



# ARINC653 AADL Annex Update

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# Report Documentation Page

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# Context, Rationale

## ARINC653

- Avionics standard
- Standardized API (called APEX – APplication EXecutive)
- Central part of the IMA philosophy
- Time & space partitioning

## Rationale of ARINC653 annex for AADLv2

- Standardize modeling patterns
- Better modeling & analysis support
- Design associated toolset and framework



# From the Last Meeting

## Ballot with other annexes

## Address most user comments

Replace ARINC653 by ARINC 653

Remove multi core examples

Apply DAL on all software components

## Get more user feedback

Keep the document neutral, avoid subjective statements

## Last editions ready to be published



# Experiments with the update Annex

## Latency Analysis

Analyze latency of inter-partitions communication

## Code Generation for commercial ARINC653 OS

Demonstrate code generation for DeOS

Production of kernel- and partition-level code

## Use of RESOLUTE to check ARINC653/AADL models

Check Model Compliance

Integration of an ARINC653-dedicated RESOLUTE library



# Conclusion

## **Standardized modeling patterns for ARINC653 systems**

Support in OSATE and Ocarina

Third-party support for implementation production

## **Generic annex that can be reused**

ARINC653 and MILS architectures

Tailoring for other partitioned architectures

## **Exercised and demonstrated**

Architecture consistency checks and validation (i.e. latency)

Code Generation of partitions and kernel



# Links & Useful Information

AADL website – <http://www.aadl.info>

AADL wiki - [https://wiki.sei.cmu.edu/aadl/index.php/Main\\_Page](https://wiki.sei.cmu.edu/aadl/index.php/Main_Page)

ARINC653 AADL annex standard - <http://standards.sae.org/as5506/2/>





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