

▼ TRANQUIL Studio | 2CRSi Edge

TURBOS™ – POWERED MICROCLUSTER



Hoonify Technologies Inc. develops Turbos™, a Linux-based operating system designed to make supercomputing usable for real teams. By removing the HPC talent bottleneck, Turbos enables researchers and engineers to run modern simulation and AI/ML workloads securely, reproducibly, and efficiently across edge systems, workstations, clusters, and data centers.

To support growing demand for accessible high-performance computing (HPC), Hoonify developed the Cub (MicroCluster): a compact, multi-node cluster designed to provide researchers with their own personal supercomputer.

To industrialize and scale this solution, Hoonify partnered with 2CRSi Edge.

HARDWARE PLATFORM SCALING AS A SOFTWARE COMPANY

Hoonify's strength is its innovative software. However, scaling a physical HPC product introduced new constraints:

- Limited in-house hardware manufacturing capability
- Operational overhead from assembly and support
- Supply chain inconsistencies in previous Cub iterations
- Need for production-level quality control

As demand increased from researchers running mission-critical modelling & simulation workloads, the need for a reliable manufacturing partner became clear.

The Goal: Deliver a consistent, production-ready MicroCluster at scale without compromising performance or customer satisfaction.

THE USE CASE A SUPERCOMPUTER FOR RESEARCHERS

The Cub (MicroCluster) provides:

- Immediate access to multi-node parallel computing
- Rapid testing of embarrassingly parallel codes
- Seamless scaling to larger Turbos clusters

Operating at **less than 1000W from a standard wall outlet**, the system is ideal for laboratories and offices where large institutional

This solution is particularly impactful in:

- Nuclear reactor modelling
- Fusion research
- Pharmaceutical R&D
- Engineering simulation

Researchers can validate ideas locally, shorten iteration cycles, and then push validated workloads to larger clusters for higher-fidelity simulations.

TECHNICAL REQUIREMENTS

High-Density Performance in A Compact Form Factor

The custom MicroCluster manufactured by Tranquil Studio had to meet strict requirements:

NETWORKING



- 8-port (or greater) switch
- 2.5 GbE minimum per node
- Dual 10 GbE uplinks
- External NAS connectivity
- Multi-cluster scalability

Compute Architecture



- x86-64 CPUs
- High base clock speeds
- Optimized for simulation workloads

Memory



- Minimum 96GB RAM per node
- Designed for memory-intensive simulation workloads

System Flexibility



- Internal head-node configuration
- Or 8 compute nodes with external head node
- Expanded connectivity for storage and peripherals



Front Side



Rear Side

The challenge was to deliver HPC-class performance in a compact, energy-efficient, office-ready system without compromising reliability.

TRANQUIL STUDIO MANUFACTURING & QUALITY EXECUTION

When Hoonify discovered the MicroCluster platform, they explored alternative desktop-style cluster designs from vendors such as Simply NUC, ClearCube, and HIPER.

Tranquil Studio UK approach stood out due to:

- Structured internal quality processes
- Mature tooling and manufacturing standards
- Consistent production capability
- Clear and proactive communication
- Low MOQs and avoidance of large restrictive tooling fees

Initial concerns regarding UK-based manufacturing supporting US customers including RMAs, turnaround times, and time-zone coordination were addressed through transparent collaboration and demonstrated responsiveness, and the involvement of 2CRSi Corp, whose US presence supports local commercial and operational requirements.

The result is a scalable, production-grade platform that supports

OVERCOMING LIMITATIONS

Previous Cub versions encountered:

- Networking constraints typical of NUC-based systems
- Supply chain variability
- Manufacturing scalability challenges

By partnering with 2CRSi Edge, Hoonify achieved:

- Improved supply chain stability
- Consistent unit-to-unit build quality
- Reduced operational overhead
- Increased customer confidence

This allowed Hoonify to focus on TurbOS innovation while relying on Tranquil Studio for hardware excellence.

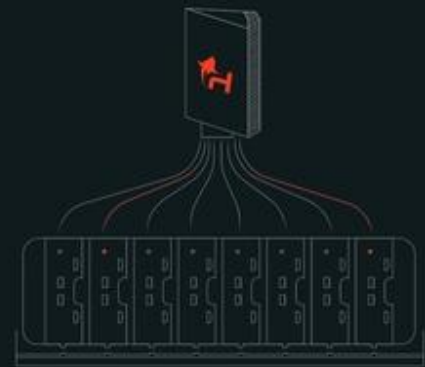
CRITICAL TECHNOLOGY FOR MISSION-CENTRIC RESEARCH

Hoonify serves researchers with mission-critical deliverables, where downtime or delays are unacceptable.

The Cub (MicroCluster), manufactured by Tranquil Studio, provides:

- Turnkey local multi-node HPC
- Simplified orchestration of CPU & GPU workloads
- Reliable hardware execution
- Reduced dependence on HPC specialists
- Seamless scaling to larger TurbOS infrastructures

This combination delivers both performance and peace of mind.



ABOUT HOONIFY

Hoonify is a U.S.-based high-performance computing (HPC) software company focused on simplifying access to advanced computing. Hoonify provides an integrated computing platform and related services that enable organizations to run simulation, AI, and data-intensive workloads efficiently across on-premises, cloud, and edge environments.

Originally centered on software innovation, Hoonify has evolved in recent years into a platform-plus-services company. Alongside its TurbOS® platform, Hoonify delivers consulting, integration, and deployment services to ensure seamless adoption and optimized performance. For customers, this means reduced complexity, faster implementation, and computing solutions tailored closely to their technical and operational needs.

<https://www.hoonify.com>

ABOUT TRANQUIL STUDIO

Tranquil Studio is the bespoke design and manufacturing solution family within 2CRSi Edge, engaged when standard platforms cannot meet requirements and engineering change is confirmed as necessary. It operates within a governed, phased structure with defined boundaries at every stage. Studio is intentionally not speculative R&D and not an unbounded custom service. It is a structured engineering engagement designed to reduce uncertainty and deliver outcomes predictably, from initial requirements through to a deployed and supported system. Tranquil means "calm, peaceful, quiet, and free from disturbance or stress."

"We have a steady stream of researchers who need an easy-to-use solution to do their modeling & simulation on a turn-key, convenient wall-power local multi-node cluster. These customers often have mission critical deliverables that cannot afford project schedule delays."

Blake Kinnan, Founding Team Member, Hoonify Technologies Inc.

A SOFTWARE and HARDWARE PARTNERSHIP BUILT FOR SCALE

This collaboration demonstrates the strength of pairing:

- Hoonify's TurbOS™ software expertise
- Tranquil Studio manufacturing
- Structured quality assurance processes
- Clear project communication

Creating a compact desktop supercomputing solution that bridges the gap between local experimentation and institutional-scale HPC.

Are you looking for an IT system that supports your activity for a specific use case?

Contact us, we can support you, whatever the environment and the constraints linked to it.



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