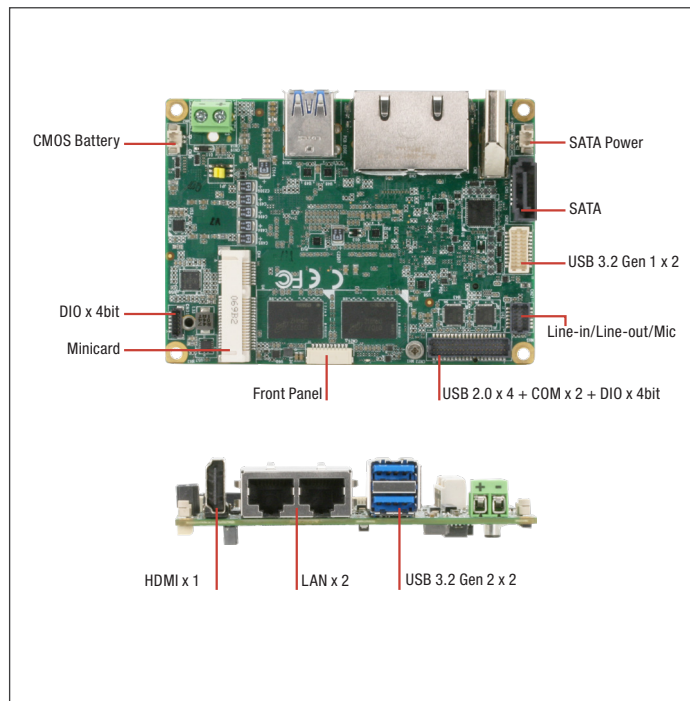


# PICO-TGU4

Pico-ITX Board with 11th Generation Intel® Core™ i7/i5/i3/Celeron® U-Series Processor SoC



## Features

- 11th Gen Intel® Core™ i7/i5/i3/Celeron Processor SoC
- LPDDR4x Onboard memory, Max. 32 GB
- 2.5GbE Intel i225 + 1GbE Intel i219
- HDMI2.0b x 1, 4Kx2K + eDP, up to HBR3 8K
- M.2 2280 M key(PCIE by4 GEN4/SATA) x 1
- SATA 6.0 Gb/s x 1
- Full size mPCIe/mSATA x 1
- USB 3.2 Gen 2 x 2, USB 3.2 Gen 1 x 2, USB 2.0 x 4
- RS-232/422/485 x 2
- Line-in/Line-out/MIC (Optional)
- DIO 8 bit



| Internal I/O                |                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------|
| USB                         | USB3.2 Gen1 x 2<br>USB2.0 x 4                                                   |
| Serial Port                 | COM1~2 (RS232/422/485, support 5V/12V/RI)                                       |
| Video                       | eDP x 1                                                                         |
| SATA                        | SATA 6.0 Gb/s x 1,<br>+5V SATA Power Connector x 1                              |
| Audio                       | Audio Header (Optional, audio function not available for WiTAS SKU)             |
| DIO/GPIO                    | GPIO 8-bit                                                                      |
| SMBus/I2C                   | I2C/SMBus x1 (Default: SMBus)                                                   |
| Fan                         | 4pins Smart Fan x1                                                              |
| Front Panel                 | HDD LED, PWR LED, Power Button, Buzzer, Reset                                   |
| Others                      | —                                                                               |
| Expansion                   |                                                                                 |
| Mini PCIe/mSATA             | Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)                    |
| M.2                         | M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with HW BOM) |
| Others                      | —                                                                               |
| Environment & Certification |                                                                                 |
| Operating Temp              | 32°F ~ 140°F (0°C ~ 60°C)<br>WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C)                 |
| Storage Temp                | -40°F ~ 185°F (-40°C ~ 85°C)                                                    |
| Operating Humidity          | 0% ~ 90% relative humidity, non-condensing                                      |
| MTBF (Hours)                | 424,208                                                                         |
| EMC                         | CE/FCC Class A                                                                  |

## Specifications

| System            |                                                                                                                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Form Factor       | PICO-ITX                                                                                                                                                                                     |
| CPU               | Intel® 11th Generation Core™ / Celeron Processors:<br>i7-1185G7E (4C/8T, 1.80GHz, 15W)<br>i5-1145G7E (4C/8T, 1.5GHz, 15W)<br>i3-1115G4E (2C/4T, 2.20GHz, 15W)<br>6305E (2C/2T, 1.80GHz, 15W) |
| Chipset           | Integrated with Intel® SoC                                                                                                                                                                   |
| Memory Type       | Onboard LPDDR4x 3200, Dual Channel, In-Band ECC (select SKUs, Max.32GB)                                                                                                                      |
| BIOS              | UEFI                                                                                                                                                                                         |
| Wake on LAN       | Yes                                                                                                                                                                                          |
| Watchdog Timer    | 255 Levels                                                                                                                                                                                   |
| Security          | TPM2.0 (Optional)                                                                                                                                                                            |
| RTC Battery       | Lithium Battery 3V/240mAh                                                                                                                                                                    |
| Dimension         | 3.94" x 2.84" (100mm x 72mm)                                                                                                                                                                 |
| Gross Weight      | 0.18 lbs (0.08 kg)                                                                                                                                                                           |
| OS Support        | Windows 10 (64bit)<br>Linux Ubuntu 20.10.2/Kernel 5.8.0-33-generic                                                                                                                           |
| Power             |                                                                                                                                                                                              |
| Power Requirement | +12V                                                                                                                                                                                         |
| Power Supply Type | AT/ATX                                                                                                                                                                                       |
| Connector         | Phoenix 2-pin Connector (Default)<br>Lockable DC Jack Connector (colay)                                                                                                                      |
| Power Consumption | Intel® i7-1185G7E, LPDDR4x 32GB, 2.89A@ +12V (TYPICAL)                                                                                                                                       |
| Display           |                                                                                                                                                                                              |
| Controller        | Intel® Iris® Xe (i5/i7 support)<br>Intel® UHD Graphics (i3/Celeron support)                                                                                                                  |
| LVDS/eDP          | eDP1.3 x 1, 3840 x 2160@60Hz                                                                                                                                                                 |
| Display Interface | HDMI2.0 x 1, 3840 x 2160 @60Hz                                                                                                                                                               |
| Multiple Display  | Up to 2 Simultaneous Displays                                                                                                                                                                |
| Audio             |                                                                                                                                                                                              |
| Codec             | Realtek ALC269 (Optional)                                                                                                                                                                    |
| Audio Interface   | Line-In / Line-Out / Mic (Optional, audio function not available for WiTAS SKU)                                                                                                              |
| Speaker           | —                                                                                                                                                                                            |
| External I/O      |                                                                                                                                                                                              |
| Ethernet          | Intel® i225/226, 2.5GbE, RJ-45 x 1<br>Intel® i219, 1GbE, RJ-45 x 1                                                                                                                           |
| USB               | USB3.2 Gen2 x 2                                                                                                                                                                              |
| Serial Port       | —                                                                                                                                                                                            |
| Video             | —                                                                                                                                                                                            |

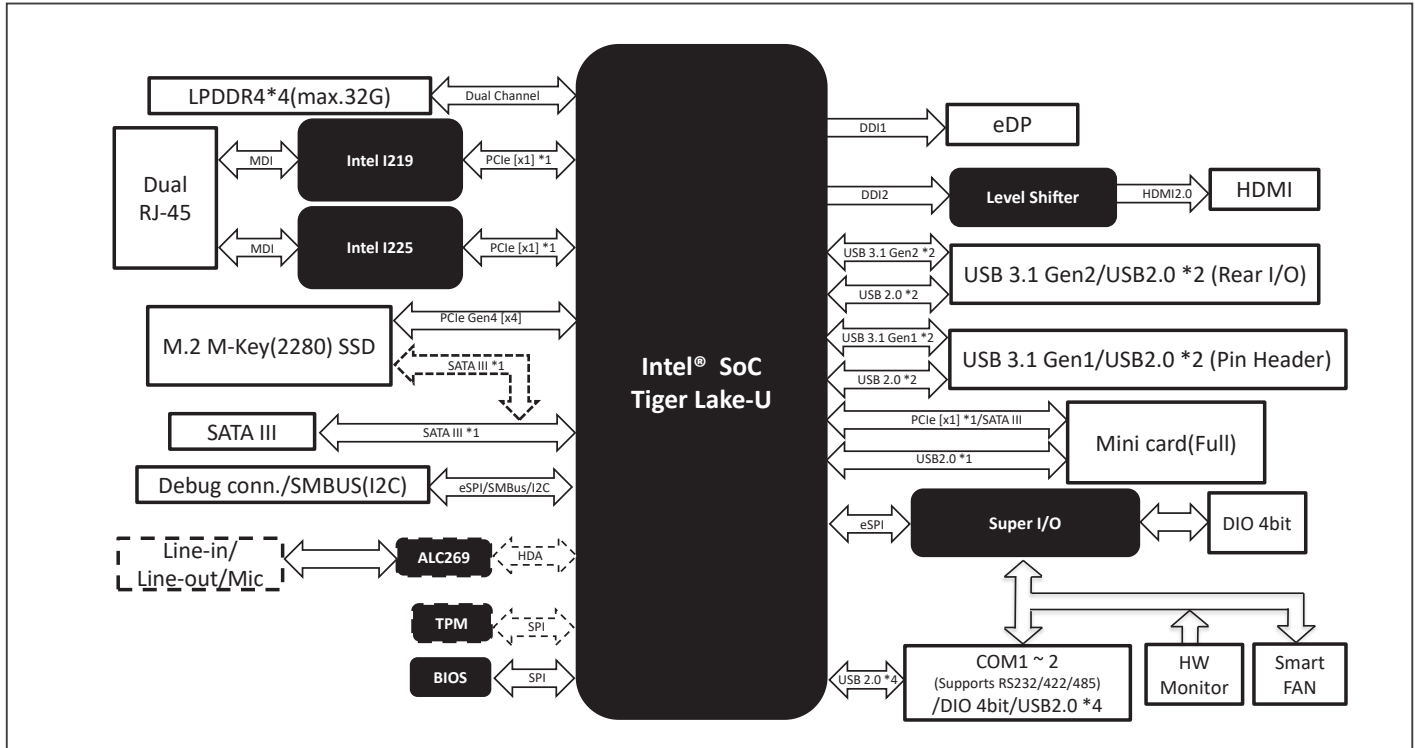
## Packing List

- PICO-TGU4

## Optional Accessories

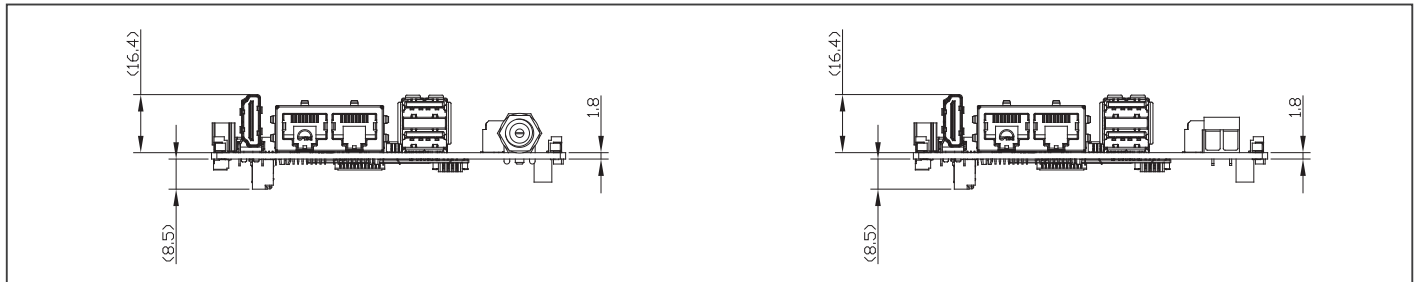
| Part Number     | Description                                                         | Qty. |
|-----------------|---------------------------------------------------------------------|------|
| 170X000285      | USB3.2 Cable.2 port.120mm                                           | 1    |
| 170X000284      | combo Cable.2ports.120mm.                                           | 1    |
| 170X000287      | Front Panel Cable.100mm                                             | 1    |
| 170X000156      | Audio Cable.250mm                                                   | 1    |
| 1709070500      | SATA CABLE.500mm                                                    | 1    |
| 170X000322      | SATA Power Cable.60mm                                               | 1    |
| PICO-TGU4-FAN01 | CPU Cooler.100*72*24mm.AL Fin+CU Block.3600rpm.Smart FAN            | 1    |
| PICO-TGU4-HSP01 | Heat Spreader.AL Fin+CU Block.100*72*10.7mm                         | 1    |
| PER-P30D-A10    | 120W, DC-DC Converter, 9~36V input, 12V output, Rev A1.0, 30 x 72mm | 1    |

## Block Diagram



## Dimension

Unit: mm



## Ordering Information

| Part Number          | CPU            | Memory | Display             | Storage     | LAN                   | USB                                                                       | RS-232/422/485 | Expansion Slot                            | Power                 | Operating Temp | Audio | Others                             |
|----------------------|----------------|--------|---------------------|-------------|-----------------------|---------------------------------------------------------------------------|----------------|-------------------------------------------|-----------------------|----------------|-------|------------------------------------|
| PICO-TGU4-A10-0001   | Celeron® 6305E | 4G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0002   | i3-1115G4E     | 4G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0003   | i3-1115G4E     | 8G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0004   | i5-1145G7E     | 8G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0005   | i7-1185G7E     | 8G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0006   | i7-1185G7E     | 32G    | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0007   | i7-1185G7E     | 16G    | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4-A10-0008   | i5-1145G7E     | 16G    | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | 0°C ~ 60°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |
| PICO-TGU4W1-A10-0005 | i7-1185G7E     | 8G     | HDMI x 1<br>eDP x 1 | SATAIII x 1 | 2.5GbE x 1<br>GbE x 1 | USB3.2 GEN2 x 2 (Rear)<br>USB3.2 GEN1 x 2 (header)<br>USB2.0 x 4 (header) | 2              | M.2 2280 M-key x 1<br>mini-PCIe(Full) x 1 | +12V (Terminal block) | -20°C~70°C     | —     | DIO, SMBUS/eSPI x 1 (I2C optional) |