

nanoONYX-SDI



Ultra-Small Rugged Mission Computer with Dual HD-SDI Video Capture

ULTRA-SFF RUGGED EMBEDDED COMPUTER WITH DUAL HD-SDI INPUTS

The nanoONYX-SDI is an ultra-compact rugged computer designed to meet the demanding requirements of critical aerospace, defense, and industrial applications requiring reliable video acquisition and processing.

Based on the latest generation of Intel processors and qualified according to military environmental standards (DO-160, MIL-STD-810, MIL-STD-461 and MIL-STD-1275), the nanoONYX-SDI provides a low-power, rugged and scalable computing platform for air, land and sea systems.

With its low power consumption and IP65 design, the nanoONYX-SDI is an ideal solution for users looking for an ultra-compact and powerful rugged computer capable of capturing and processing high-definition video streams while offering a wide range of I/O interfaces.

The integrated HD-SDI video inputs enable reliable, low-latency transmission of uncompressed high-definition video over long distances, making the nanoONYX-SDI particularly suitable for ISR systems, mission payloads, surveillance platforms, and airborne video processing applications.

When equipped with an AI coprocessor, the nanoONYX-SDI becomes an ideal platform for real-time object detection, image analysis, and video-assisted decision systems, enabling advanced edge processing capabilities for modern mission systems.

The nanoONYX-SDI:

- supports a wide range of processors such as the Intel® Atom™ x6425 or the Intel® Core™ i7-1185GRE, or Intel® Core™ i7-1185GRE through a Mini-COM Express® Type 10 processor module
- features two HD-SDI inputs allowing real-time capture of high-definition video streams for mission processing, recording, or transmission
- supports long-distance, low-latency video acquisition, ideal for electro-optical sensors, cameras and ISR payloads
- can integrate an AI coprocessor module to accelerate object recognition, image processing, and video analytics at the edge
- features two expansion slots supporting AcroPack® mPCIe-based Rugged I/O modules, enabling a large array of additional interfaces such as Ethernet, ARINC429, DAC, ADC, and more

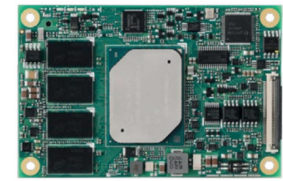
Using the nanoONYX-SDI, system integrators benefit from a ruggedized, fully qualified and durable COTS solution with high-performance video capture and edge AI capabilities, supported by high-quality technical expertise.

- Intel® Atom™ x6425E, 12W, 16GBBytes DDR
- 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
- 2x RS-232, 2x RS-422 and 4x USB 2.0
- 2x AcroPack / mini PCIe expansion slots for Avionics and Industrial I/O
- TPM 2.0
- 1x Internal M.2 SSD Slot
- 2 x HD-SDI inputs
- 1x NVM 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 andTDP
- Long Life Management with revision control
- ITAR free
- High flexibility to Modified COTS services

nanoONYX-SDI

SYSTEM SPECIFICATIONS

Processor / Memory	Intel® Atom™ x6425E, 12W, 16GBBytes DDR Intel® Core™ i7-1185GRE @ 1.8GHz, 15W, Quad Core, 16GBBytes LPDDR4X Intel® Core™ i7-8665UE @ 1.7GHz, 15W, Quad-Core, 8GB DDR3L
TPM	TPM 2.0 Infineon Software TPM (Intel® Core™ i7-8665UE)
Video input	2x HD-SDI input
Video output	1x DVI-D single link output
Ethernet	2x 10/100/1000Base-T Ethernet
Audio	1x Line In, 1x Line Out
USB	4x USB2.0
Serial	2x RS232 (Tx, Rx, GND) 2x RS422 (Tx+, Tx-, Rx+, Rx-, GND)
GPIO	2x GP Inputs (LVTTTL) 2x GP Outputs (LVTTTL)
GPS (Optional feature)	GPS antenna and 1 pps (via mini PCIe function)
Storage	1x M.2 (S42) SATA SSD internal slot + 1x NVMe device on CPU board
Expansion slots	2x AcroPack / mini PCIe slots Supporting Ethernet, ARINC429, MIL-STD-1553, RS232/RS422, DIO, ADC, DAC, CAN bus, ...
Discrete I/O	On front panel: Power LED On MIL-DTL-38999 connector: Power button (ATX/AT CPLD mode), Reset button
Hardware Monitoring	Internal voltages; CPU and carrier board temperatures



ApoLo 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:** HD-SDI input

POWER SUPPLY

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

SWAP-C CONSTRAINTS

Size (WxDxH)	205mm (L) x 140 mm (W) x 90.2 mm (H) including connectors
Cooling types	Conduction cooled system: convection & radiation by fins, conduction by cold plate or forced air flow
Connectors	MIL-DTL-38999 connectors Front panel customizable for specific applications

ENVIRONMENTAL QUALIFICATION TESTS

Operating temperature	-40°C to +55°C without external air flow +71°C depending on processor version and cTDP	Sand & Dust	Wind and fine dust particles; DO-160
Storage temperature	-40°C / +85°C	Shock & vibration	40g@11ms ; DO-160
Ingress protection rating	IP65	EMI / RFI CE certification	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
Altitude	Up to 116 mbar (50000ft); DO-160		
Humidity	0%-95% @ 65°C and 0-85°C @ 38°C RH; DO-160		
Salt fog	50% salt spray @ 96h; DO-160		

SOFTWARE CORNER

Operating system	Windows 10 IOT LTSC, Windows 11 Pro*, Windows 11 IOT LTSC*, Linux 64-bit* For other requirements, contact ECRIN Systems
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OTHER SPECIFICATIONS

Regulatory compliance	European CE Mark, REACH, RoHS, WEEE, CoC
Starter cable set	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
Development kit	Starter kit based on same hardware building blocks for quick and easy integration and debugging