

nanoONYX-CAN



Ultra-Small Rugged Computer for Embedded and Vehicle Systems

ULTRA-SFF RUGGED EMBEDDED COMPUTER WITH MULTIPLE CAN INTERFACES

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

Derived from the nanoONYX rugged computer family, the nanoONYX-CAN offers the same ultra-compact, passively cooled architecture while integrating 4 or 8 CAN interfaces, making it particularly well suited for systems requiring reliable real-time communication between multiple embedded devices.

Being the most compact system in a complete range of rugged computers, the nanoONYX-CAN is ideal for demanding applications such as drones, robotic platforms, and military vehicles, where high-performance computing must be combined with robust fieldbus connectivity in a dense fanless design.

With its modular and robust design, the nanoONYX-CAN offers the embedded market a fully MIL-qualified and customizable solution, supporting advanced functions such as AI processing while benefiting from long-term product availability and support.

The nanoONYX-CAN:

- supports a wide range of processors such as the Intel® Atom™ x6425, or the Intel® Core™ i7-1185GRE through a Mini-COM Express® Type 10 processor module
- provides 4 or 8 CAN interfaces, enabling reliable real-time communication with multiple sensors, actuators and control systems typically used in drones, robotic platforms and military vehicles
- features three expansion slots supporting AcroPack® mPCIe-based Rugged I/O Modules, offering a large array of additional interfaces such as Ethernet, ARINC429, DAC, ADC, and more

Using the nanoONYX-CAN, system integrators benefit from a ruggedized, fully qualified and durable COTS computing platform, optimized for mission-critical embedded systems and supported by high-quality technical expertise.

- Intel® Atom™ x6425E, 12W, 16GBBytes DDR
- Intel Core™ i7-1185GRE @ 1.8GHz, 15W, Quad Core, 16GBBytes LPDDR4X
- 1x DVI-D single link graphic output
- 2x GbE
- 2x RS232 + 2x Isolated RS422
- 4x CANBus
- 3x Acropack / miniPCIe expansion slots
- TPM 2.0
- 1x internal M.2 SSD slot
- Cableless, fanless, MIL-DTL-38999 connectors
- Qualified according DO-160, MIL-STD-461, MIL-STD-810
- 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
- Optional Holdup module, 200ms

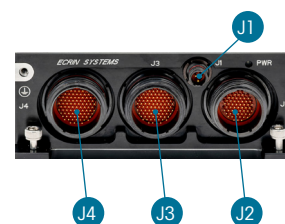
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SYSTEM SPECIFICATIONS

Processor / Memory	Intel® Atom™ x6425E, 12W, 16GBBytes DDR Intel® Core™ i7-8665UE @ 1.7GHz, 15W, Quad-Core, 8GB DDR3L
TPM	TPM 2.0 Infineon
Video	1x DVI-D single link output
Ethernet	2x 10/100/1000Base-T Ethernet
USB	3x USB2.0
Serial	2x RS232 + 2x Isolated RS424
CAN	4 x CAN Bus
Storage	1x M.2 (S42) SATA SSD internal slot
Expansion slots	3x AcroPack / mini PCIe slots Supporting Ethernet, ARINC429, MIL-STD-1553, RS232/424, 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



Apollo Lake COMe Type 10



- J1**: +28VBDC; 3 pts
- J2**: 1x DVI-D, 2x Gbe, 3x USB2.0, 1x RS232, 1x RS422
- J3**: AcroPack #1 (full I/O), 4x CAN Bus, 1x RS232
- J4**: AcroPack #2, #3 (full I/O), 1x RS42285 pts

POWER SUPPLY

Power Input	28VDC (+12VDC up to +36VDC)
Power consumption	Up to 30W, 25W typic
Optional Holdup module	According to DO160, Section 16, Category A, 200ms (290ms @ 35W)

SWAP-C CONSTRAINTS

Size (WxDxH)	205mm (L) x 140 mm (W) x 67.5 mm (H) including connectors With Holdup module: 205mm (L) x 140 mm (W) x 78,9 mm (H) including connectors
Weight	Without Holdup module and AcroPack : 1,9kg - With Holdup module and without AcroPack : 2,3kg
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.*, Intel® Core™ i7-1185GRE only. 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