

# nanoONYX-USB3



## Ultra Small Rugged Computer with USB3 interfaces

### ULTRA-SFF RUGGED EMBEDDED COMPUTER WITH USB3 INTERFACES

The nanoONYX-USB3 is a rugged and secure embedded computer specifically designed to meet the stringent requirements of critical aerospace, defense, and industrial applications.

Built on the latest generation of Intel® processors and qualified in accordance with military and aerospace environmental standards (DO-160, MIL-STD-810, MIL-STD-461, and MIL-STD-1275), the nanoONYX-USB3 is a small form factor (SFF), low-power, rugged, and scalable computing platform for air, land, and sea systems. It provides a wide range of interfaces, including two high-speed USB 3.0 ports.

Thanks to its low power consumption and IP65-rated enclosure, the nanoONYX-USB3 is an ideal solution for users seeking an ultra-compact yet powerful rugged computer. It combines extensive I/O capabilities with high-speed communication interfaces integrated into robust MIL-DTL-38999 connector enclosures.

The nanoONYX-USB3 features:

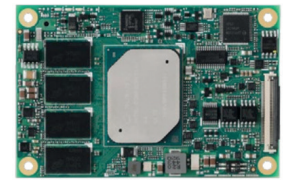
- Support for a wide range of processors, including Intel® Atom™ E3950, Intel® Core™ i7-8665UE, and Intel® Core™ i7-1185GRE, via a Mini-COM Express® Type 10 processor module
- Three expansion slots supporting AcroPack® mPCIe-based rugged I/O modules, enabling a broad selection of additional interfaces such as Ethernet, ARINC 429, DAC, ADC, and more
- By using the nanoONYX-USB3, system integrators benefit from a fully qualified, ruggedized, and durable COTS solution, offering high-quality technical support and configurable performance and interfaces tailored to their specific application needs.

- Intel® Atom™ E3950 @ 1.6GHz, 12W, Quad-Core, 8GB DDR3L
- Intel Core™ i7-1185GRE @ 1.8GHz, 15W, Quad Core, 16GBBytes LPDDR4X
- Intel® Core™ i7-8665UE @ 1.7GHz, 15W, Quad-Core, 8GB DDR3L
- 1x DVI-D single link graphic output
- 2x GbE
- 4x USB2.0
- 2x USB3.0 (USB-C connectors)
- 3x AcroPack slots
- TPM 2.0
- 1x Internal M.2 SSD Slot
- 1x M.2 NVMe device on CPU board
- Fanless, MIL-DTL-38999 connectors
- Qualified according DO-160, MIL-STD-461, MIL-STD-810, MIL-STD-1275
- Operating temperature:
  - 40°C to +55°C without external air flow
  - +71°C depending on processor version and cTDP
- Long Life Management with revision control
- ITAR free
- High flexibility to Modified COTS services

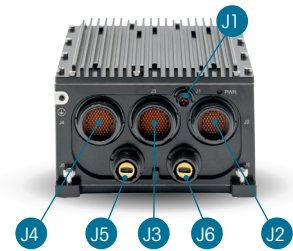
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## SYSTEM SPECIFICATIONS

<b>Processor / Memory</b>	Intel® Atom™ E3950 @ 1.6GHz, 12W, Quad-Core, 8GB DDR3L Intel® Core™ i7-1185GRE @ 1.8GHz, 15W, Quad Core, 16GBytes LPDDR4X Intel® Core™ i7-8665UE @ 1.7GHz, 15W, Quad-Core, 8GB DDR3L
<b>TPM</b>	TPM 2.0 Infineon Software TPM (Intel® Core™ i7-8665UE)
<b>Video</b>	1x DVI-D single link output
<b>Ethernet</b>	2x 10/100/1000Base-T Ethernet (i210 / i219)
<b>Audio</b>	1x Line In, 1x Line Out
<b>USB</b>	4x USB2.0 2x USB3.0 - Bandwidth limited to 250MBytes/sec max per USB3.0 interface
<b>Serial</b>	2x RS232 (Tx, Rx, GND) 2x RS422 (Tx+, Tx-, Rx+, Rx-, GND)
<b>GPIO</b>	2x GP Inputs (LVTTTL) 2x GP Outputs (LVTTTL)
<b>GPS (Optional feature)</b>	GPS antenna and 1 pps (via mini PCIe function)
<b>Storage</b>	1x M.2 (S42) SATA SSD internal slot
<b>Expansion slots</b>	3x AcroPack / mini PCIe slots Supporting Ethernet, ARINC429, MIL-STD-1553, RS232/RS422, DIO, ADC, DAC, CAN bus,
<b>Discrete I/O</b>	On front panel: Power LED On MIL-DTL-38999 connector: Power button (ATX/AT CPLD mode), Reset button
<b>Hardware Monitoring</b>	Internal voltages; CPU and carrier board temperatures



Apollo Lake COMe Type 10



- J1:** +28VBDC; 3 pIs  
**J2:** 2x Gbe, DVI-D, 2X USB, RS 232/422, Antenna, 1x pps, PWR-ON & reset Btn; 55 pIs  
**J3:** AP #3 & #4 (30-pin), 2x USB, RS 232/422, Audio; 85 pIs  
**J4:** AP #1 (50 pin), AP #2 (30-pin), 4x GPIO; 85 pIs  
**J5/J6:** USB3.0

## POWER SUPPLY

<b>Power Input</b>	+28VDC (+12VDC up to +36VDC)
<b>Power consumption</b>	Up to 30W, 25W typic

## SWAP-C CONSTRAINTS

<b>Size (WxDxH)</b>	214mm (L) x 140 mm (W) x 89,7 mm (H) including connectors
<b>Cooling types</b>	Conduction cooled system: convection & radiation by fins, conduction by cold plate or forced air flow
<b>Connectors</b>	MIL-DTL-38999 connectors Front panel customizable for specific applications

## ENVIRONMENTAL QUALIFICATION TESTS

<b>Operating temperature</b>	-40°C to +55°C without external air flow +71°C depending on processor version and cTDP	<b>Sand &amp; Dust</b>	Wind and fine dust particles; DO-160
<b>Storage temperature</b>	-40°C / +85°C	<b>Shock &amp; vibration</b>	40g@11ms ; DO-160
<b>Ingress protection rating</b>	IP65	<b>EMI / RFI CE certification</b>	According to DO-160 / MIL-STD-461 EN 55032: 2015 / A1 : 2019 Electromagnetic compatibility of multimedia equipment - Emission requirements EN 55035: 2017: Electromagnetic compatibility of multimedia equipment - Immunity requirements EN 62368-1:2014+AC:2015: Part 1: Safety requirement
<b>Altitude</b>	Up to 116 mbar (50000ft); DO-160		
<b>Humidity</b>	0%-95% @ 65°C and 0-85°C @ 38°C RH; DO-160		
<b>Salt fog</b>	50% salt spray @ 96h; DO-160		

## SOFTWARE CORNER

<b>Operating system</b>	Windows 10 IOT LTSC, Windows 11 Pro*, Windows 11 IOT LTSC*, Linux 64-bit*, Intel® Core™ i7-1185GRE only. For other requirements, contact ECRIN Systems
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## OTHER SPECIFICATIONS

<b>Regulatory compliance</b>	European CE Mark, REACH, RoHS, WEEE, CoC
<b>Starter cable set</b>	Breakout cable set mates with MIL-DTL-38999 connectors to break out standard CPU/I/O and power signals to traditional PC style interfaces for la purpose
<b>Development kit</b>	Starter kit based on same hardware building blocks for quick and easy integration and debugging