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Safety through quality

PRODUCT BRIEF

Derisk your multicore certification approach with the
MACH[178] Blueprint

Product brief: **MACH**[178] Blueprint

MACH[178] **Blueprint**

How can the **MACH**[178] Blueprint help you?

The **MACH**[178] Blueprint provides a platform through which you can understand what is required for multicore certification in accordance with A(M)C 20-193 and CAST-32A guidance and derisk your multicore certification approach.

The solution supports different roles in the avionics supply chain, including those of Integrated Modular Avionics (IMA) Certification Applicants, System Integrators, Platform Providers and Application Suppliers.

Benefits and use cases

- Understand how to meet A(M)C 20-193 and CAST-32A compliance objectives from planning to submitting compliance results using the **MACH**[178] workflow

- Develop in-house expertise to support A(M)C 20-193 and CAST-32A compliance
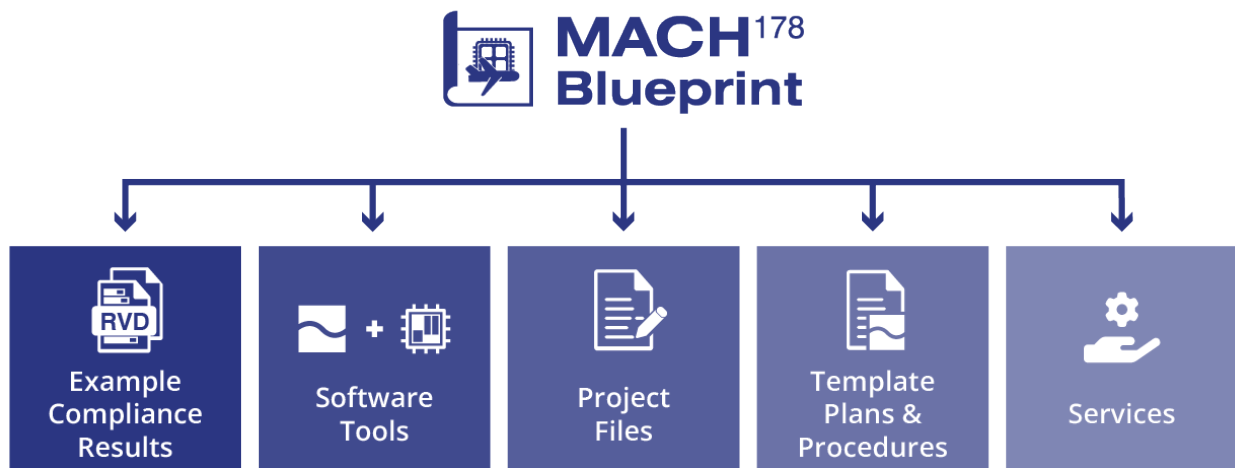
- Derisk your multicore DO-178C projects

How does it work?

The **MACH**[178] Blueprint is based on Rapita's **MACH**[178] approach for A(M)C 20-193 and CAST-32A compliance, which is being used to support the certification of multicore DO-178C software up to and including DAL A by avionics software developers globally. For more information on **MACH**[178], see the **MACH**[178] Product brief.

The **MACH**[178] Blueprint demonstrates how you can address key A(M)C 20-193 / CAST-32A objectives using the **MACH**[178] workflow. It includes results from running the workflow on the Blueprint platform, software tools and project files to support running the workflow on the Blueprint platform, and template plans and procedures that support using the workflow.

This is delivered along with support, training and consulting services to help you understand and repeat the **MACH**[178] workflow and answer any questions you may have about A(M)C 20-193 / CAST-32A certification.

To repeat the **MACH**[178] workflow using the Blueprint materials, you will need to arrange access to the corresponding multicore platform and RTOS, which are not included in the **MACH**[178] Blueprint.

MACH[178] **Blueprint**

| Example Compliance Results | Software Tools | Project Files | Template Plans & Procedures | Services |

Must be provided by you:

| Multicore platform | RTOS |

What's included?

The **MACH**[178] Blueprint includes the following components.

Example Compliance Results

The **MACH**[178] Blueprint includes results generated from running the **MACH**[178] workflow to identify and characterize the impact of two interference channels on the Blueprint platform. Results include:

- Hardware Resource Identification Results
- Interference Channel Identification Results
- Critical Configuration Setting Identification Results
- Hardware Event Monitor Identification Results
- Hardware Event Monitor Validation Results
- Interference Channel characterization Results
- Multicore Platform Characterization Results
- Timing Requirements Analysis Results
- Software Characterization Results

Software Tools

The **MACH**[178] Blueprint includes software tools that you can use to repeat the **MACH**[178] workflow in-house; this includes:

- The R**VS** toolsuite to automate instrumentation to collect performance metrics including software execution time and Hardware Event Monitors, to run multicore tests, and to report on and export results
- Rapi**Daemons** to support the characterization of interference effects on the Blueprint platform

Project Files

The **MACH**[178] Blueprint includes project files that you need to run the Blueprint software, execute Rapi**Daemons**, and run multicore timing tests on the platform. This includes:

- Blueprint application software build files
- Timing tests for the Blueprint application
- R**VS** project files to support running timing tests on the Blueprint application and collecting results

Template Plans and Procedures

- Template A(M)C 20-193 / CAST-32A compliance documents including:
  - Plan for Multicore Aspects of Certification (PMAC)
  - Multicore Platform Characterization Plan (MPCP)
  - Multicore Timing Verification Plan (MTVP)
- Process documents describe in detail how to follow the **MACH**[178] workflow to produce evidence for A(M)C 20-193 / CAST-32A compliance
- Checklists support compliance processes including reviews

Support, Training & Consulting

We provide support, training and consulting to ensure that you get the most from the **MACH**[178] Blueprint and to answer any questions you may have about A(M)C 20-193 / CAST-32A certification.

Supported platforms

MACH[178] Blueprint products are based on specific multicore platforms (including hardware, RTOS and applications).

To repeat the **MACH**[178] workflow using the Blueprint materials, you will need to arrange access to the corresponding multicore platform and RTOS, which are not included in the **MACH**[178] Blueprint.

For information on the Blueprint platforms available, contact Rapita Systems.

Interference channels

Understanding interference channels and characterizing the effects of interference is a key part of addressing A(M)C 20-193 and CAST-32A objectives.

Artifacts delivered in **MACH**[178] Blueprint products focus on two interference channels on the associated platforms.

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About Rapita

Rapita Systems provides on-target software verification tools and services globally to the embedded aerospace and automotive electronics industries.

Our solutions help to increase software quality, deliver evidence to meet safety and certification objectives and reduce costs.

Find out more

A range of free high-quality materials are available at:
rapitasystems.com/downloads

SUPPORTING CUSTOMERS WITH:

Tools	Engineering Services	Multicore verification
Rapita **Verification Suite**:	V&V Services	**MACH**[178]
Rapi**Test**	Integration Services	Multicore Timing Solution
Rapi**Cover**	Qualification	
Rapi**Time**	SW/HW Engineering	
Rapi**Task**	Compiler Verification	

Contact

Rapita Systems Ltd.
Atlas House
York, YO10 3JB
UK

+44 (0)1904 413945

Rapita Systems, Inc.
41131 Vincenti Ct.
Novi, Mi, 48375
USA

+1 248-957-9801

Rapita Systems S.L.
Parc UPC, Edificio K2M
c/ Jordi Girona, 1-3
Barcelona 08034
Spain

+34 93 351 02 05

rapitasystems.com

linkedin.com/company/rapita-systems

info@rapitasystems.com