ARTEMIS TECHNOLOGY CONFERENCE 2015

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DAOS Dynamic Adaptability in Open System

Multi Domain Avionic Architecture

(wireless integrated intelligent diagnostic and avionic system reliability)

PROJECT IDEA

Integrated Modular Avionics (IMA) and related Distributed-IMA are the state-of-the-art for avionics systems of modern aircraft (either civil and military). HW/SW infrastructures are shared between different application system functions. IMA and D-IMA as embedded systems are computer systems that *could be part* of a larger system (multi domain application), which generally provides real-time monitoring and control. They execute a predefined set of tasks on behalf of a real-time application, and may have special requirements based on the application domain they support. These systems are considered safety-critical "embedded systems" and UAVs (Unmanned Aerial Vehicles) constitute a typical application of a complex critical embedded system

One concept that can result in radically different solutions in IMA / UAVs is the use of DDS and/or SOA based on multicore technology.

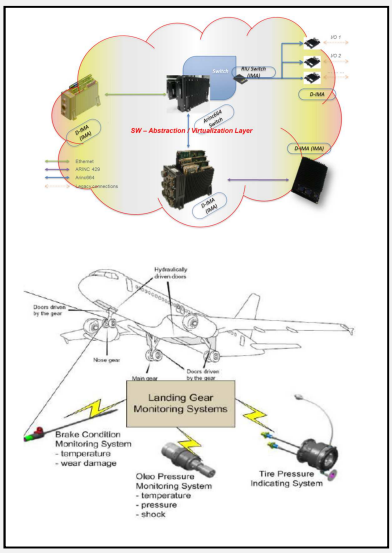
Wireless technologies are intended to offer the means to implement systems that enhance reliability. Adding new sensors on an aircraft to monitor functions has the potential to improve the reliability of aircraft.

Wireless *connections* to provide real time maintenance and integrated intelligent diagnostic using these standards will improve the maintenance time reducing cost, and will contribute to improve the reliability of the overall avionic system .

Certification aspects of safety critical applications based on distribuited architectures, could be addressed in different steps starting from maintenance/diagnostic issue to reliability/safety issue.

The purpose of this project is to integrate into an EMC2 platform a certifiable DDS/SOA for integrated intelligent maintenance/diagnostic and increasing reliability using wireless connections.

Keywords : safety/security, critical embedded systems, wireless, IMA, UAVs, DDS, SOA, performance, maintenance, certification aspect.



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