



RISC-V対応デバッグ&トレース ソリューション

Lauterbach Japan, 2023.06.20



TRACE32® デバッグツール 主要製品

Feature-Rich SW Debugger Suite
HWソリューションおよびSWのみの製品
のデバッガソフトウェアGUI



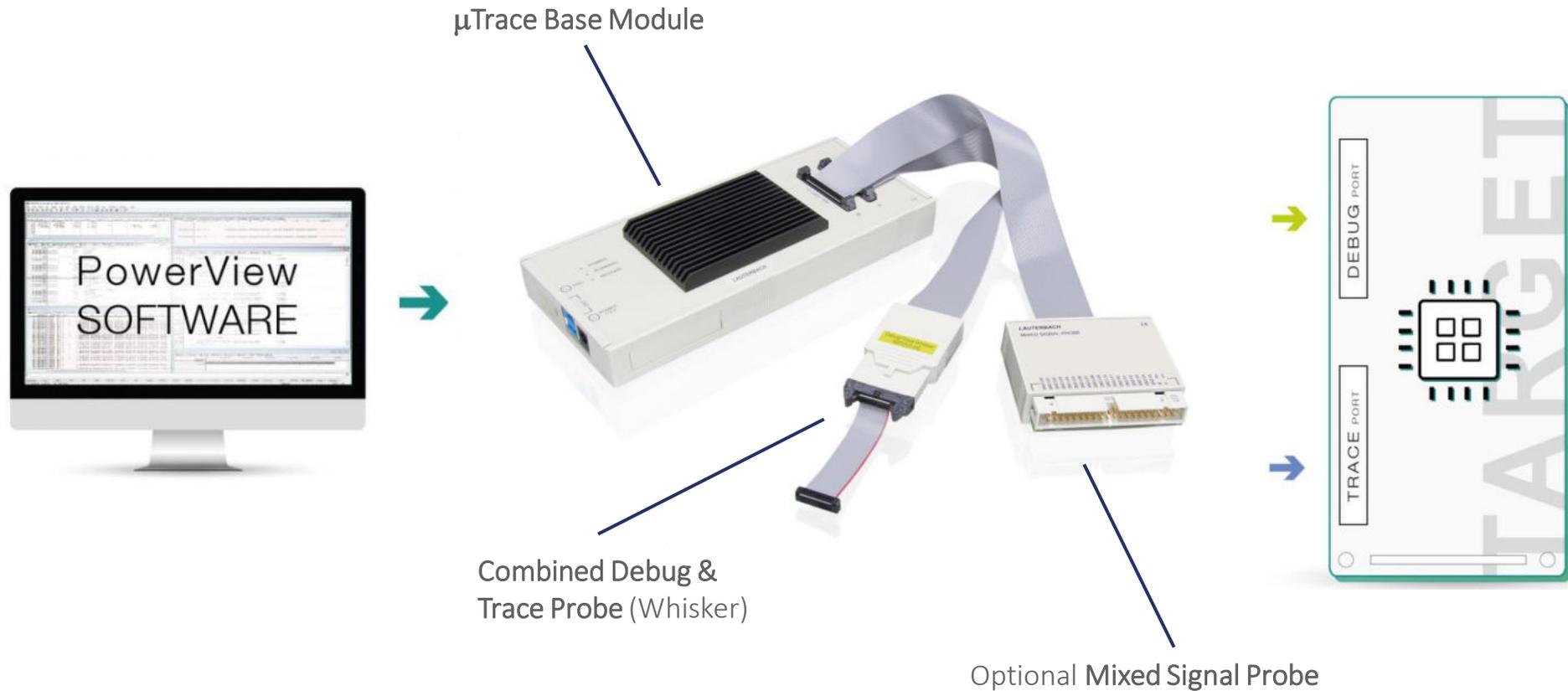
HW Debugger Solutions
10,000以上のデバイスおよび140以上の
コアアーキテクチャに対応



High-Speed Trace Extensions
多くのトレースポート規格に対応



MicroTrace® オールインワン デバッグ/トレースソリューション for RISC-V





会社概要

Lauterbach Japan, 2023.06.20



Lauterbach – a Lasting Success Story

1979



Company founded by
Lothar Lauterbach

1983



TRACE80 market launch

2009



New headquarter in
Hoehenkirchen/Germany
(near Munich)

2013



Global reach by
10 branch offices and
20+ distribution partners

Today



Well-established
international company
with 130+ employees



Our Tools

No. 1 in SoC Debuggers in the Market



Installed debuggers

Customers

Market share

Supported chips



Key industries rely on our technology and tools



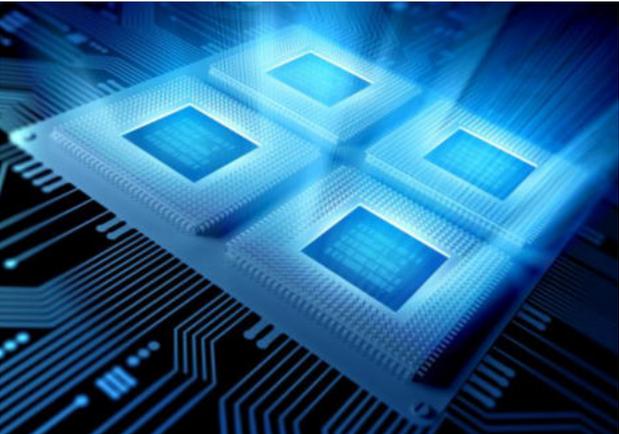
Automotive

e.g. VW Group,
BMW, GM,
Continental,
Bosch, Porsche,
Vector,



**Tele-
communication**

e.g. Apple,
Google, Huawei,
LG, Panasonic,
Qualcomm,
Samsung



e.g. ARM, Infineon,
Intel, NXP,
STMicroelectronics,
Qualcomm, Seagate,
Western Digital

Semiconductor

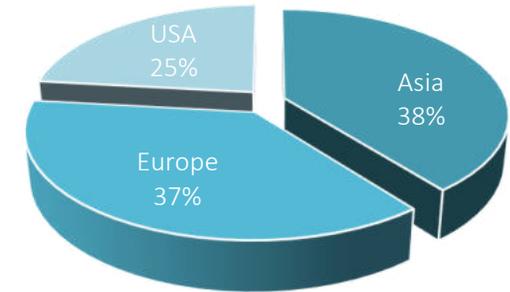


e.g. Airbus, Boeing,
EADS, Facebook,
Google, Miele,
Honeywell

**Aerospace,
Defence, others**



We are close to our customers worldwide



Revenue split in 2021

Worldwide Lauterbach Subsidiaries

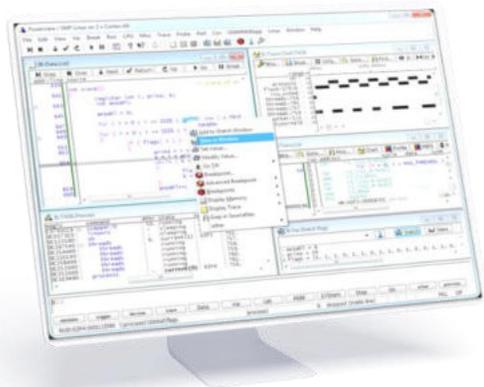


RISC-V対応デバッグツールの の特長



特長 1 : TRACE32® モジュラシステム

PowerView, feature-rich debug and trace software solution



TRACE32® MODULAR SYSTEM



PowerDebug (x50)
Base Module



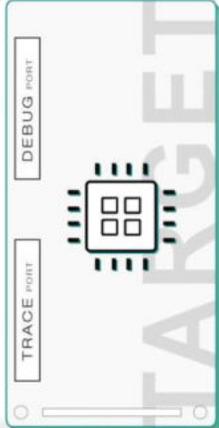
PowerTrace
Off-chip Trace Extension



Debug Probe



Trace Probe



TARGET

Platform-specific
Debug Probes



PowerDebug debug accelerators
(base modules)



PowerTrace high-speed trace
extensions (parallel and serial)



Trace Probes, i.e. passive cables, trace
preprocessors (accelerators) and adapters



特長 2 : TRACE32® PowerViewデバugga

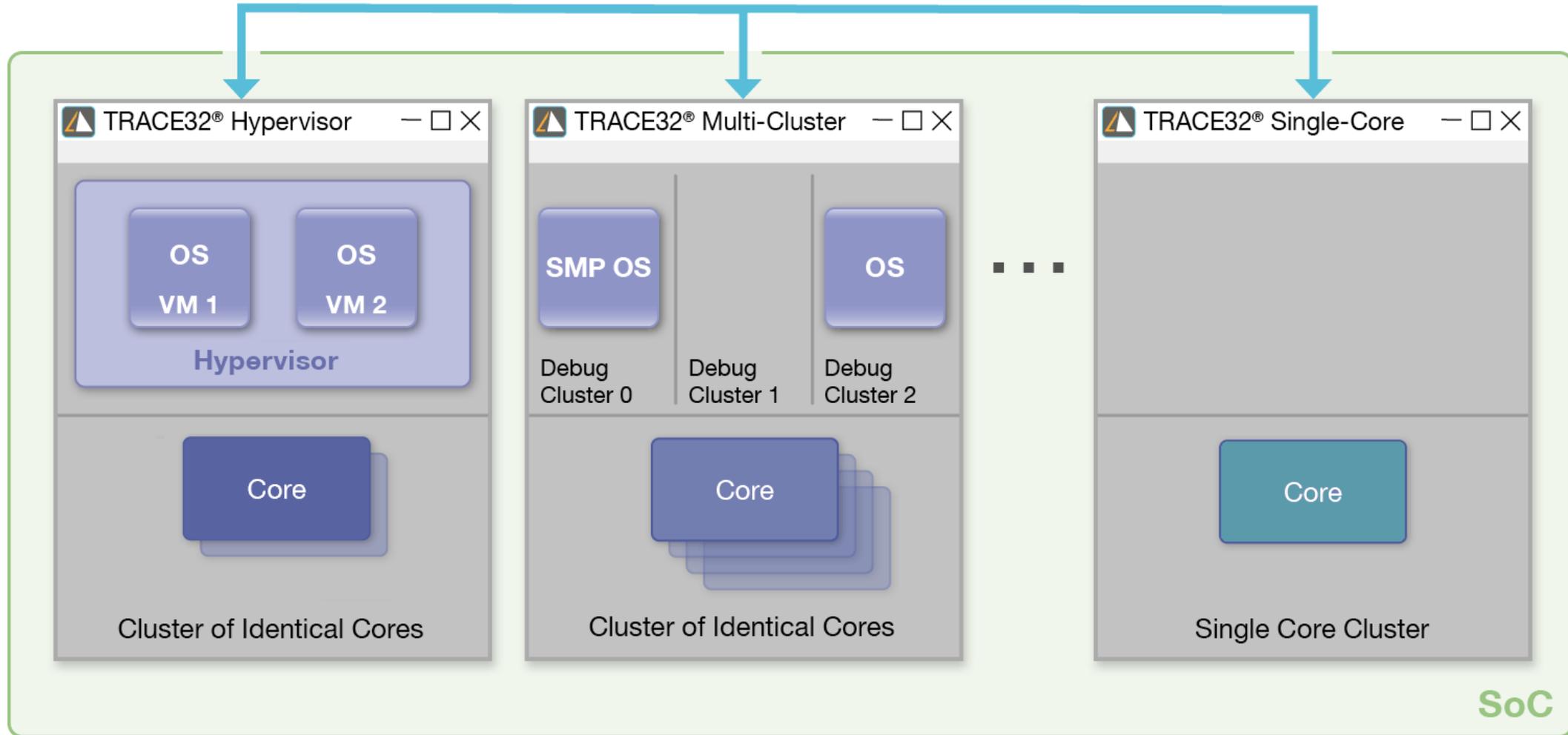


- 全てのターゲットCPUで共通のデバuggaGUI
- 多くのコンパイラ、RTOSに対応
 - 各コンパイラのオブジェクト形式に対応
 - 50種以上のRTOSに標準対応(Arm用デバugga)
- ホストOSに対応
 - Windows
 - MacOS
 - Linux (ディストリビューションは問わず)
- 様々なサードパーティツールとの連携
 - Eclipse用プラグイン
 - Pythonからリモート操作

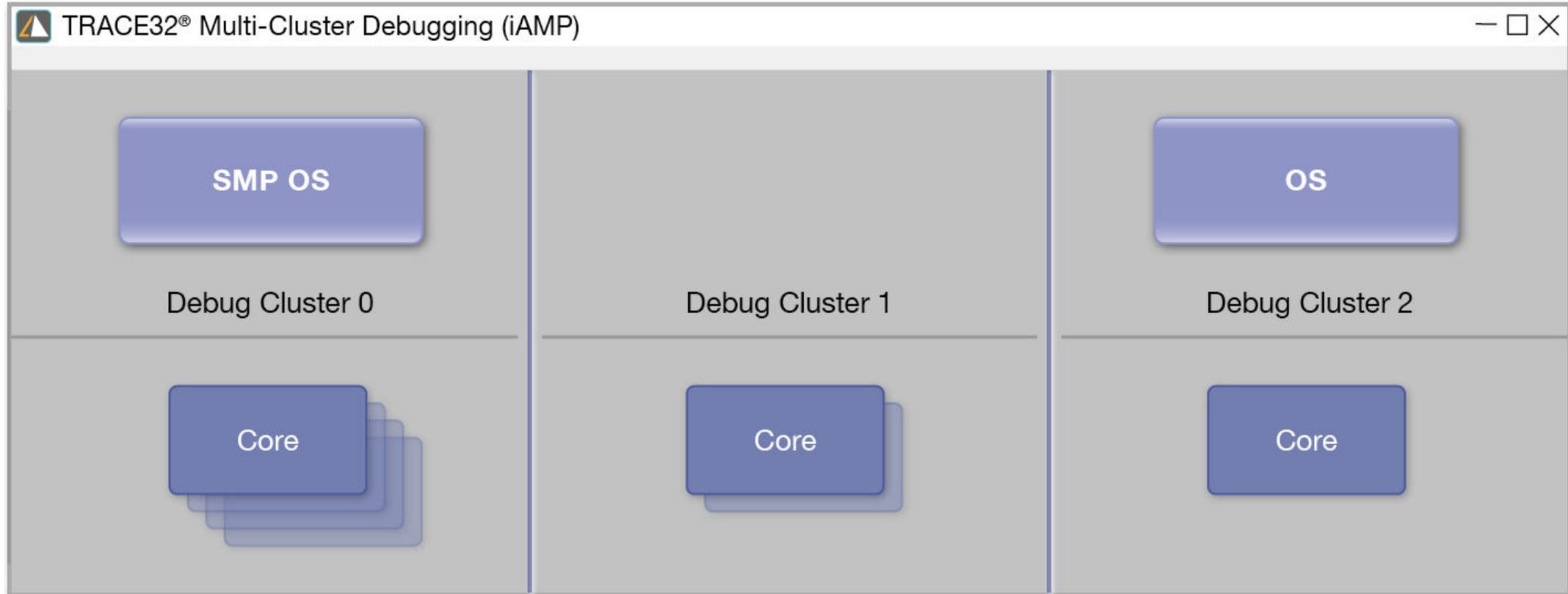
特長 3 : TRACE32® マルチコアデバッグ



TRACE32® Heterogeneous Multicore Debugging (AMP)
↳ supports up to 16 GUI instances



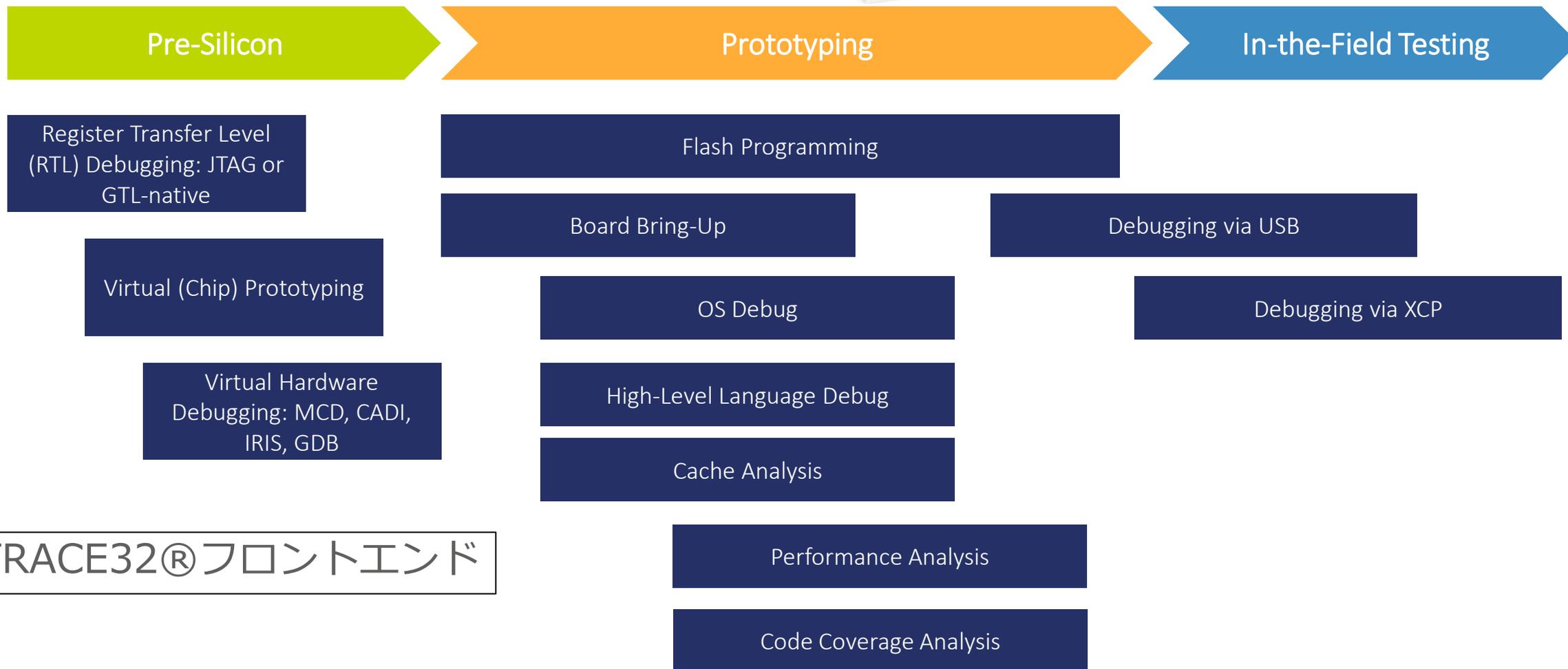
特長 3 : TRACE32® マルチコアデバグークラスタ



↑ TRACE32®
supports up to 30 debug cluster

↑ TRACE32®
supports iAMP debugging for Arm® Cortex®,
Hexagon™, TriCore™ AURIX™, Renesas RH850

特長 4 : TRACE32® デバッグツールポートフォリオ 各開発フェーズをカバー





トレースツールデモ

demo

The screenshot displays a software development environment with several windows:

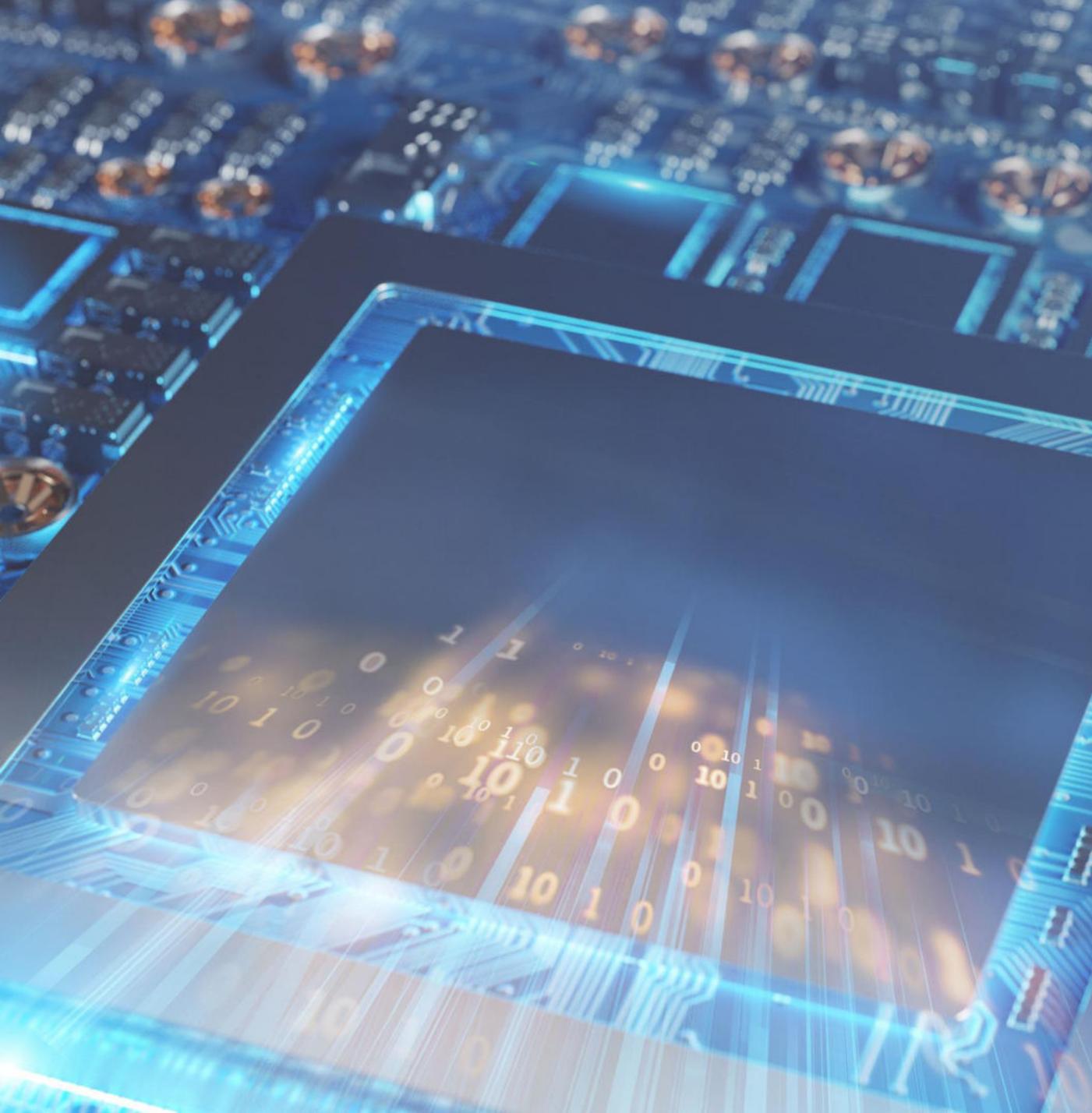
- Source Code:** Shows a C function with comments and code blocks. The line number 3434 is highlighted.
- Task List:** A table showing task details:

| magic | name | num | prio | state |
|----------|---------|-----|------|-----------|
| 8000B330 | IDLE | 3. | 0. | running |
| 8000AE50 | TX | 2. | 1. | blocked |
| 8000B8B0 | Tmr Svc | 4. | 6. | suspended |
| 8000A970 | Rx | 1. | 2. | suspended |
- Trace Chart:** A timing diagram showing various system events over time, with a scale from -800.000ms to 0.000ms.
- Trace Settings:** A dialog box for configuring the trace, including options for state, used, access, and clock.



まとめ

1. モジュラ式構成で使用環境に柔軟に対応
2. RISC-Vマルチコア、マルチプロセッサデバッグ
3. シミュレーション環境への対応
4. トレースデータを元にしたプログラム評価機能



THANK YOU!

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