



RISC-V Extensions

What's new?

What's in process?

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Quick Intro

- RISC-V has a **LOT** of ratified specifications, and has quite a number (58!) in development
- This talk is to help you find
 - Where are the docs? -> <https://docs.riscv.org/>
 - If it's not ratified, where is the draft? (if available)
 - <https://riscv.github.io/adm-spec-dashboard/>
 - Get involved with Public reviews - 30 days - subscribe to : [ISA-DEV](#)
- ISA Explorer (tech preview)
 - <https://riscv.github.io/riscv-isa-explorer/>
 - Map extensions to instructions or instructions to extension

Shameless Plug: RISC-V Maintainer / Vendor Summit

What: Maintainers & RISC-V hardware vendors gathering to discuss issues of the day, longer term plans, call for feedback, etc

When: Approximately the week just prior to FOSDEM

Where: FOSDEM area

Cost: Very Low / Free

Contact: tom@riscv.org

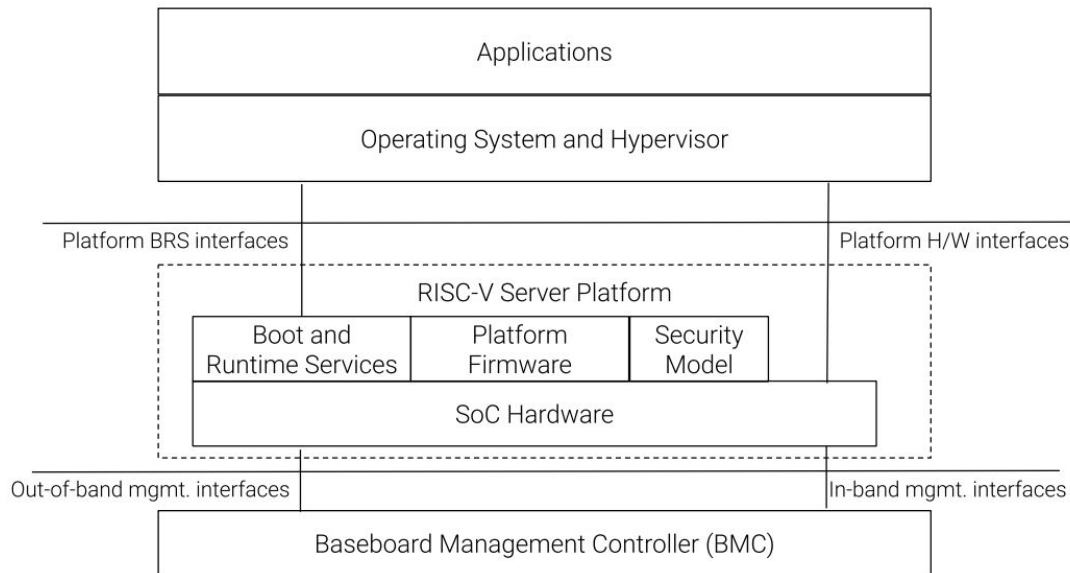
Limited sponsorships available

RISC-V Recently Ratified Specifications

- [QoS Controllers Table \(RQSC\)](#) - ACPI QoS Controller Register Interfaces
- [Instruction / Data Coherency and Consistency \(Ziccid\)](#) - Mandates more stringent requirements between fetches and other memory accesses. Guarantees that a hart's instruction fetches appear to occur in program order with respect to each other and that stores eventually become visible to all harts' instruction fetches. Helps JITs
- [S-mode Physical Memory Protection \(SPMP\)](#) - PMP extended for S-mode
- [RISC-V Hart Trace Interface \(RHTI\)](#) - Tracing infrastructure for N and E trace
- [RHTI Trace State Extension](#) - Halted signal becomes 2 bits

RISC-V Recently Ratified Specifications

- [Server Platform](#) - standardizes rules for hardware and software interfaces and capabilities building on [Server SoC](#), [Boot and Runtime Services](#), [Platform Security](#) (Draft v0.9.2) and [Profiles](#).



What's in progress for RISC-V?

- <https://riscv.github.io/adm-spec-dashboard/> - 58 specs in progress
- Public review - 30 days - subscribe to : [ISA-DEV](#)
- Is it past ARC?

Remaining 2026 Ratification Forecast: 16 (Q3: 2 | Q4: 14)

☐ Show BoD Report

[Specification Development Explorer](#)

Current Status:

On Track

Likely to meet.

Awaiting Vote

Work done, vote pending.

Exposed

At risk.

Watch

Active but concerning.

Late

Will miss, replan required.

Stalled

No recent activity.

Not Yet Defined

Undefined.

Specification	ISA?	Planning	Dev	Stabilization	Freeze		Ratification-Ready			Publication		Planned Ratification Quarter	Target Ratification Quarter	Current Status	Links
					ARC Approval	Tasks	Public Review	TSC Approval	Tasks	BoD Approval	Tasks				
RHTI trcstate Extension ● 2026-09-07 · 15d ago FT	Non-ISA	✓	✓	✓	✓	✓	✓	✓	✓	...	🏆	26Q3	26Q3	On Track	🔗 📄 📧
RISC-V Hart Trace Interface (RHTI) ● 2026-09-07 · 15d ago FT	Non-ISA	✓	✓	✓	✓	✓	✓	✓	✓	...	🏆	26Q1	26Q3	On Track	🔗 📄 📧
Data Trace of Multiple-Memory Access and Compare and Swap ● 2026-04-20 · 5 mo ago FT	Non-ISA	✓	✓	✓	✓	✓	✓	🏆	✓	...	...	26Q4	26Q4	On Track	🔗 📄 📧
Standard Support Packet extension to E-trace ● 2026-04-24 · 5 mo ago FT	Non-ISA	✓	✓	✓	✓	✓	✓	🏆	✓	...	...	26Q4	26Q4	On Track	🔗 📄 📧
Implicit Return (E-Trace 2.0) ● 2026-04-13 · 5 mo ago FT	Non-ISA	✓	✓	✓	✓	✓	✓	🏆	✓	...	...	26Q4	26Q4	On Track	🔗 📄 📧
RVB23.1 ● 2026-09-11 · 11d ago FT	ISA	✓	✓	✓	✓	✓	✓	🏆	✓	...	...	26Q2	26Q4	On Track	🔗 📄 📧
RVA23.1 ● 2026-09-11 · 11d ago FT	ISA	✓	✓	✓	✓	✓	✓	🏆	✓	...	...	26Q2	26Q4	On Track	🔗 📄 📧
Long/Batched Dot-Product Extensions (Zvldot and Zvbdot) ● 2026-07-09 · 2 mo ago FT	ISA	✓	✓	✓	✓	🏆	...	...	...	...	...	26Q2	26Q4	Exposed	🔗 📄 📧
BF16 & Minimal OFP8 Vector Compute (Zvfbfa, Zvfofp8min) ● 2026-07-09 · 2 mo ago FT	ISA	✓	✓	✓	✓	🏆	...	...	...	...	...	26Q2	26Q4	Exposed	🔗 📄 📧

What's in progress for RISC-V?

- (RSN) RVA23.1 & RVB23.1 - No mandatory new extensions
 - New Development Extensions (optional now, mandatory in the future)
 - Svrsrw60t59b - PTE reserved-for-software bits
 - Ssdbltrap - Double Trap
 - Sscfg - Supervisor Counter Delegation
 - New Expansion Options - (Optional, discoverable, not needed by all)
 - Ssctr - Control Transfer Records - CTR
 - Ssqosid - QoS identifiers

RISC-V - Extensions coming up

New Task Groups - yield new specifications (ISA, NONISA, Profiles)

- Logic Analyzer Trace TG
- Parameters SIG
- Serial Debug Protocol TG

Notable Extensions and Specifications

- RISC-V Worlds - Provides system partitions through world identifiers consisting of execution contexts (harts and devices) and resources (memory, devices). Worlds are created and configured by a trusted execution environment, usually at system boot time.
- IME/VME - Matrix extensions getting closer
- Number of debug/tracing extensions under way
- Fast Interrupts
- RVM Profile(s)