe Gen3 x2) 1 x M.2 2230 E Key (USB2.0) (Support Intel® CNVi module only and Intel® vPro) 1 x Nano-SIM Socket (Connect to M.2 Key B for 4G/5G module) **Note: Intel CNVi module Support List: AX201 & AC-9560	
AUDIO	Audio Codec	Realtek ALC888	
ETHERNET	Controller	2 x Intel® I211AT/I210IT PCIe (10/100/1000Mbps) 1 x Intel® I225LM/I225IT PCIe (10/100/1000Mbps/2.5Gbps)	
REAR I/O	Ethernet	2 x GbE 1 x 2.5GbE	
	USB	4 x USB 3.1 Gen2 (Type-A) 1 x USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W)	
	Display	1 x DP++ 1 x HDMI	
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	fTPM (default) / dTPM (option)	
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	Idle: TGU173-IE-1185GRE 15W: 12V@ 1.12A (13.44W) Max: TGU173-IE-1185GRE 15W: 12V@ 6.26A (75.12W)	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit	
	Linux	Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C / -20 to 70°C	Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	TGU171-IE-1185GRE 414,291 hrs @ 25°C; 254,601 hrs @ 45°C; 166,963 hrs @ 60°; 124,264 hrs @ 70°C; TGU173-IE-1185GRE 397,863 hrs @ 25°C; 244,099 hrs @ 45°C; 160,483 hrs @ 60°; 119,765 hrs @ 70°C; Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled	
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	Certifications	CE, FCC, RoHS, UKCA	

ORDERING INFORMATION

Model Name	P/N	Description
TGU171-IE-1185GRE	770-TGU1711-000G	Intel® Core™ i7-1185GRE, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 12V DC, -20 to 70°C
TGU171-IE-1145GRE	770-TGU1711-100G	Intel® Core™ i5-1145GRE, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 12V DC, -20 to 70°C
TGU171-IB-1115G4E	770-TGU1711-200G	Intel® Core™ i3-1115G4E, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 12V DC, -5 to 65°C
TGU171-IB-6305E	770-TGU1711-300G	Intel® Celeron 6305E, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 12V DC, -5 to 65°C
TGU173-IE-1185GRE	770-TGU1731-000G	Intel® Core™ i7-1185GRE, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 9~36V DC, -20 to 70°C
TGU173-IE-1145GRE	770-TGU1731-100G	Intel® Core™ i5-1145GRE, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 9~36V DC, -20 to 70°C
TGU173-IB-1115G4E	770-TGU1731-200G	Intel® Core™ i3-1115G4E, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 9~36V DC, -5 to 65°C
TGU173-IB-6305E	770-TGU1731-300G	Intel® Celeron 6305E, 2 SODIMM, 1 DP++, 1 HDMI, 3 LAN, 2 RS-232, 2 RS-232/422/485, 1 USB-C, 4 USB 3.1 Gen2, 4 USB 2.0, 9~36V DC, -5 to 65°C

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
1 Heat sink (Normal Temp)	A71-008163-020G
(Wide Temp)	A71-008162-030G

*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