

Need extra engineering capacity? I support product teams with PCB design, independent design review, prototype bring-up, EMC troubleshooting, test automation and production handover - remotely or on-site in Brisbane.

Capability Statement

Electronics design and engineering support across the product lifecycle - from architecture and schematic capture through PCB layout, design review, qualification, debugging and DFM. Background in harsh-environment industrial and subsea hardware, with a focus on robust, production-ready designs and practical laboratory problem solving.

Track Record Highlights

- >50% **EMC emissions reduction** - Laboratory-based VNA troubleshooting and measurement.
- 3000 m **Subsea qualification** - Critical infrastructure with a 25-year target operational life.
- 11 kVA **Automated test systems** - Control, instrumentation interface and enclosure engineering.

Core Engineering Support

PCB Design & Hardware Architecture

- **PCB Design:** Altium Designer and KiCad schematic capture, library creation, constraints and multi-layer PCB layout.
- **Interfaces & Power:** I2C, SPI, A2B, 10/100/1000/10GBASE-T1 Ethernet, CAN, RS-485/422/232, analogue sensors, power conversion and regulation.
- **Robust Architecture:** High-speed digital awareness, signal-integrity review, fault-tolerant approaches, watchdog/recovery strategies and practical component selection.

Design Review, Quality & Cost Optimisation

- **Independent Peer Reviews:** Schematic, PCB layout and product-level reviews to identify risks early, improve signal performance and strengthen manufacturability.
- **BOM & Cost-Down:** Lifecycle and availability checks, alternative-part assessment and targeted cost reduction.
- **Engineering Quality:** Footprints, layout and documentation developed with IPC practices and experience within ISO 9001 and API 17F frameworks.

Compliance, Qualification & Lab Support

- **EMC/EMI:** Hands-on investigation of emissions and immunity issues during pre-compliance and formal testing.
- **Qualification:** Thermal profiling, hyperbaric pressure, vibration and harsh-environment validation support.
- **Bring-Up & Test Automation:** Precision rework, board bring-up, fault finding and Python-based instrumentation control for repeatable hardware validation.

Manufacturing, Mechanical & Prototyping

- **Rapid Prototyping:** FreeCAD-based 3D design and 3D printing of enclosure prototypes, assembly fixtures and laboratory jigs using engineering filaments.
- **Enclosure Development:** Coordination of sheet-metal, 3U/19-inch rack and CNC/fabricated hardware with mechanical engineers and suppliers.
- **DFM & Production Handover:** Gerbers, BOMs, assembly documentation, supplier quoting support, PCB fabricator queries and manufacturing setup.

Typical support: PCB backlog | redesigns | peer review | EMC investigation | prototype bring-up | test automation | DFM handover

Location

West End, Brisbane. On-site support across Greater Brisbane plus remote project work.

Flexible Engagement

Hourly, half-day, daily and project-based support depending on scope and duration.

Commercial Readiness

Corporate onboarding supported. PI / Public Liability documentation available as required.

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