powersoft nineteen

Engineering Resilience Into Every Circuit

SAFETY-CRITICAL HARDWARE

Certified Hardware Solutions *for Risk-Sensitive Applications across Industries*

Overview

In environments where failure can cause injury, downtime, or mission collapse—hardware must be flawless. At *Powersoft19*, we design, verify, and maintain safety-critical hardware systems that meet the strictest global safety standards. From fault-tolerant architectures to certified PCB layouts, we ensure every element of your hardware design is robust, traceable, and ready for real-world operation—no compromises.

Challenges Businesses Face Today

Developing safety-critical hardware presents a unique set of challenges for most industries and businesses, such as:

- Meeting SIL/ASIL/Design Assurance Level (DAL) targets
- Mitigating electrical failures, thermal events, or EMI vulnerabilities
- Ensuring documentation traceability across versions and components
- Complying with DO-254, ISO 26262, IEC 61508, and other standards
- Tool qualification, test coverage, and hardware-in-the-loop (HIL) validation

How We Solve It

Powersoft19 takes a structured, standards-driven approach to safety-critical hardware development. We begin with hazard and failure analysis, followed by fault-tolerant design, strict component selection, and layered verification—supported by certified toolchains. We also offer AI-powered diagnostics and predictive failure modeling, enabling smarter designs and faster certification.

End-to-End Hardware Design for Safety-Critical Applications

System Architecture and Design

- Redundant, fail-safe, and fault-tolerant architectures
- Safe-state design and power failover planning
- Digital/analog/mixed-signal circuit design
- Functional safety-aware PCB layout and routing

Verification and Validation

- Signal integrity, timing analysis, and simulation
- HIL(hardware-in-the-loop) testing and coverage metrics
- Boundary scan, BIST, and environmental stress testing
- Fault injection, FMEA, FTA, MTBF, and FMEDA

Compliance and Certification Support

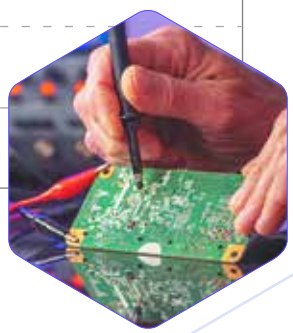
- Documentation for ISO 26262, DO-254, IEC 61508, EN 50129
- Safety plan, validation matrix, and traceability matrix
- Hardware safety requirements derivation and gap analysis
- Audit readiness and third-party certification support

Post-Deployment Services

- Field diagnostics and RMA analysis
- Change impact assessments and lifecycle documentation
- Safety-critical obsolescence management
- Long-term reliability and redesign support

Tools and Technologies

Category	Tools and Technologies
Schematic and PCB Design	Altium Designer, OrCAD, KiCad, Eagle, Mentor Xpedition, Zuken CR-8000
Simulation and Analysis	LTspice, PSpice, HyperLynx, ADS, ANSYS SIwave, MATLAB/Simulink
Verification and Testing	NI PXI, JTAG/boundary scan tools, CANoe, Keysight test suites, Vector tools
Safety Analysis Tools	medini analyze, Ansys Medini, ReliaSoft, Isograph FTA/FMEDA
Hardware Requirements and Traceability	Polarion, Jama Connect, ReqView
Thermal/EMI/Stress Analysis	COMSOL Multiphysics, Ansys Icepak, FloTHERM, SolidWorks Simulation
Firmware Integration	Embedded C/C++, MISRA compliance



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

Why *Powersoft19?*

- Multi-industry experience: aerospace, automotive, industrial, medtech, defense
- Proven delivery under ISO 26262, DO-254, IEC 61508, EN 50129, and more
- Certified hardware engineers and compliance specialists
- In-house test lab and HIL validation capabilities
- Seamless integration with embedded software and full systems engineering support
- Documentation and traceability ready for regulatory audits

Confidence in Every Component

Assurance, Compliance, and Peace of Mind

- Lower risk of in-field failure or product recall
- Shorter certification cycles with prequalified tools and deliverables
- Full compliance with functional safety requirements
- Long-term support and scalability built in
- Traceable, testable, and certifiable hardware design
- A partner who understands both innovation and regulation

Build Safer, Certify Faster, and Scale Smarter

Partner with *Powersoft19* to engineer safety-critical hardware that exceeds industry standards and earns long-term trust. Visit our website or contact our embedded systems team 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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