



Linux Plumbers Conference 2021
The RISC-V Platform Specification

Sep 21, 2021

7:05 am - 7:45 am PST

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Agenda

- Platform Policy
- Platform Specification
- Open Discussions

Platform Policy



- Document governing the policies and procedures used for RISC-V platforms
 - <https://docs.google.com/document/d/1U5qLoztZpCRSnw2s8tx4rB0SFPMQ27Svrr9jWRsOziY/edit>
- Scope and Goals
 - Platform specifies a common, reusable hardware and software environment for portability
 - same software will run on all compatible hardware platforms without any modifications
 - Defines the structure, definitions, life cycle, naming conventions and branding for the various platforms within the platform specification
 - Developed and released by the RISC-V Platforms Horizontal Subcommittee
 - RISC-V Platforms HSC <https://lists.riscv.org/g/tech-unixplatformspec>
 - Operating under the auspices of the RISC-V Software Horizontal Committee
 - Ensure software and hardware interoperability via a platform spec
 - Promote independent development of hardware and software

Platform Policy

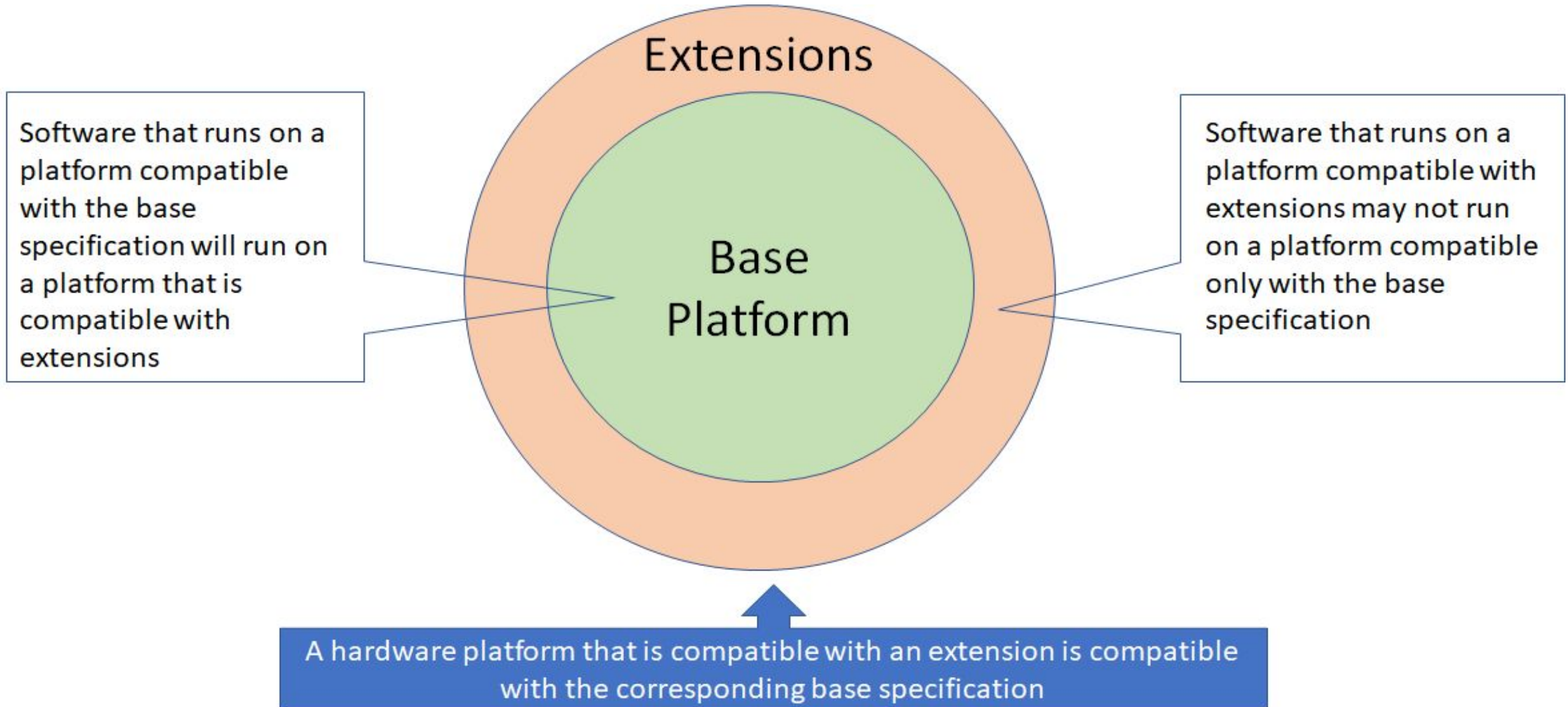


- Structure
 - Platforms will have a mandatory base feature set
 - Optional extensions covering the requirements of entire market segments or industries (e.g., “mobile,” “automotive,” “server”)
- Release Cycle and Versioning
 - Major releases every 2-years (2022, 2024...)
 - Amendments/extensions can be released in the odd years
- Naming and Versioning Representations
 - Platform name is prefixed by "RISC-V" and postfixed by its year and a dot-separated revision number
 - E.g. “RISC-V OS-A Platform 2022”
 - For machine-identifiable purposes, we use a URI-encoded name
 - `riscv-platform://riscv.org/platform/OS-A/2022.3`
- Life Cycle: Covered in the policy document
- Platform Compatibility Test (PCT): Test document for self compatibility; being developed

Platform Policy

- Conventions
 - Features may contain the following structural elements
 - Requirements
 - MANDATORY - Must be implemented
 - DEPRECATED - Must be implemented in the current version, expected to be removed in the next future version
 - Application Notes, Recommendations
- Claiming Compatibility
 - A Platform product compatibility claim can only be made if a product satisfies the following:
 - all requirements of the respective base Platform; and
 - all requirements of each extension the product claims compatibility with
 - No Platform shall claim compatibility with an extension if it is not compatible with the respective base specification
 - A Software product claiming compatibility with a Platform (and extensions) must satisfy:
 - all requirements of the Platform and of all Extensions that it claims compatibility with
 - Any software that works on the base-platform, will also work in the presence of extensions
 - Any software that requires an extension, may not be compatible in the absence of the extension

Platform Specification



Platform Specification



- <https://github.com/riscv/riscv-platform-specs/blob/main/riscv-platform-spec.adoc>
- 2022 Platforms
 - OS-A Platform: This specifies a rich-OS platform for Linux/FreeBSD/Windows - flavors that run on enterprise and embedded class application processors
 - Base
 - Server Extension
 - M Platform: This specifies an RTOS platform for bare-metal applications and small operating systems running on a microcontroller
 - Base
 - Physical Memory Protection (PMP) Extension
- Schedule
 - Frozen version 1.0 targeted by RISC-V Summit - Dec 2021