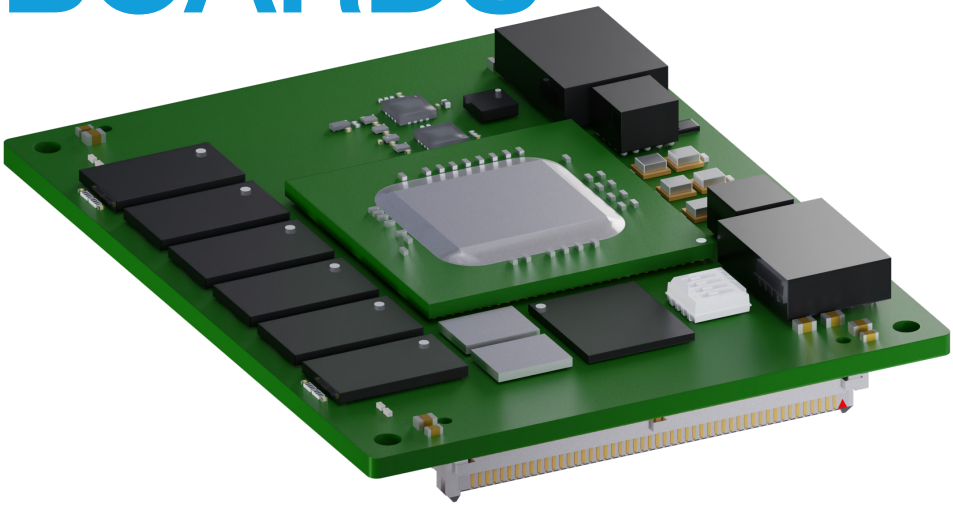
Creative
Interconnect
Solutions

ELECTRONIC BOARDS



High-reliability embedded electronics for critical environments

Nicomatic (formerly Oxytronic) designs and manufactures **custom embedded electronic boards** for aerospace, defense, nuclear and industrial markets.

Our expertise covers the full lifecycle: **custom design, DO-254/DO-178 development, prototyping, testing, industrialisation and long-term support.**

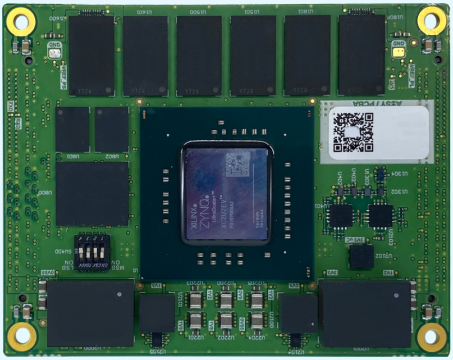
KEY BENEFITS

HIGH PERFORMANCE

Custom architectures integrating :

- **FPGA** (signal, video, logic processing)
- **Microcontrollers or embedded CPUs**
- **Real-time processing pipelines**
- **High-speed I/O & acquisition**

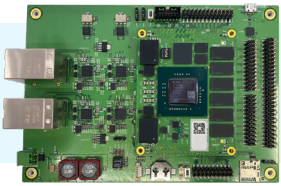
Ideal for avionics, optronics, nuclear systems, autonomous platforms and mission computers.



MODULARITY

Flexible architectures tailored to the mission :

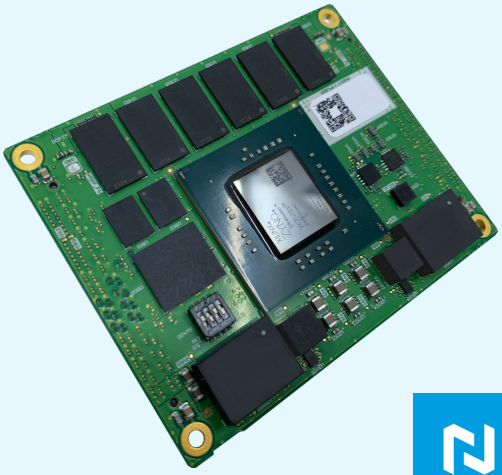
- Acquisition / processing / communication
- ARINC, CAN, RS422/485, Discrete I/O, Ethernet
- Scalable architecture for system evolution
- Carrier boards or SOM-based designs (such as PicoPop)



EXTREME RELIABILITY

Design and testing fully in-house:

- DO-254 (up to DAL A) / DO-178 compliant development
- Functional and environmental testing (DO-160)
- Internal prototyping, test benches and validation sequences
- IPC Class 3 manufacturing quality (per PicoPop specs)



ITAR-FREE SOLUTION

Export-friendly platforms using ITAR-Free components and design rules.

ENGINEERING CAPABILITIES

Custom Electronic Design
- Processor-based architectures (ARM, microcontrollers)
- FPGA logic for parallel compute, video and data fusion
- High-speed digital and mixed-signal design
- Secure, mission-critical architectures
- Carrier-board development for System-On-Module (SOM) platforms
(IP on request)

Lifecycle Management
- Long-term product sustainment
- Obsolescence management and redesign
- Configuration control throughout product life

Internal Production & Test
- Rapid prototyping
- In-house assembly & inspection
- Functional & environmental test benches
- Qualification support for aerospace and nuclear environments

Structured DO-254 / DO-178 Development
- Requirements, traceability, documentation and validation
- DAL-compliant workflows for airborne systems
- Embedded software development for real-time applications

FEATURES

Category	Details
Processor & Computing	- ARM Cortex-based CPUs or microcontrollers - Up to quad-core 1.5 GHz Cortex-A53 + dual-core Cortex-R5 (real-time) — PicoPop - Optional GPU (Mali series) - Hardware acceleration using FPGA fabric
FPGA Processing	- Signal processing - Video processing (H.264/H.265 for EV variants) - Logic and control functions - Real-time pipelines
I/O Interfaces	- ARINC 429, RS422/485, CAN, UART - Ethernet (including up to 4× Tri-mode GbE), PCIe, USB - Discrete I/Os - Video interfaces: HDMI, DisplayPort, SDI, camera inputs
Signal & Video Processing	- Multi-channel acquisition - Filtering & pre-processing - Format conversion - Multi-stream encoding/decoding up to 4K 60 fps
Software	- Embedded applications - Yocto BSP (PicoPop BSP) - Drivers & FPGA bitstreams - Secure communication stacks
Industrialisation	- Functional & environmental testing - IPC Class 3 PCB build quality - Mechanical, thermal and EMC robustness

EXAMPLE: iCan PicoPop®

Ultra-compact
& powerful System-On-Module

- Zynq® UltraScale+ MPSoC (ZU4/5/7 – CG/EG/EV)
- Quad-core Cortex-A53 (up to 1.5 GHz)
- Dual-core Cortex-R5 (up to 600 MHz)
- Mali 400 GPU
- Integrated FPGA fabric
- Up to 4 GB DDR4, up to 128 GB eMMC
- High-speed interfaces: PCIe Gen2, USB 3.0, SATA, DisplayPort, 4× GbE
- Industrial range: –40°C / +85°C, IPC Class 3
- Video: H.264/H.265 up to 4K 60 fps (EV)

Application Examples

- Video Over IP & broadcast systems
- Nuclear imaging & safety monitoring units
- UAV/UAS datalinks
- Optronics and multispectral fusion
- Autonomous vehicle perception
- Radar pre-processing (FPGA)
- Secure SDR communication chains
- Embedded mission computers

TYPICAL APPLICATIONS

- Optronics & night vision systems
- Real-time video acquisition & fusion
- Nuclear monitoring and high-safety processing units
- Embedded vision for autonomous systems
- UAV/UGV/UUV control & datalinks
- Sensor fusion (camera, LiDAR, radar, IR)
- Software-defined radio (SDR)
- Mission computers / data processing units
- Surveillance and situational awareness systems
- Industrial and radiation-tolerant embedded processing

CUSTOMISATION PATHS

Build-to-Spec

Complete development according to your functional, electrical, environmental and certification requirements.
From architecture definition to qualification, including software, FPGA and testing.

Build-to-Print

Manufacturing of your existing design with:

- Strict configuration control
- Guaranteed repeatability
- High-reliability production processes

Find support at your local Nicomatic Office

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