

The image features a background of a blue-toned circuit board with glowing orange and yellow points of light. A grid of small white plus signs is overlaid on the entire image. The ARM logo is positioned on the left side.

arm

Software building blocks
for Functional Safety

Committed to functional safety

Markets addressed



Industrial
IEC 61508



Automotive
ISO 26262



Railway
EN 50128

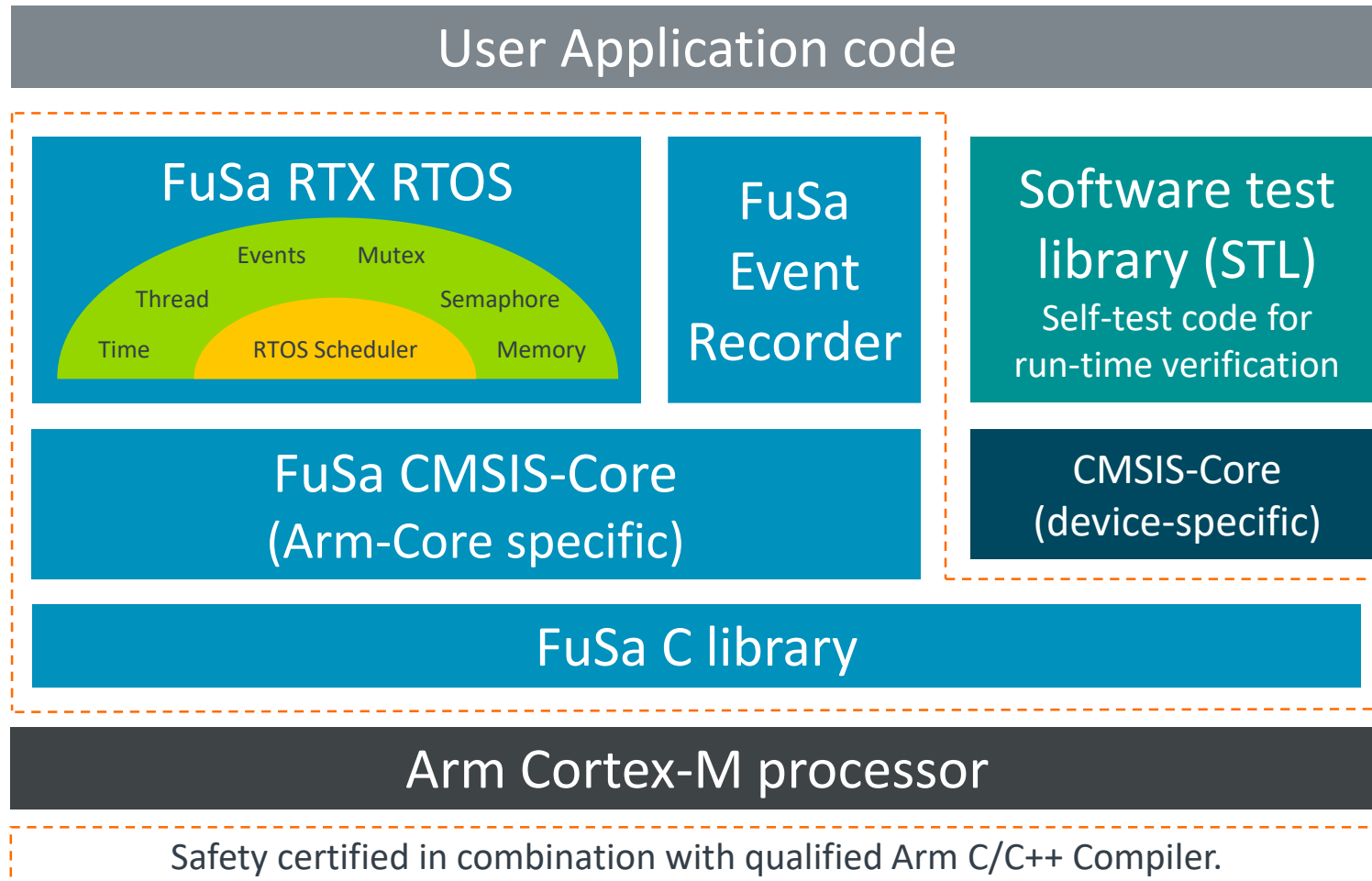


Medical
IEC 62304



Ready-to-use functional safety software framework

Run-time system for functional safety (FuSa RTS) for embedded applications



- Faster time-to-market
- Fully qualified for:
 - ISO 26262, ASIL D
 - IEC 61508, SIL3
 - IEC 62304, Class C
 - EN 50128, SIL4
- Optimized by the architecture experts
- One-stop shop for all software components

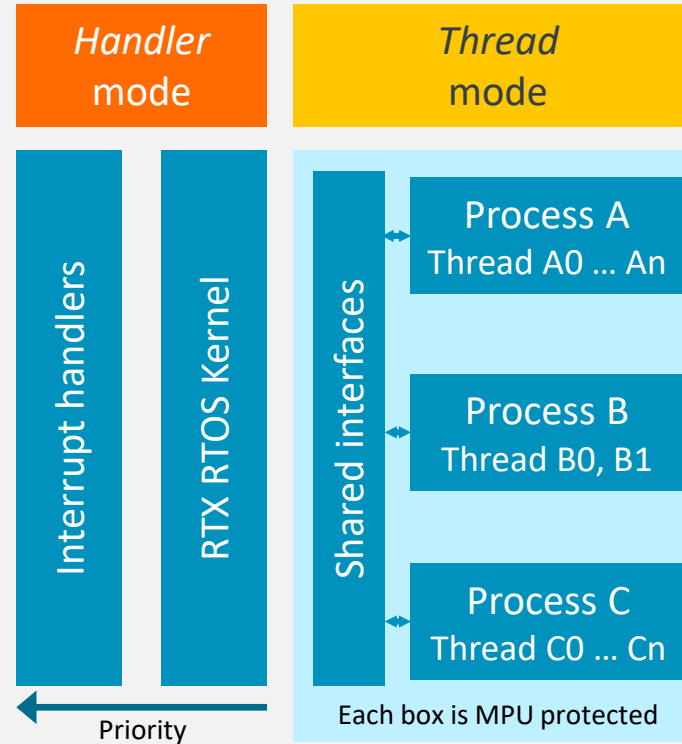
Project setup for Arm Cortex-M with MPU



CMSIS-Zone System Partitioning

Name	Access	Size	Process A	Process B
STM32F407IG				
memory				
IRAM1	rwX	128 KB	0x20000000	0x20000000
RamA	rwX	64 KB	0x20000000	0x20000000
RamB	rwX	64 KB	0x20010000	0x20010000
IRAM2	rwX	64 KB	0x10000000	0x10000000
App	rx	256 KB	0x8010000	0x8010000
Storage	r	128 KB	0x8090000	0x8090000
Scratch	r	256 KB	0x8050000	0x8050000
peripherals				
ADC1	prw	1 KB	0x40012000	0x40012000
ADC2	prw	1 KB	0x40012100	0x40012100
ADC3	prw	1 KB	0x40012200	0x40012200
C_ADC	prw	1 KB	0x40012300	0x40012300
GPIOA	prw	1 KB	0x40020000	0x40020000
GPIOB	prw	1 KB	0x40020400	0x40020400
GPIOC	prw	1 KB	0x40020800	0x40020800
GIOD	prw	1 KB	0x40020C00	0x40020C00
GPIOE	prw	1 KB	0x40021000	0x40021000
GPIOF	prw	1 KB	0x40021400	0x40021400

RTX5 RTOS Safe Process Isolation



- ✔ MPUs help with process protection for data and peripherals
- ✔ Based on CMSIS-RTOS v2 API
- ✔ CMSIS-Zone simplifies the setup
- ✔ RTX uses built-in processor features to separate the OS and application code

Optimize for performance

Reduced development risk, cost, and timescales

Qualified Arm Compiler

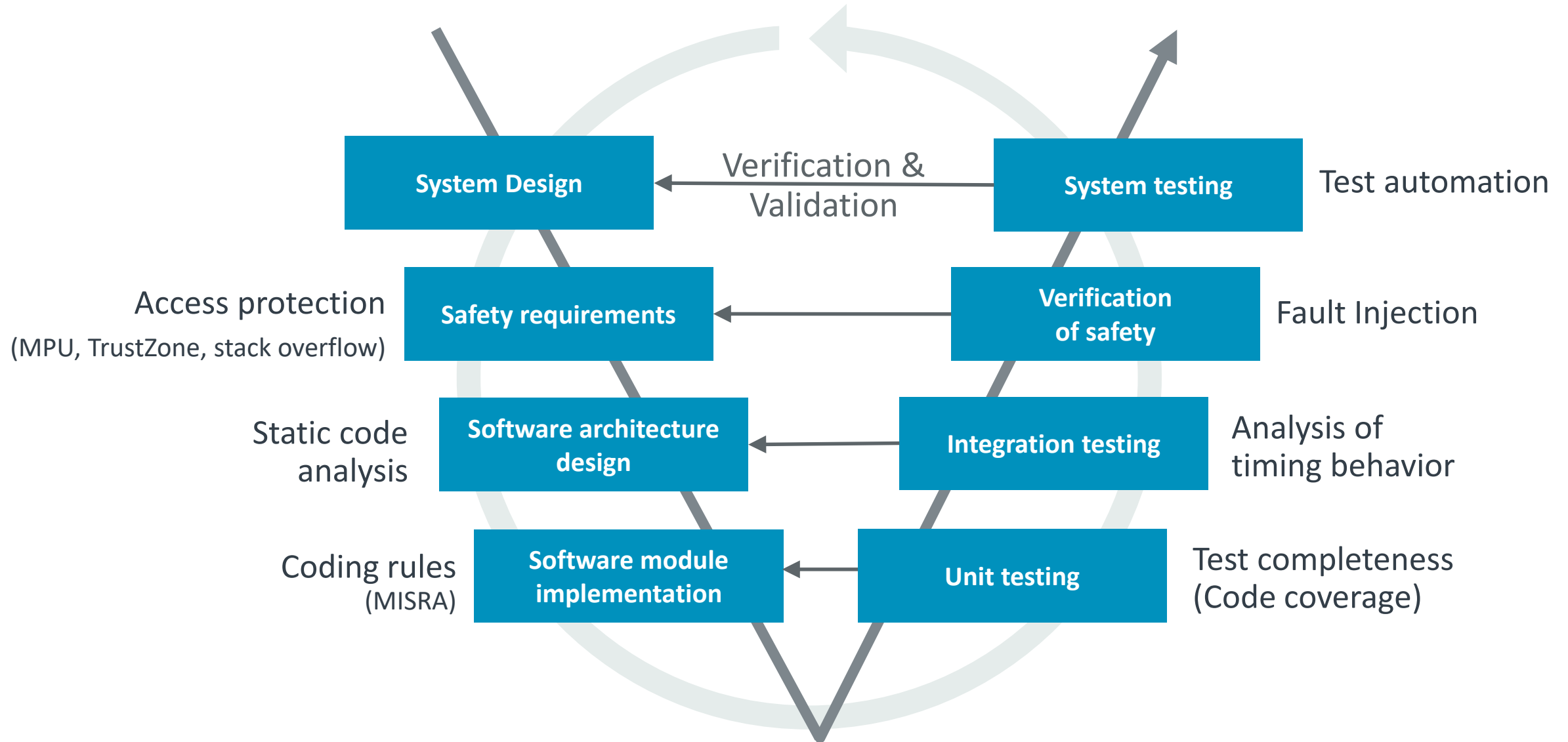
- Full justification for use in safety development
- Long term stability maintenance reduces risk in use
- All performance optimizations inside the qualification

Certified C library

- Comprehensive C run time library
- Startup and scatter loading; floating point arithmetic; string, list, and memory operations....
- Comprehensively MC/DC tested

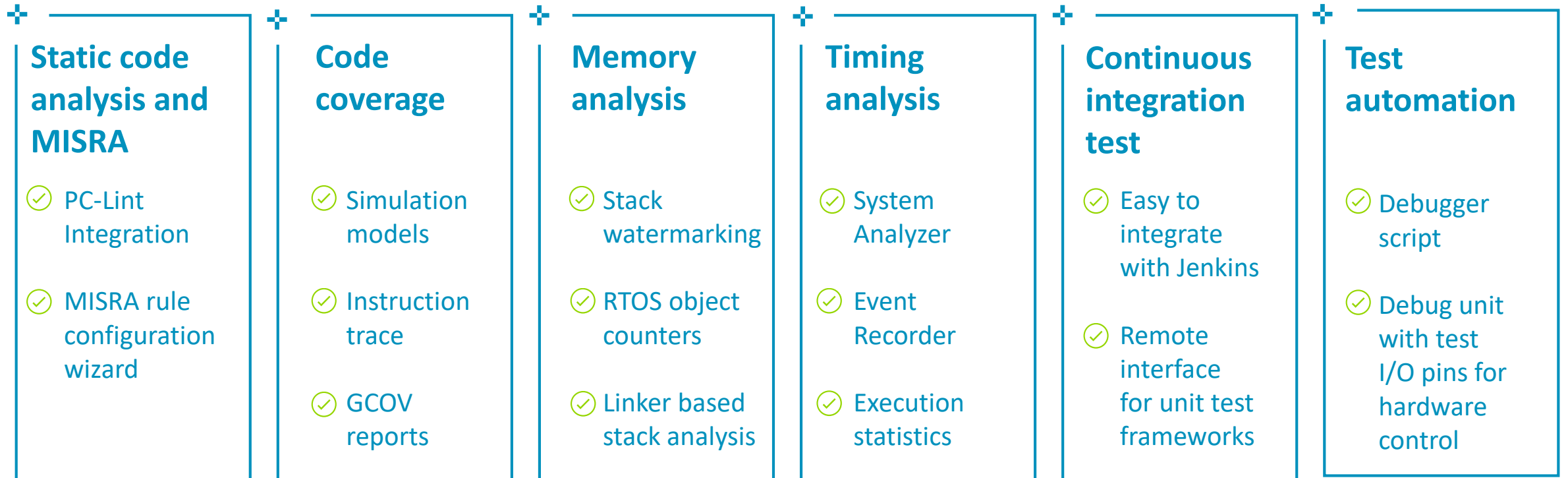
Qualified for development to common safety standards, to any Safety Integrity Level

V-Model software development process



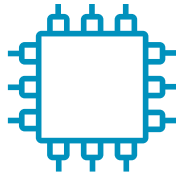
FuSa development with MDK

Verification and validation during the development process

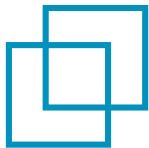


Arm's commitment to functional safety

Leading features and technologies



Broadest functional safety IP



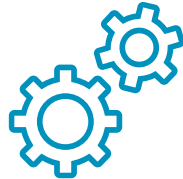
Innovative safety features for automotive applications



Software components and tools



Certified software components



Software tools



Robust methodologies and certification



Comprehensive safety documentation



Systematic certification



Safety Ready