

Built to Last, Engineered to Trust

SAFETY-CRITICAL SYSTEMS SOLUTION



Overview

At Powersoft19, we specialize in developing embedded systems for environments where lives, infrastructure, and mission success depend on absolute reliability. From concept to certification, our Safety-Critical Systems services follow industry-recognized functional safety standards, ensuring traceability, fail-operational behavior, and audit-ready documentation. Whether it's a medical device, automotive ECU, avionics module, or industrial controller—we engineer for certainty, not assumptions.

Challenges Businesses Face

Organizations building safety-critical products face a unique set of challenges:

- Strict compliance and certification requirements
- Complex hardware-software integration and traceability
- Long development cycles due to validation demands
- High cost of failure—legal, operational, reputational
- Lack of specialized in-house expertise or qualified tools

How We Solve It

We build embedded systems using safety-first design principles: deterministic behavior, robust error handling, fault-tolerance, and complete verification. Our process includes safety concept creation, HARA, FMEA, SIL/ASIL compliance, and tool qualification. With AI-augmented testing, model-based design, and formal methods, we accelerate safety-critical development without compromising rigor or integrity.

Services We Offer



Safety Architecture and Design

- Hazard and Risk Analysis (HARA), safety goals definition
- System architecture with safety partitioning and redundancy
- Software safety mechanisms and fault injection resilience
- Hardware abstraction, bootloaders, and safe startup routines



Verification, Validation and Certification

- Unit, integration, and HIL testing for functional safety
- Model-based testing and requirements traceability
- Formal verification, static analysis, and test coverage analysis
- Tool qualification documentation (TCL, TQL, TQV)



Safety Compliance and Documentation

- Support for ISO 26262, DO-178C, IEC 62304, EN 50128, IEC 61508, ARP4761/ARP4754
- Safety case creation and safety manual delivery
- Compliance audit preparation and support
- Safety plan and verification strategy



Maintenance and Lifecycle Support

- Continuous safety monitoring and post-market surveillance
- Change impact analysis and recertification
- Long-term maintenance planning for regulated systems
- AI/ML-based diagnostics and anomaly detection



Tools and Tech Stack

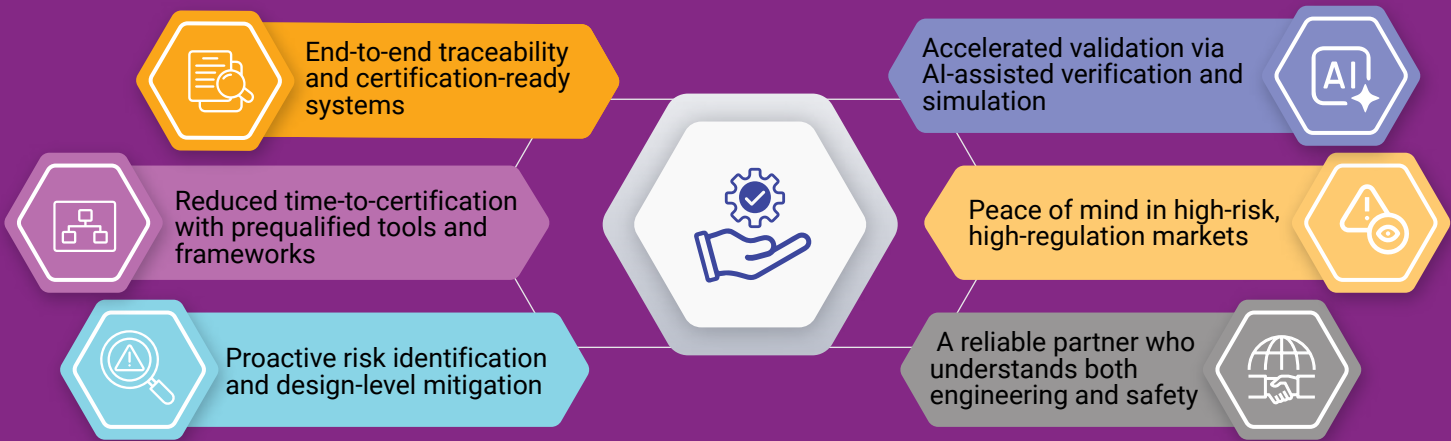
Category	Tools and Technologies
Modeling and Simulation	MATLAB/Simulink, SCADE, IBM Rhapsody, ANSYS Twin Builder
Development	C/C++, MISRA C, Ada, Rust (safe subsets), Embedded Linux, FreeRTOS
Static and Dynamic Analysis	Polyspace, LDRA, Coverity, Klocwork, VectorCAST
Testing and Validation	TESSY, Parasoft, CANoe, Vector VT System, NI VeriStand, Jenkins CI, QEMU
Requirements Management	Polarion ALM, Jama Connect, ReqIF, Jira
Safety Compliance	medini analyze, Safety Architect, TÜV-certified toolchains
Version Control and CI/CD	Git, SVN, Bitbucket, Azure DevOps, Jenkins, GitLab CI

Powersoft19 can adapt to any client-preferred tools and qualified safety toolchains

Why Work With Powersoft19?

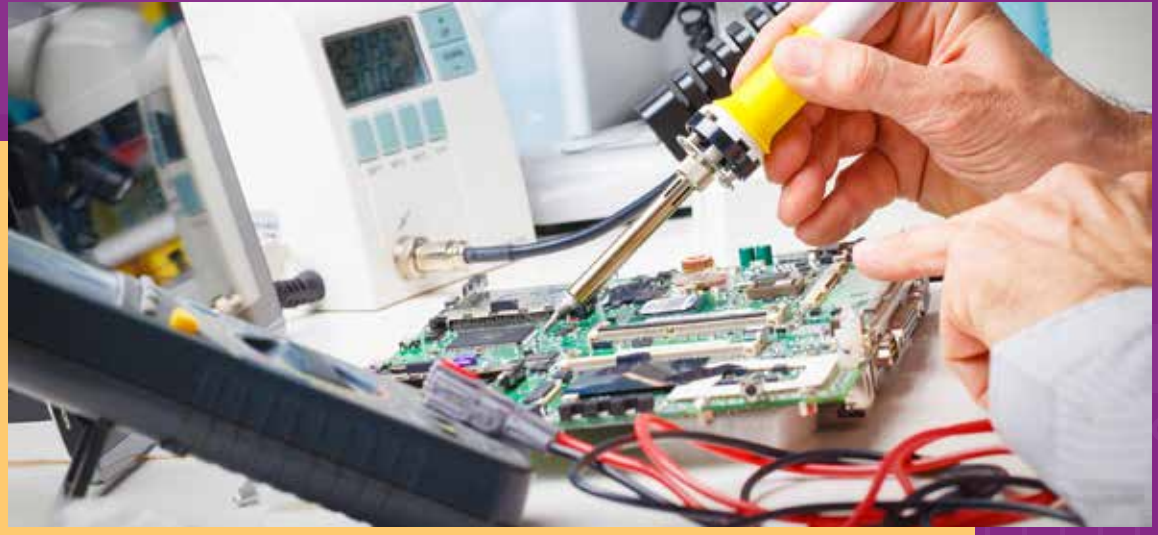
- Extensive experience in various safety-critical sectors such as automotive, aviation, rail, and industrial
- Multi-disciplinary team with domain and regulatory expertise
- Compliance with ISO 26262, DO-178C, IEC 61508, IEC 62304, EN 50128, and others
- Qualified tools, formal methods, and test automation expertise
- Support for prototyping, production, and certification audits
- Focus on traceability, transparency, and deterministic behavior

Benefits You Get



Make Quality a Competitive Advantage

When lives or missions are at stake, you need a partner you can trust. Let Powersoft19 help you engineer safety-critical systems that meet the most stringent standards—with rigor, speed, and deep technical integrity. Visit our website or contact our safety-certified engineers today.



Contact Us

Drop us a line and let us know what we can do for you. There is no limit to what can be made possible with our passionate team. Here are some examples:

- Come up with ideas to solve challenging issues faced by your business.
- Execute complex project/product ideas.
- Take the burden of managing legacy products off your shoulders.
- Provide a skilled project team to augment your in-house resources.
- Provide consultancy regarding industry standards and market trends.
- Design a customized partnership model with *Powersoft19* that empowers you to beat the competition.



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