

Maspatechnologies Helps Airbus Pass Multicore Certification on a NXP T2080



In the A3R Program the automatic operation of the BOOM system requires high computing performance that can only be provided by multicore processors. The challenge lies in providing evidence of correct operation of the software contributing to the reliable and safe operation of the overall system. This is achieved following the guidance and achieving the objectives of CAST-32A – now AM(C) 20-193 – jointly published by the FAA and EASA for civil avionics.

Maspatechnologies contributed to the project with several elements of its CAST-32A multicore certification package. At the software level, Maspatechnologies contributed its micro-benchmark technologies tools, that have reached D0-330 qualification in the scope of the project, to support the *characterization of interference channels*. At the analysis level, Maspatechnologies brought its *interference channel, critical configuration setting, and hardware event monitor* analysis documents. Both, software and analysis documents, along with the technical support of Maspatechnologies hardware experts, were at the core of the Airbus' multicore of certification approach and its implementation (provided evidence).

The outcome has been a positive assessment of the Air Trustworthiness Authority of the overall multicore certification of the software running on an NXP quad-core T2080 Processor used by one of the equipment of the A3R system.

“I am glad to see that our technologies have helped Airbus achieving CAST-32A compliance for the NXP T2080, especially because we targeted a high-performance setup in which all cores were active running critical software, hence effectively exploiting multicore performance capabilities. Reaching this goal has been a great challenge that our team has addressed in close collaboration with Airbus experts. We are working to extend our technologies to other multicore architectures to simplify multicore certification process for our customers” says Francisco J. Cazorla who led Maspatechnologies support in this project.

“Airbus is proud to be the first worldwide company to certify an airborne military equipment with an embedded multicore processor to the highest assurance level DAL-A covering CAST-32A requirements. This certification is an impressive milestone achieved with the support and expertise of our solution supplier Maspatechnologies. The outstanding, precise and fine-tuned micro-benchmark technology and multicore related tools used to conduct multicore interference channel and timing analyses have been essential to generate certification evidences that guarantee safety and determinism demanded to the NXP T2080 multicore processor.” states Andrés Morán Valero who is leading multicore certification activities in the Air Refueling Software group in Airbus Defence and Space in Spain.