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Aircraft control system simulation using a model based system and embedded software engineering workflow

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Abstract

Macro industry trends, including rising fuel cost, increasing safety requirements, passenger comfort, and environmental responsibility are driving the aircraft industry to develop technology with light weight materials, replace mechanical systems with electronic systems, utilize more sophisticated and efficient control systems and embedded software, and improve aerodynamic efficiency. With emergent competition from China, Russia and elsewhere there is continued pressure to innovate while compressing development schedules. Simulation is a powerful enabling technology at all stages in the design process from functional and architectural design through detailed design and verification and validation. Along the design journey the simulation tools used vary in complexity, order and by engineering discipline. To address the industry trends and the implications for engineering design, aerospace organizations are integrating their often segregated simulation best practices throughout the design process and across functional disciplines. In this paper a model based systems and embedded software engineering workflow is introduced that in a common simulation environment spans requirements management, functional and architectural definition through to detailed 3D design and optimization using physics based simulation. A demonstration will be presented for an aircraft flight control system.

Biography

Vincent is Senior EM Product Manager for ANSYS Inc. for Simplorer, ANSYS system simulator. Vincent has been with ANSYS Inc. since its acquisition of Ansoft Corp. in 2008. He has been helping companies solving complex problems with a focus on system engineering simulation, EMC-EMI, Multiphysics applications, motor applications, power electronics.