Modeling Flight Software from Architectural Design Patterns

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Abstract

This paper discusses how Software design patterns are applicable to Flight Software (FSW) domain. The application of design patterns is particularly important in this domain to improve the quality of software and reduce the flight software anomalies which lead to major losses. Generic architectural design patterns for real-time software components are customized to suit the flight software domain. This is illustrated using the Student Nitric Oxide Explorer (SNOE), which is a real world case study from National Aeronautics and Space Administration (NASA). The customized design patterns are validated and made executable templates which help an engineer when building software architectures.

References

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Index Terms

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Keywords

Software Architectural Design Patterns UML 2.0 Student Nitric Oxide Explorer (SNOE) IBM Rational Rhapsody