



RFTEQ™



# CAPABILITY STATEMENT

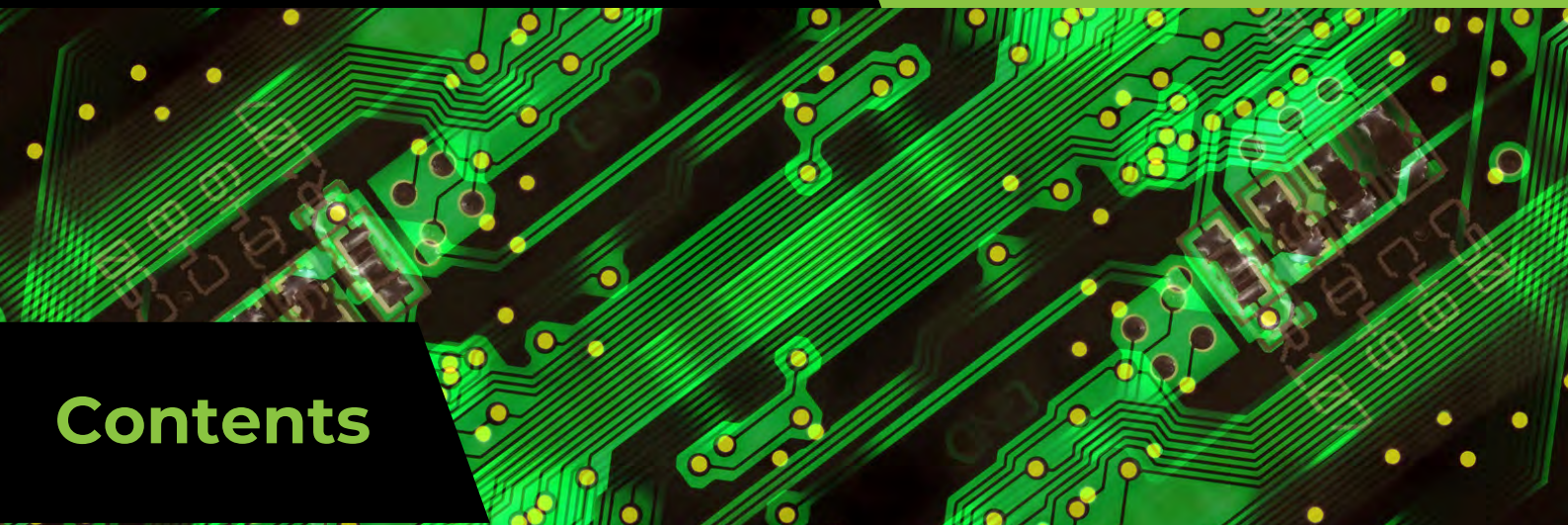
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# Contents

About RFTEQ.....	2
Vision & Mission.....	3
Our Story.....	4-5
Capability Development.....	6-7
FPGA Development.....	8
Software Development.....	9
PCB Design.....	10
Design & Manufacture.....	11
Systems Engineering.....	12
Project Management.....	13
Contact us.....	14

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## About RFTEQ

RFTEQ specialises in developing next generation Cyber and Electronic Warfare systems. Our passion in defensive technology is demonstrated by our experience and skills in real-time systems, custom radio frequency systems, communication systems, electronic surveillance and radar.

RFTEQ provides a range of comprehensive electronic engineering services tailored to meet specific needs. With our team of highly skilled and experienced engineers, we offer a wide range of services encompassing design, development, prototyping, testing, and manufacturing of electronic and RF systems under a ISO9001 certified framework.

Whether you require assistance in circuit design, PCB layout, firmware development, or system integration, we have the expertise to deliver innovative and reliable solutions. Our commitment to quality, efficiency, and customer satisfaction ensures that we deliver projects on time and within budget.

With a deep understanding of both electronic circuitry and radio frequency principles, we specialize in delivering tailor-made solutions for an array of industries. Whether it's designing advanced wireless communication systems, optimizing antenna performance, or developing high-frequency circuitry, we pride ourselves on delivering unparalleled results.

Our collaborative approach ensures that your unique requirements are met, while our commitment to staying at the forefront of technological advancements guarantees that our solutions are always ahead of the curve.



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## Vision & Mission

Our vision is to be a trusted sovereign provider of innovative Electronic Warfare Capabilities for Australia.

We deliver world leading RF solutions to complex Defence problems through innovative research and development, electronic engineering, trusted testing and operational support services.

### TEAMWORK

To work together to achieve outstanding sovereign Defence capabilities

### INTEGRITY

To be frank and fearless in our undertakings with our stakeholders

### TRUST

To be trusted to deliver on expectations

### PROFESSIONALISM

To develop processes that are lightweight and reflect best practice

### COMPASSION

To look after one another

### EXCELLENCE

To provide the best advice



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## Our Story

### 2017

RFTEQ was founded by partners with more than 50 years combined extensive experience in the fields of defence Electronic Warfare, communications and networking. RFTEQ grew quickly with focused recruitment of experienced practitioners further increasing the capability and capacity of the organisation.

### 2018

Awarded a Next Generation Technology Fund (NGTF) contract under the Counter Improvised Explosive Device (CIED) Grand Challenge to develop the Complex Adaptive Threat Jammer Technology (CATJAT) capability to address future RF threats.

RFTEQ had grown to five staff with the addition of high quality FPGA experience.

### 2019

Commenced working with DSTG, Consunet and DEWC under the JP500 Land EW Experimentation project. Started working with Consunet developing RF Test Sensors. RFTEQ had grown to seven persons including additional FPGA depth and hardware development and manufacture.

Designed, built, tested and delivered networked RF test sensors, through a subcontract, to the Department of Defence.

### 2020

Delivered a standalone RF emissions Detection System (RFDS), under JP500. RFTEQ had grown to nine persons, including additional embedded software skills and a business manager.

### 2021

RFTEQ successfully completed the NGTF CATJAT contract having exceeded everyone's expectation for the capabilities and maturity of the prototype system. Over the last three years, the system twice underwent over-the-air testing to further validate the system performance. The RFDS system capability was expanded to include a 6-18 GHz downconverter. RFTEQ has also began work on a high fidelity RF Path Emulator capability. Having added additional software engineering, systems engineering and project management skills our team is now 12 strong and continually growing.



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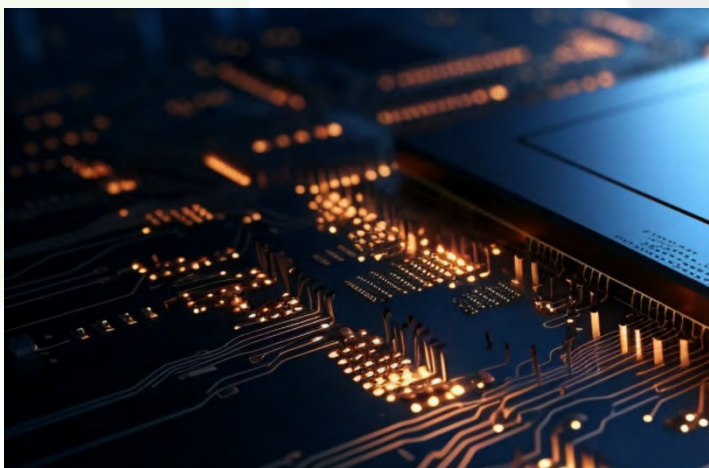
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## Our Story

### 2022

RFTEQ has been contracted by the Defence Innovation Hub (DIH) to further advance the CATJAT capability to a Technology Readiness Level (TRL) 7. This activity involves the engagement of local subcontractors in the mechanical and RF electronics design fields. RFTEQ is developing the RF Path Emulator to induce the effects of range, velocity and acceleration in complex RF networks. RFTEQ is engaged on a number of other Defence projects related to radar and electronic warfare technology development. RFTEQ is growing its skill base in the FPGA, electronics hardware manufacturing, software and systems engineering. RFTEQ has grown to 17 staff and we are actively recruiting.



### 2023

RFTEQ has grown into a world class, industry leading team of specialists in the areas of RF Engineering, FPGA development, PCB Design, Electrical Technicians, Embedded Software development, and many more skill sets. All of our team members have experience working in Defence projects and maintain active security clearances. We have experience in Electronic Warfare and have a thorough knowledge of current Defence capabilities having delivered technical services across several parts of the Electronic Warfare life cycle from Research and Development of new advanced architectures, to the development, testing and implementation of electronic countermeasures for use within operational environments. Our extensive analysis, design and architectural skills have been utilised on numerous Defence projects to achieve the successful transition of technology into operational settings.

RFTEQ will continue to grow over the coming years ensuring that we maintain a focus on retaining our highly specialised skillsets while upskilling additional team members to provide additional skills in other functional areas while striving to ensure that our Defence capability grows to address future concerns and requirements.

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# Capability Development

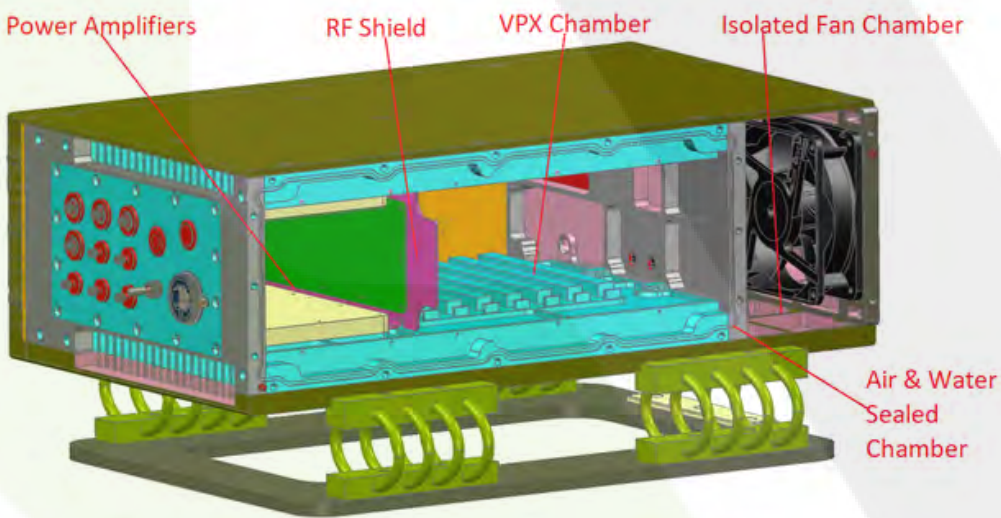


## CATJAT Claw

The Complex Adaptive Threat Jammer Technology (CATJAT) system, developed by RFTEQ in collaboration with Defence Science and Technology (DST) group, is a next generation advanced countermeasures surveillance and jamming system. The CATJAT systems novel architecture exploits target communication protocols to generate specific high-fidelity wideband signals precisely in time, frequency and space.

- Targeting specific protocols of threat signals
- Real-time specific identification of threat signals
- Dynamic jamming resource management
- Rapid detection and jamming response.

The CATJAT prototype system has been tested in real-world environments demonstrating the ability to deny advanced network threats in real-time.



- Capability Specification:**
- 20 MHz to 7 GHz frequency Coverage
  - 8x 1 GHz Real-Time Channels
  - 3x 100 Watt Bands
  - 4x integrated RFSocs
  - Rugged vehicle integration
  - Low SWaP

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## Capability Development

### CATJATmicro

Our technology CATJAT - The Complex Adaptive Threat JAMmer Technology system is being adapted by ACRE - A consortium of SME's being led by Axiom Precision Manufacturing, joined by CruxML, Ebor Systems and RFTEQ to further develop RFTEQ's CATJAT suite. The resulting system is known as CATJATmicro - a Personal Electronic Countermeasure (PECM) system.

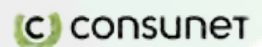
CATJATmicro leverages RFTEQ's existing skill base in countermeasures system development to continuously detect signals across a wide range of frequencies to identify where the threat signals are. CATJATmicro will rapidly apply the best jamming technique to disrupt the threat radio frequency signal.



#### Capability Specification:

- 50 MHz to 6 GHz frequency Coverage
- 8x 1 GHz Real-Time Channels
- Low power for personal use
- Cutting edge RFSoc technology
- Very Low SWaP

### Our Partners



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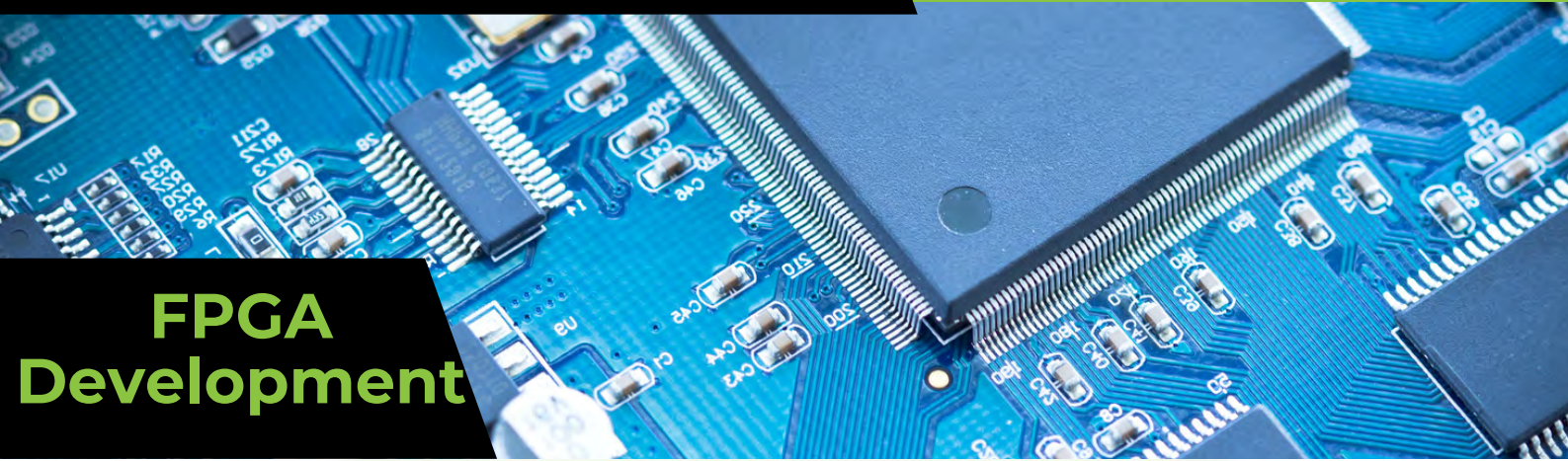
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## FPGA Development

Discover the endless possibilities of FPGA Development with RFTEQ. With a large number of staff who have a long history in FPGA development, we harness the full potential of these reconfigurable wonders to create groundbreaking solutions for the most complex challenges. Our expert team of FPGA engineers have an in-depth understanding of cutting-edge hardware design methodologies, allowing us to craft highly efficient and optimized FPGA designs.

At RFTEQ, we take a collaborative approach, working closely with our clients to elicit their unique requirements and objectives. Whether you seek to accelerate data processing, implement advanced algorithms, or achieve unparalleled performance, our FPGA Development capabilities can be tailored to meet your specific needs. We leverage industry-leading tools and languages, such as Verilog and VHDL, to ensure seamless integration with your existing systems.

Our track record of successful FPGA projects demonstrates our adaptability and versatility in solving intricate challenges. From start-ups to established enterprises, we have the expertise to handle projects of any scale and complexity. What sets us apart is our commitment to delivering robust and reliable FPGA solutions, rigorously tested and validated to exceed expectations.

Embrace the transformative power of FPGA technology with RFTEQ. Partner with us to unlock new dimensions of speed, performance, and efficiency, propelling your business ahead of the competition. Let our FPGA Development capabilities elevate your ideas to reality and revolutionize your digital landscape. Contact us today to embark on an exhilarating journey of innovation and technological advancement.



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## Software Development

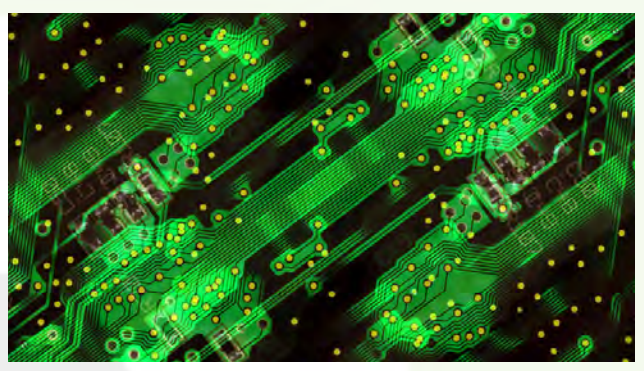
At RFTEQ, we pride ourselves on being a one-stop destination for all your software needs, covering a diverse range of programming languages and tools. Our expert team of software engineers brings a wealth of experience and proficiency in languages such as C/C++, Java, Python, MATLAB, and ADA.

With a proven track record in delivering successful software projects, we understand the importance of architecting reliable, scalable, and efficient solutions aligning perfectly with your business goals. Our expertise in C/C++ allows us to develop high-performance applications, system software, and embedded solutions, while Java empowers us to create platform-independent and enterprise-grade software.

When it comes to the Java framework, we excel in building robust applications and solutions that maximize your productivity and user experience. Our proficiency in Python enables us to develop versatile software, data analysis and machine learning solutions, fostering innovation and data-driven decision-making.



Additionally, our expertise extends to MATLAB, facilitating advanced modelling, numerical computing and simulation applications across diverse domains. We also embrace the power of ADA to deliver safety-critical and real-time software solutions, particularly in the Defence industry.



With our agile development practices and a client-centric approach, we ensure transparent communication throughout the software development lifecycle, keeping you engaged and informed at every step. We test rigorously to guarantee the highest quality and reliability of our deliverables.

No matter the complexity or scale of your project, our Software Development team is equipped to take on any challenge and transform your ideas into reality. Contact us today to embark on a transformative journey of software innovation and success.

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## PCB Design

Welcome to the realm of exceptional Printed Circuit Board (PCB), design and Manufacturing capabilities at RFTEQ. As industry leaders, we take immense pride in delivering top-notch, tailor-made solutions to meet your diverse electronic product needs. Our skilled team of engineers have an extensive background in PCB design and manufacturing, utilizing the latest tools and technologies to bring your ideas to life.

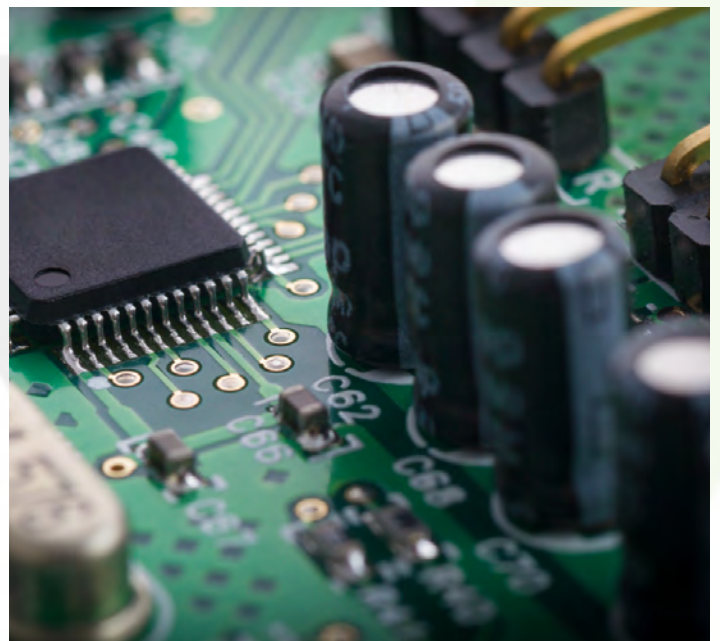
From concept to prototype and small production runs, we offer end-to-end services that ensure seamless execution and unmatched quality. Our PCB design expertise covers single-layer to multi-layer boards, high-density interconnects (HDI), Radio Frequency and rigid-flex PCBs, enabling us to cater to projects of all complexities.

With a keen eye for detail and a focus on optimization, we meticulously design PCB layouts that guarantee robust functionality, signal integrity, and thermal management. Whether you require designs for consumer electronics, medical devices, industrial applications, or automotive systems, we have the capabilities to exceed your expectations.

When it comes to PCB manufacturing, our state-of-the-art facilities and strict quality control measures ensure that every board meets the highest industry standards. Experienced practitioners can also design form fitting casings to minimise Electromagnetic Compatibility /interference EMC/EMI and protect sensitive componentry.

At RFTEQ, we understand the importance of collaboration and communication. Our dedicated team works closely with you to understand your specific requirements and provides expert guidance at every step of the process. We believe in building long-term partnerships and take pride in our ability to deliver exceptional customer satisfaction.

Put your trust in our PCB Design and Manufacturing capabilities, and witness how we turn your visions into reality with cutting-edge technology, meticulous craftsmanship, and unparalleled dedication. Contact us today to bring your electronic innovation into reality.



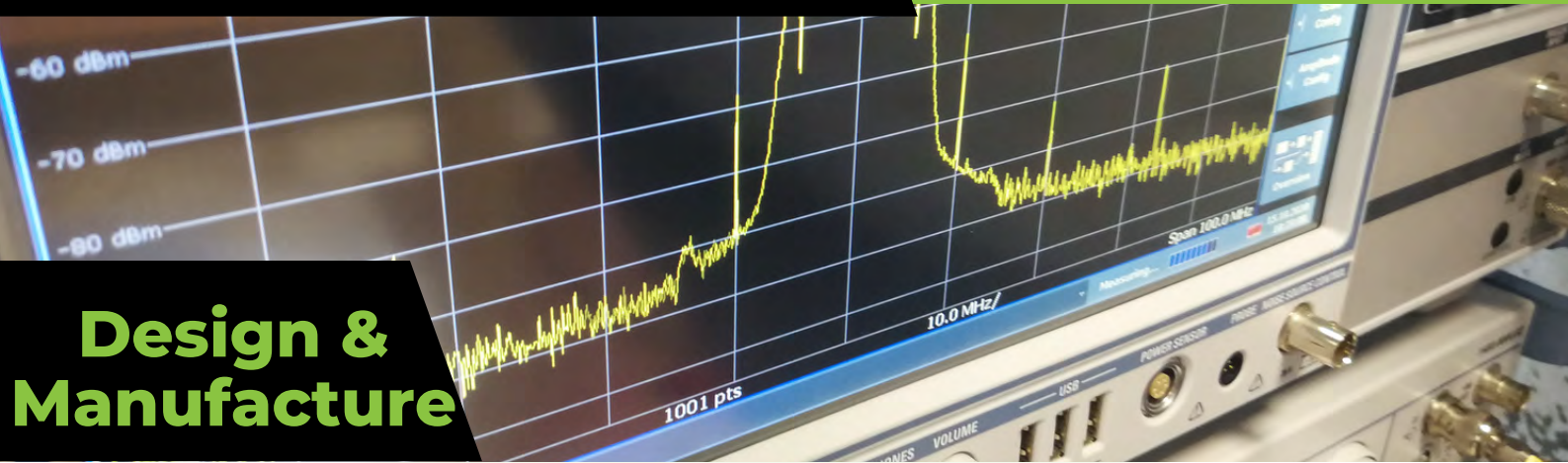
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## Design & Manufacture

RFTEQ is your one-stop destination for exceptional electronic manufacturing and hardware engineering services, where innovation and precision converge. RFTEQ takes pride in being a leading provider of cutting-edge solutions, including the latest VPX (VITA 46) technology. With a team of highly skilled hardware engineers, we specialize in creating robust and reliable electronic systems that cater to diverse industries, from aerospace and Defence to telecommunications and industrial applications.



Whether you require customised VPX boards or complete turnkey solutions, we have the expertise to bring your vision to life. Our state-of-the-art manufacturing facility is equipped with the latest tools and equipment, ensuring top-notch quality and efficiency throughout the production process.

From concept design to prototyping and low-volume production, our end-to-end services guarantee seamless execution and prompt delivery. With a customer-centric approach, we prioritize your unique needs, ensuring that each solution is tailored to match your specific requirements. Experience the next level of electronic manufacturing and hardware engineering services with us, and let's shape the future of your technology together.



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## Systems Engineering

At RFTEQ Systems Engineering (SE) is a harmonious blend of art and science, aimed at creating effective systems using system-of-systems, whole-of-life principles. Creative problem-solving skills are applied alongside rigorous scientific methodologies to develop optimal solutions.

Our SE specialists help explore customer needs, using these to drive team design and integration processes. With a multi-disciplinary lens, they bridge social and technical product aspects to meet product requirements and end-user capability goals.

Incorporating RFTEQ's broader software, firmware, and hardware expertise, RFTEQ considers product agility and modularity by design, alongside reliability and testability concerns. Designs align with military and technical standards where prudent, to save time, money, and increase compatibility.

By flexibly applying best-practice tools and processes, RFTEQ can produce robust and adaptable SE scaffolding for varied client projects. This flows from architectural trades and SWaP-C constraints, down to precise system requirements and detailed specifications.

Systems engineering artefacts, from Concept of Operations (CONOPS) to Interface Control Documents (ICD), are regularly produced and updated as records of alignment and progress. Along with appropriate validation and verification, this approach ensures efficient development of highly performant and complex digital RF systems.



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## Project Management

At RFTEQ, our project management oversees efficient execution of complex projects, enabling delivery on time, within budget, and to the standards for which we are known.

Multidisciplinary RF projects can require intricate coordination between engineering specialties. This includes planning of architectural design, FPGA firmware, software programming, hardware development, testing, and technical documentation. Our project management orchestrates resources across these functional areas, aligning development schedules within project timelines. This approach translates into economical and performant systems, which meet or exceed requirements and expectations.



Our clients expect proactive and transparent project management communication. We regularly provide demonstrations and integration activities alongside informed reporting. In turn, we accommodate end-user input, decisions, and feedback throughout the project lifecycle.

In an industry which rapidly evolves to the latest technologies and threats, RFTEQ project managers anticipate changes, facilitate opportunities for technological innovation, and seamlessly integrate them into ongoing projects. Our best-practice risk analysis processes give reliability and predictability from the get-go, while allowing room to excel. This disciplined approach brings significant savings for clients and mitigates the dangers of costly overruns or delays. As a result of our project management, clients can plan their strategy with the confidence that RFTEQ will deliver.

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