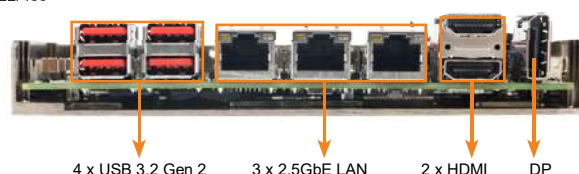
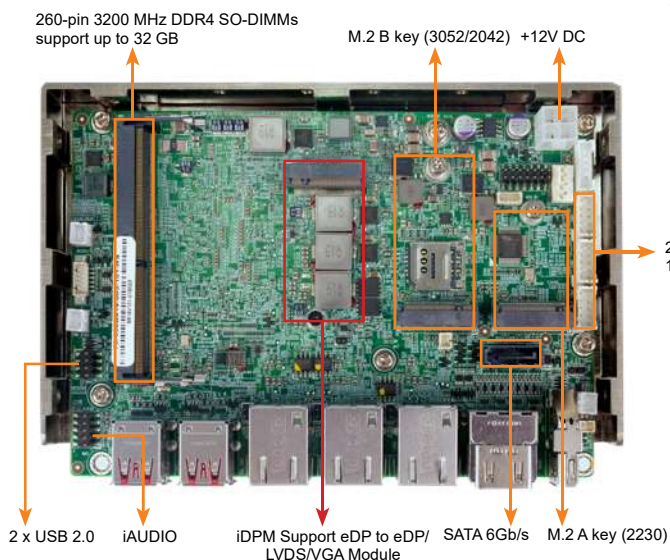


# WAFER-TGL

preliminary

**3.5" SBC with 10nm 11th Gen. Intel® Tiger Lake-UP3 Core™ i7/i5/i3 and Celeron® on-board SoC with HDMI, DP, iDPM, triple 2.5 GbE LAN, USB 3.2 Gen 2, M.2, SATA 6Gb/s, COM, iAUDIO, 0°C ~60°C and RoHS**



## Structure Solution

IEI has developed a highly efficient thermal solution for the 3.5" motherboard - IEI Heat Conduction Casing (IHCC). With its well-design structure, the IHCC can effectively improve heat transfer performance and cut time-to-market.

Completely joint with CPU for better heat transfer in 0°C~60°C operating temperature with the active cooling (PN:CM-WAFER-WF-R10), and in 0°C~45°C operating temperature with the passive cooling (PN:CM-WAFER-WOF-R10).



The DRPC-W-TGL-R10 is a compact embedded system and designed for 3.5" single board computers. With the two-dimensional heat conduction and low wind resistance design on the surfaced which means you don't need extra thermal solution to form the heat dissipation part. You can get higher hardness, and benefit from the reduced production cost resulting from shortening manufacturing time. Furthermore, the height of aluminum extrusion can therefore be downsized to make the product light weight.



## Features



### Support Intel® Tiger Lake-UP3 Processors

Equipped with 11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor, the KINO-TGL features high performance, and can handle multitasking efficiently.



### Support Intel® I225V 2.5GbE Network Controller

Two Gigabit RJ45 network ports are provided via Intel® I225V 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.



### Support USB 3.2 Gen 1 / Gen 2 up to 10Gb/s

The design of the motherboard is based on USB 3.2 protocol. Four USB 3.2 Gen 2 (10Gb/s) are provided through external I/O for efficient data transfer rate. The WAFER-TGL also supports two internal USB 2.0 ports for additional wiring options.



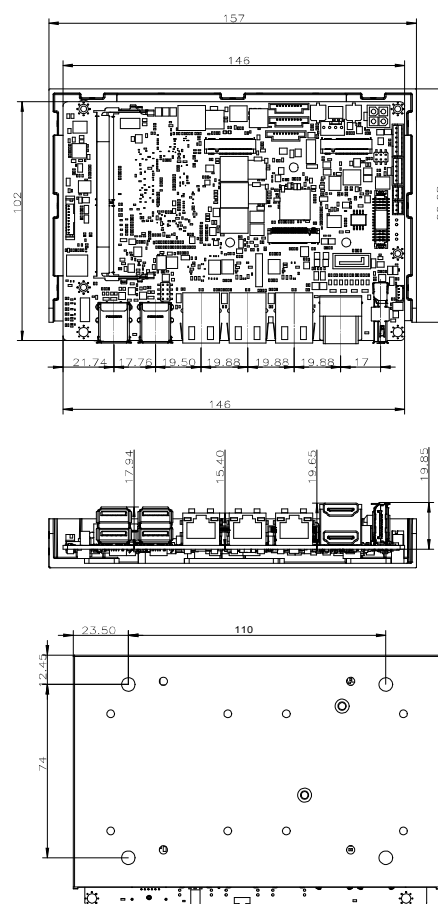
### IEI-specific iDPM Interface

IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/ VGA display interface upon requirements.

## Specifications

- ◆ SOC
  - 11th Gen. Intel® mobile Tiger Lake-UP3 SoC
  - Intel® Core™ i7-1185G7E (up to 4.8GHz, quad-core, 12M Cache, TDP=28/15/12W)
  - Intel® Core™ i5-1145G7E (up to 4.4GHz, quad-core, 8M Cache, TDP=28/15/12W)
  - Intel® Core™ i3-1115G4E (up to 4.1GHz, quad-core, 6M Cache, TDP=28/15/12W)
  - Intel® Celeron® 6305 (up to 1.8GHz, dual-core, 4M Cache, TDP=15W)
- ◆ BIOS
  - AMI UEFI BIOS
- ◆ Memory
  - 1 x 260-pin 3200 MHz DDR4 SO-DIMMs support up to 32 GB
- ◆ Graphics Engine
  - Intel® Gen11 UHD Graphics
- ◆ Display Output
  - Four Independent Displays
  - 2 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  - 1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  - 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- ◆ Ethernet
  - LAN1: Intel® I225V 2.5GbE
  - LAN2: Intel® I225V 2.5GbE
  - LAN3: Intel® I225V 2.5GbE
- ◆ External I/O
  - 4 x USB 3.2 Gen 2 (10Gb/s)
- ◆ Internal I/O
  - 1 x SATA 6Gb/s
  - 2 x USB 2.0 pin header (P=2.0)
  - 2 x RS-232/422/485 (2x5 pin, P=2.0)
  - 1 x RS-232 (2x5 pin, P=2.0)
- ◆ I²C
  - 1 x I²C (1x4 pin)
- ◆ Audio
  - 1 x iAUDIO (2x5 pin) supporting IEI AC-KIT-888S kit
- ◆ Front Panel
  - 1 x Power LED & HDD LED (1x6 pin P=2.0)
  - 1 x Power button (1x2 pin P=2.0)
  - 1 x Reset button (1x2 pin P=2.0)
- ◆ LAN LED
  - 3 x LAN LED (1x2 pin)
- ◆ Expansion
  - 1 x M.2 A key for Wi-Fi & BT (2230) (PCIe Gen3 x1/USB 2.0 signal)
  - 1 x M.2 B key (3052/2042) w/ SIM holder (PCIe Gen3 x2/USB 2.0 signal)
- ◆ Digital I/O
  - 1 x 12-bit digital I/O (2x7pin)
- ◆ TPM
  - Intel® PTT (TPM 2.0)
- ◆ Fan Connector
  - 1 x System fan connector (1x4 pin)
- ◆ Power Supply
  - +12V DC input power (AT/ATX mode)
- ◆ Watchdog Timer
  - Software Programmable support 1~255 sec. System reset
- ◆ Power Consumption
  - TBD
- ◆ Operating Temperature
  - 0°C ~ 60°C
- ◆ Storage Temperature: -20°C ~ 70°C
- ◆ Operating Humidity: 5% ~95%, non-condensing
- ◆ Dimension: 146mm x 102mm
- ◆ Weight: GW: 850g / NW: 350g
- ◆ Certification: CE/FCC Compliant

## Dimensions (Unit: mm)



## Packing List

|                                       |                               |
|---------------------------------------|-------------------------------|
| 1 x WAFER-TGL-U single board computer | 1 x SATA with power cable kit |
| 1 x Power cable for P4                | 1 x QIG                       |

## Optional Accessories

| Part No.            | Description  |
|---------------------|--|
| CB-USB02A-RS        | Dual port USB cable with bracket, 300mm, P=2.00                    |
| AC-KIT-888S-R10     | Realtek ALC888S 7.1 Channel HD Audio peripheral board, RoHS        |
| 32205-002700-200-RS | RS-232/422/485, 200mm, P=2.0                                       |
| CM-WAFER-WF-R10     | Cooler Module (W/FAN); Mechanical; for 3.5" WAFER series; RoHS     |
| CM-WAFER-WOF-R10    | Cooler Module (W/O FAN); Mechanical; for 3.5" WAFER series; RoHS   |
| iDPM-eDP            | eDP to eDP DisplayPort converter board (for IEI iDPM connector)    |
| iDPM-LVD            | eDP to LVDS DisplayPort converter board (for IEI iDPM connector)   |
| iDPM-VGA            | eDP to eDP VGA DisplayPort converter board (for IEI iDP connector) |

## Ordering Information

| Part No.           | Description   |
|--------------------|---|
| WAFER-TGL-U-C-R10  | 3.5" SBC with Intel® Tiger Lake-UP3 Celeron® 6305 Processor, DDR4 SO-DIMM, 12V DC input, quad display, triple Intel® 2.5 GbE, SATA, USB 3.2, M.2, SoC, RoHS                   |
| WAFER-TGL-U-i3-R10 | 3.5" SBC with Intel® Tiger Lake-UP3 Core™ i3-1115G4E Processor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS |
| WAFER-TGL-U-i5-R10 | 3.5" SBC with Intel® Tiger Lake-UP3 Core™ i5-1145G7E Processor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS |
| WAFER-TGL-U-i7-R10 | 3.5" SBC with Intel® Tiger Lake-UP3 Core™ i7-1185G7E Processor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS |

|                  |                 |                     |                 |
|------------------|-----------------|---------------------|-----------------|
|                  |                 |                     |                 |
| CB-USB02A-RS     | AC-KIT-888S-R10 | 32205-002700-200-RS | CM-WAFER-WF-R10 |
|                  |                 |                     |                 |
| CM-WAFER-WOF-R10 | iDPM-eDP        | iDPM-LVD            | iDPM-VGA        |