MARIUSZ KAWA

Principal Electronics Engineer | Hardware & Embedded Systems Architect

End-to-end hardware architecture and production-ready design, including hands-on development, prototyping, and validation.
Independent Contractor (on-site & hybrid | EU-based engagements)

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PROFESSIONAL SUMMARY

Principal Electronics Engineer with 20+ years of hands-on experience delivering end-to-end embedded hardware products — from system architecture and schematic/PCB design through bring-up, validation, EMC preparation, and production readiness.

I take ownership of complex hardware and hardware–firmware integration challenges, focusing on robust, production-ready systems with predictable real-world behaviour.

I combine deep hardware expertise with low-level embedded firmware (C/C++), supported by a fully equipped personal electronics lab and custom test and lab automation tools (Python, C#), to accelerate validation and reduce technical risk.

CORE COMPETENCIES

Embedded Systems & System Architecture • Hardware Architecture & End-to-End Ownership • Hardware & Firmware Co-Design • EMC-Aware Design • DFM / DFT & Production Readiness • Schematic & PCB Design (Altium, OrCAD) • Board Bring-up, Debugging & Validation • Power Electronics & Power Management • Mixed-Signal Electronics • Motor Control • RF / IoT Hardware • Embedded C/C++ (Interrupt-Driven) • Embedded Linux Integration • Lab Automation & Test Tools (Python, C#)

PROFESSIONAL EXPERIENCE

Sigma Connectivity, Sweden | 2018–Present | long-term EU engagements

Senior Electronics Design Engineer • Hardware Architect

- Technical ownership of embedded hardware platforms for industrial and connected products
- Hardware architecture, schematic and PCB design, and hardware–firmware system integration
- Power management, motor control, and mixed-signal embedded system design
- Embedded firmware support during board bring-up and early system validation
- RF module integration and EMC-aware design with certified test house participation
- Validation, manufacturing readiness, and production ramp-up support
- On-site engagement with EMS factories to support PCBA quality and resolve production issues

AIKOM Electronics, Poland | 2000–2018

Principal Electronics Engineer • System Architect

• End-to-end design and validation of embedded, industrial, and robotic electronics systems
• Schematic and PCB design, bring-up, debugging, and verification
• Hardware–firmware integration with embedded software teams
• Development of test, validation, and lab automation tools (Python, C#)
• Long-term contract support for EU-based and international R&D teams
• Ownership of low-volume electronics production, including DFM/DFT, prototype and small-series manufacturing, test, rework, and field service support
• On-site coordination of overseas manufacturing (China), ensuring production readiness, quality standards, and alignment between design, suppliers, and manufacturing partners

Automotive ADAS – ZF / TRW, UK | 2011–2012

Electronics Design Engineer

• Design of validation equipment for automotive ECU prototypes
• Embedded firmware support for CAN-based test modules
• Design verification and environmental testing support

Industrial Robotics – Welding Alloys Group, UK | 2008–2009

Electronics Design Engineer

• Redesign and reliability improvement of industrial robot control electronics
• Hardware reliability improvements and embedded firmware support

Additional background:
Early experience in medical electronics (speech therapy devices), incl. own venture (1993–1997)

EDUCATION

MSc in Microelectronics and Electronic Devices
Wroclaw University of Science and Technology
Thesis: FFT-based analysis of nonlinear semiconductor gas sensors *(distinguished by Institute)*

LANGUAGES

English – Professional working proficiency | Polish – Native | German – Basic