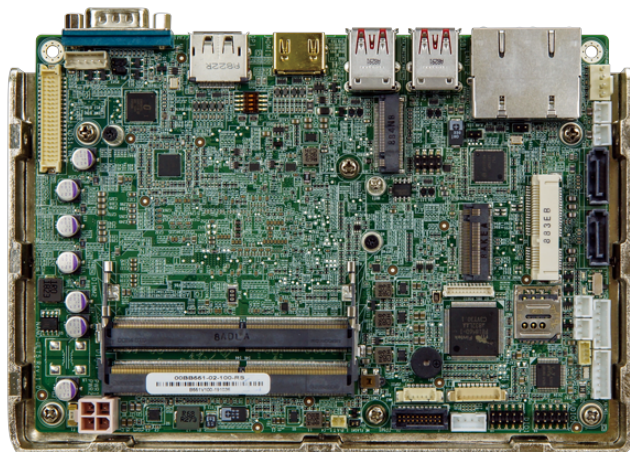


# NANO-ULT5

EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i3/i5/i7 and Celeron® on-board processor (ULT) with HDMI™, DP LVDS, mPCIe, M.2 A key M key, USB 3.1 Gen2, SATA 6Gb/s, COM, Audio and RoHS, -20°C ~ 60°C



## Features

- » EPIC SBC supports Intel® 8th Generation ULT processor or Celeron® on-board SoC supports dual-channel DDR4 SO-DIMMs
- » Triple independent display support
- » 12V DC input design
- » M.2 slot with A key, M.2 M Key PCIe Mini slot with SIM holder
- » COM, USB 3.1 Gen2, SATA 6Gb/s, eMMC 5.0 and audio support
- » Support temperature operation: -20°C ~ 60°C

## Specifications

| System                   |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| CPU                      | Intel® Celeron® processor 4305UE (2.0 GHz Dual Core, 2MB cache, TDP=15W) |
|                          | Intel® Core™ i3-8145UE (2.2 GHz Dual Core, 4MB cache, TDP=15W)           |
|                          | Intel® Core™ i5-8365UE (1.6 GHz, Quad Core, 6MB cache, TDP=15W)          |
|                          | Intel® Core™ i7-8665UE (1.7 GHz Quad Core, 8MB cache, TDP=15W)           |
| Memory                   | Dual 260-pin 2400MHz Dual-channel DDR4 SO-DIMMs support                  |
| Memory Max.              | 32GB                                                                     |
| Physical Characteristics |                                                                          |
| Dimensions (LxWxH) (mm)  | 115 X 165                                                                |
| Net Weight               | 350g                                                                     |
| Storage                  |                                                                          |
| Storage                  | 2 x SATA :6Gb/s with 5V SATA power connector                             |
|                          | 1 x eMMC :32GB(optional)                                                 |
| I/O Interface            |                                                                          |
| Display Output           | 1 x HDMI™ :up to 38400x2160@60Hz                                         |
|                          | 1 x Display Port :up to 38400x2160@60Hz                                  |
|                          | 1 x LVDS :up to 1920x1200@60Hz                                           |
| Ethernet                 | Description: 1 x PCIe GbE LAN Intel® i211 controller                     |
|                          | 1 x PCIe GbE LAN Intel® i219 controller                                  |
| Audio                    | Description: 1 X Analog audio (2x5 pin)                                  |
| I/O Interface            | 1 x External RS-232                                                      |
|                          | 1 x Internal RS-232 :1x9 pin, p=1.25                                     |
|                          | 1 x Internal RS-422/485 :1x4 pin, P=2.0                                  |
|                          | 4 x External USB 3.2 Gen1x1                                              |
|                          | 2 x Internal USB 2.0 :2x4 pin, P=2.0                                     |
| Expansion                | Description: 1 X SIM card                                                |
|                          | 1 x PCIe mini Card Slot                                                  |
|                          | 2 x M.2(NGFF) :1 X 2230 A Key, 1 X 2280 M Key                            |
| Other Features           |                                                                          |
| TPM                      | 2x10 pin                                                                 |
| Power                    |                                                                          |

|                       |                                        |
|-----------------------|----------------------------------------|
| Power Supply          | 12V DC input                           |
|                       | 1 x Internal power connector (2x2 pin) |
|                       | Support AT/ATX mode                    |
| Environment           |                                        |
| Operating Temperature | -20°C ~ 60°C                           |
| Storage Temperature   | -30°C ~ 70°C                           |
| Humidity              | 5% ~ 95%, non-condensing               |

## Ordering Information

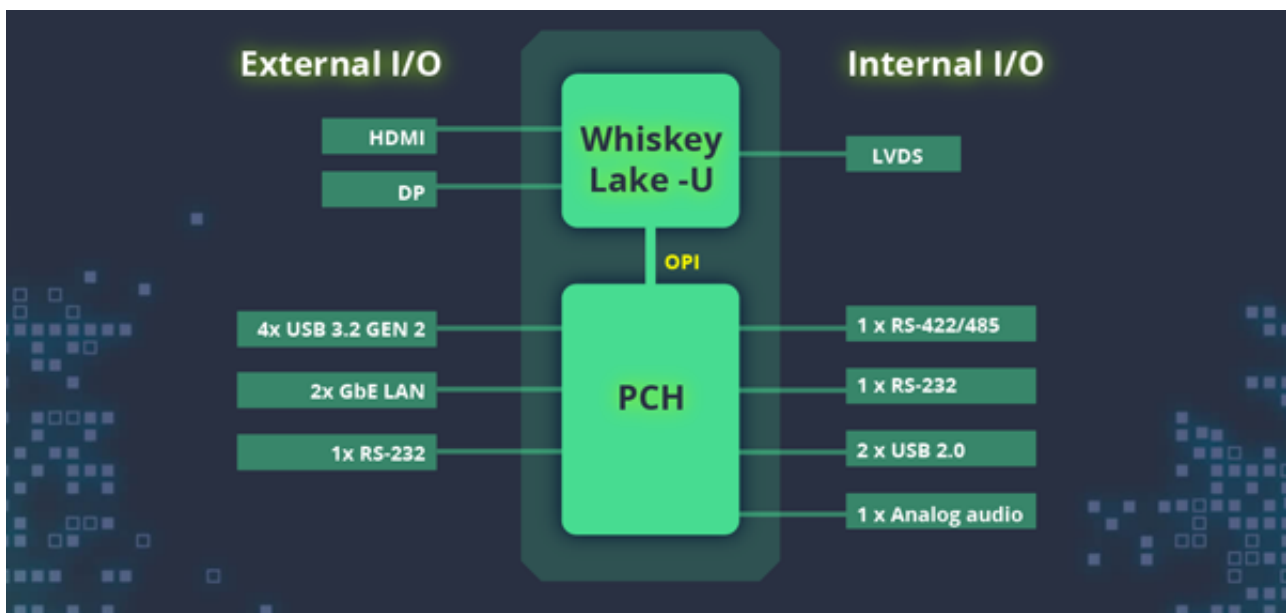
|                  |                                                                                                                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NANO-ULT5-i7-R10 | EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i7-8665UE (15W) on-board Processor (ULT) with HDMI™/LVDS/DP, Dual PCIe GbE, USB 3.1 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, COM, SPI TPM, Audio and RoHS |
| NANO-ULT5-i5-R10 | EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i5-8365UE (15W) on-board Processor (ULT) with HDMI™/LVDS/DP, Dual PCIe GbE, USB 3.1 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, COM, SPI TPM, Audio and RoHS |
| NANO-ULT5-i3-R10 | EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i3-8145UE (15W) on-board Processor (ULT) with HDMI™/LVDS/DP, Dual PCIe GbE, USB 3.1 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, SPI TPM, COM, Audio and RoHS |
| NANO-ULT5-C-R10  | EPIC SBC supports Intel® 14nm 8th Generation Mobile Celeron™ 4305UE (15W) on-board Processor (ULT) with HDMI™/LVDS/DP, Dual PCIe GbE, USB 3.1 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, SPI TPM, COM, Audio and RoHS |

## Packing List

|                                                   |                                    |
|---------------------------------------------------|------------------------------------|
| 1 x NANO-ULT5 single board computer with Heatsink | 1 x Power Cable                    |
| 1 x SATA with power cable kit                     | 2 x RS-232 cable                   |
| 1 x Audio Cable                                   | 1 x QIG (Quick Installation Guide) |

## Intel's 8th Gen Core (Whiskey Lake-U) SoC

IEI's 4" EPIC Board NANO-ULT5 based on Intel® Whiskey Lake-U 15W SoC, which is aimed at embedded applications. The NANO-ULT5 mainboard is designed for applications like Panel PC, small size embedded system, point-of-sales systems, kiosks, and digital signage, but can be used for regular low-power computers in a EPIC form-factor.

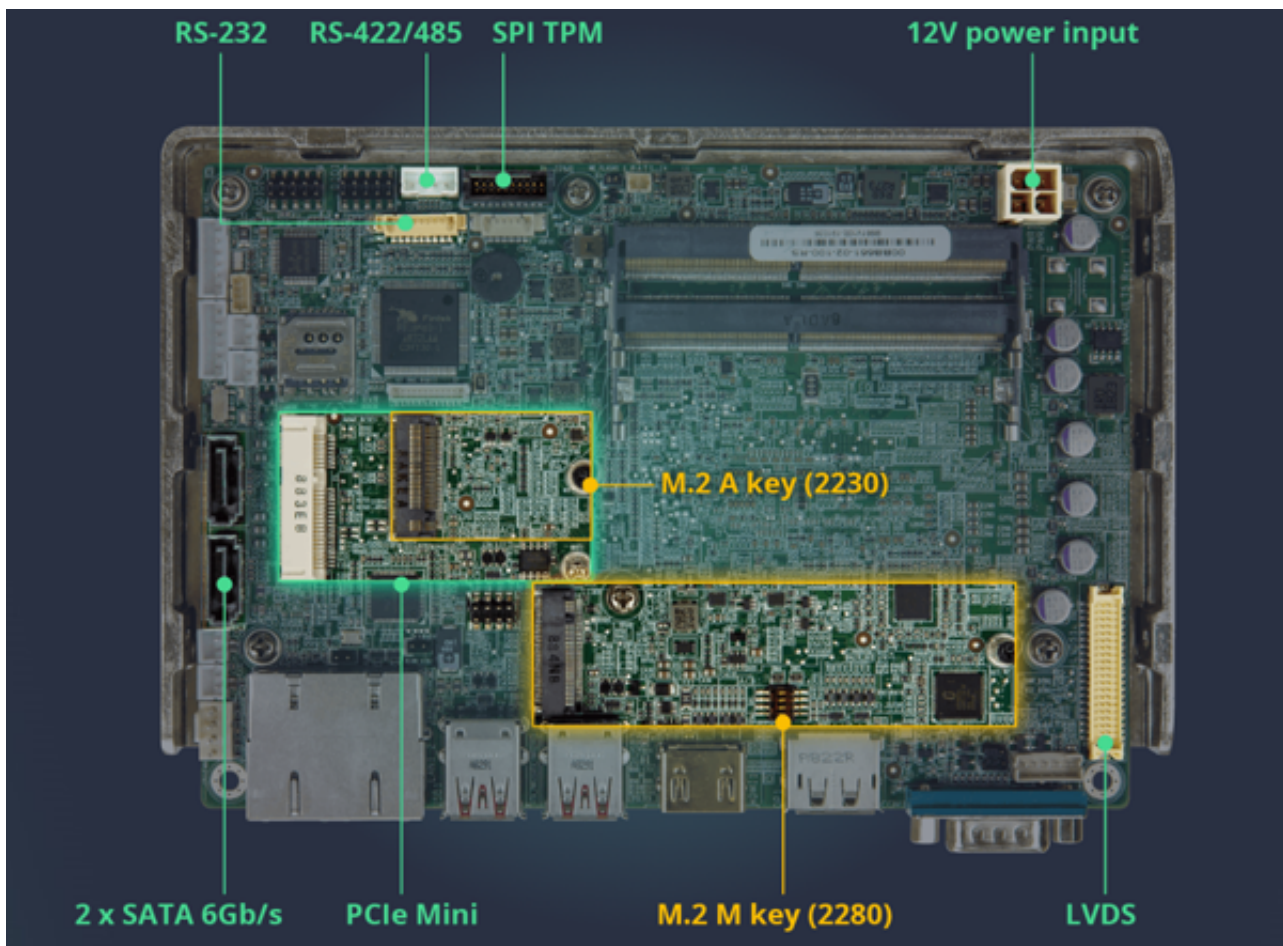


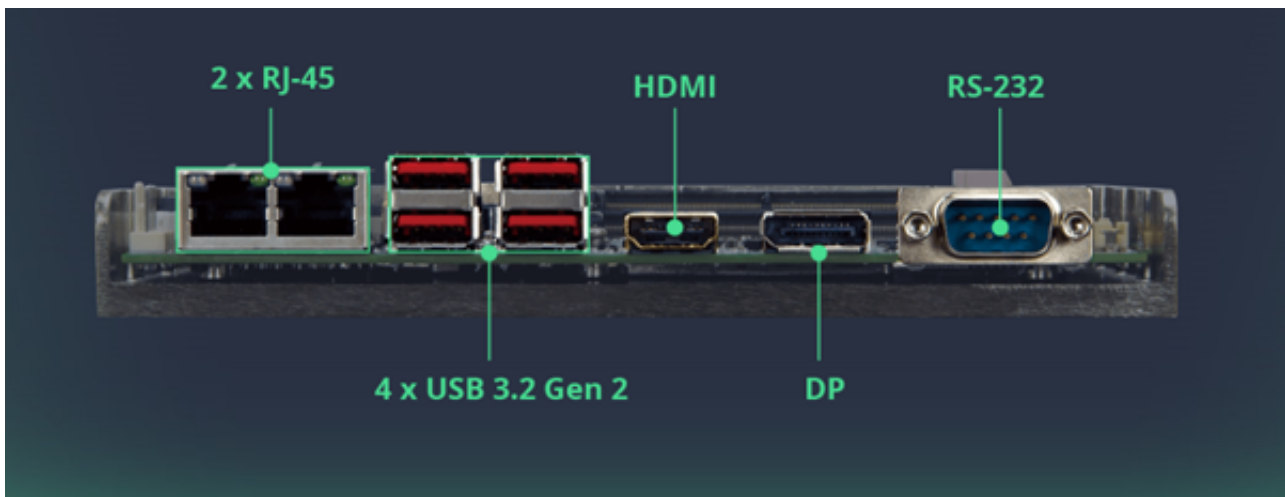
## Multiple expansion slot for diverse solution

The design concept for NANO-ULT5 is to multiple expansion for diverse applications and make it an easy and better solution for users.



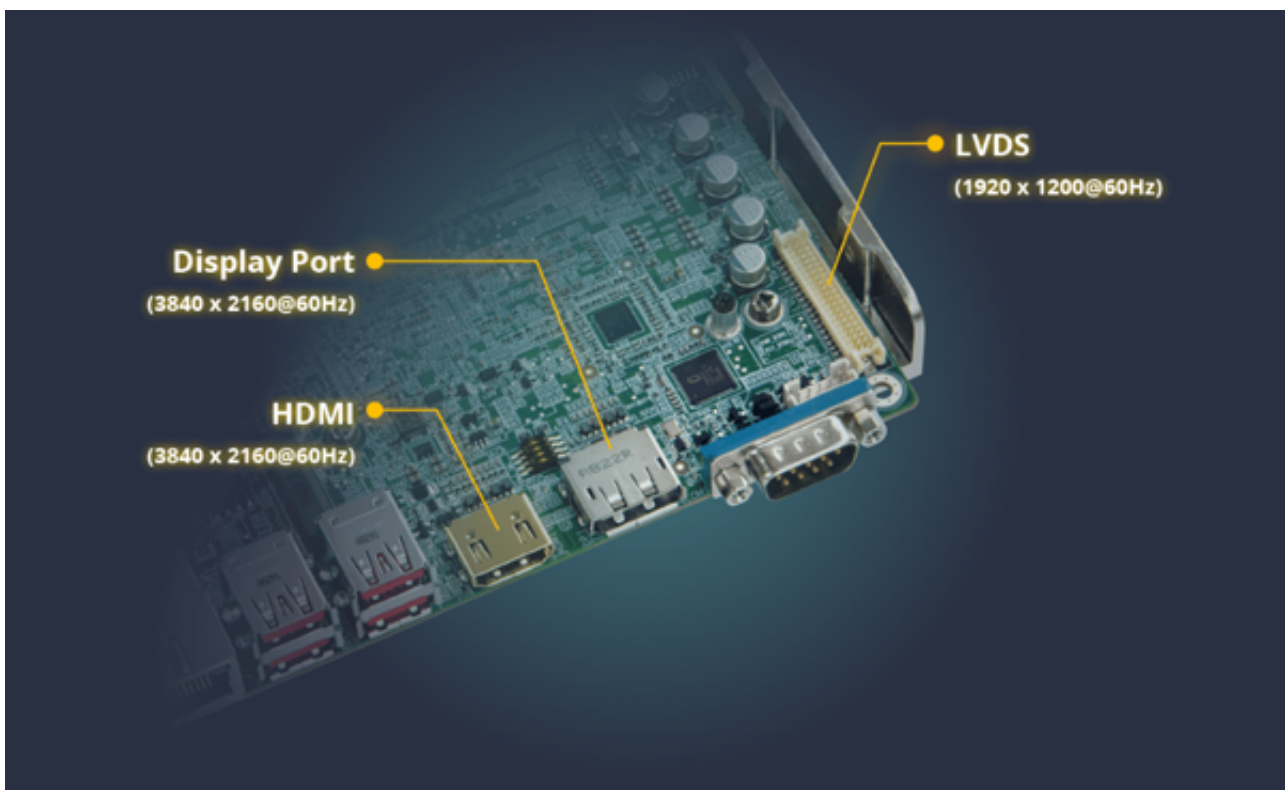
## Product Overview





## Triple Independent Display

The NANO-ULT5 is equipped with Intel® HD Graphics Gen9 which supports 16 execution units and 4K codec decode, and allows to display videos and images in stunning 4K resolution. With triple independent displays (eDP + HDMI™ + DP), the HDMI™ and DisplayPort support up to 4K high resolution. The enhanced visual quality responses the demand of high precision displaying.



## Application Field

For the application field, NANO-ULT series are suitable for various application. With LVDS as a panel PC or using triple independent display in the hospital as a monitoring system. In factory automation field, RS-232 could connect with processing machine. A real case for us is a self-service ordering machine, by using USB and HDMI™ to connector with partner's touch panel and M.2 A key for transferring order to the kitchen. In makes customer easily make an order without waiting.





Panel PC



Hospital monitoring system



Factory monitor



Self-service ordering machine