

Case Study: Managed Off-Site Team

Synopsis

Resource Engineering Projects provided a managed off-site team for full life cycle development of DO178B level A software.

The development process used UML and Ada, whilst the verification activities used AdaTEST and a bespoke simulation tool for software integration testing.

The contract was time and materials, with expected outputs and targets agreed upfront and regular meetings to review the progress and against these

Key Project Facts

Team Size: 15 engineers

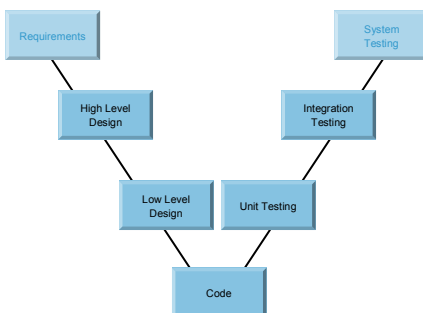
Duration: 18 months

Contract Type: Time & Materials

Tools/Languages: UML, Ada, Bespoke Unit Test Generator, AdaTEST, SPARK

Standards: DO178B level A

Lifecycle Involvement:



Accreditation



Project Overview

Resource Engineering Projects provided a managed off-site team to supplement the customer's resource and skill set in full life-cycle development of DO178B Level A software for the Aerospace industry. All of the customer's processes and standards were adopted for the duration of the project.

The software executed on bespoke hardware providing aircraft engine control. The software provides signal conditioning and validation based on engine sensor and airframe information. It also controls actuation of the engine based on the validated signals and reports back to the airframe.

Microsoft Word format requirements are reviewed to assess if they are implementable and testable, in order to prevent down-stream issues and increase requirement stability.

Software architecture and low level design were developed from the requirements in UML using ARTiSAN, based on a generic architecture template to increase reusability between products. The low level design was then exported from ARTiSAN into a Microsoft Word format for configuration and review.

Ada code was written to the low level design documents and statically analysed using SPARK for syntax and dataflow analysis.

The Ada code was dynamically tested against the design and test scripts were developed using a bespoke tool to generate AdaTEST

scripts. This method abstracts the tool and language skill set from the test methodology. These tests prove that the code is compliant with the design and is robust.

Finally, software integration testing was carried out using a bespoke engine simulation tool, providing evidence that the software is compliant with the requirements.



Independent peer reviews were conducted at the end of each life-cycle stage providing evidence that the output of that stage was suitable to be passed to the next.

All activities conducted were continually monitored and audited both by the customer and by the internal Quality Assurance team. After this successful project further projects are currently being undertaken following the same process.

The Resource Engineering Projects Advantage

Experience:

Over 15 years experience of software design for real-time, safety critical, embedded applications using expert project management and engineers. Proactive approach to challenges adds value to projects and keeps the client's best interests in the forefront.

Safe Hands:

Quality product and service guaranteed. Internal, client, and independent audits passed as a matter of course. Continual improvement ensures optimal performance and quality is always maintained.

Flexibility:

Many types of service packages are available, from support for a discrete project phase within the client's team, to full "fire and forget" solutions where total ownership, responsibility and accountability for the software lifecycle can be entrusted.

Price:

Fixed Price, Time and Materials and Targeted Time and Materials contracts are all available, and the advantages of each can be discussed up front to ensure the client has the flexible or fixed arrangement that suits their needs.