RISC-V Fundamentals (LFD210)

Course Resources

This document contains a list of all the links and documents referenced throughout the course. Feel free to bookmark the ones you find useful for future reference.

Chapter 2: RISC-V Overview

ISA Specifications (Base ISA and ISA extensions)

- The RISC-V Instruction Set Manual, Volume I: Unprivileged ISA
- The RISC-V Instruction Set Manual, Volume II: Privileged Architecture
- A list of recently ratified extensions
- The RISC-V Reader: An Open Architecture Atlas (Patterson & Waterman, 2017)

Non-ISA Specifications (Everything else)

- Efficient Trace for RISC-V
- RISC-V ABIs Specification
- RISC-V External Debug Support
- RISC-V Supervisor Binary Interface Specification
- RISC-V UEFI Protocol Specification

RISC-V International

- The RISC-V International website
- The RISC-V Technical Wiki
- The RISC-V Member Benefits and Welcome presentation
- The Developer Getting Started Guide in the RISC-V Technical Wiki
- Technical Working Groups
- The RISC-V Lifecycle Guide

Articles About the Future of RISC-V

- The Past, Present and Future of RISC-V by Krste Asanović
- Is RISC-V the Future? by Roddy Urquhart
- Why RISC-V Architecture Is the Future of Embedded Design by Chris Jones
- Top Three Reasons to Adopt RISC-V by Desi Banatao

Chapter 3: Introduction to RISC-V Instruction Set

- RISC-V Exchange at the RISC-V International website
- Curated List of RISC-V resources at GitHub
- RISC-V Specifications at the RISC-V International website
- RISC-V International Website
- RISC-V Learn Online at the RISC-V International website
- RISC-V at WikiChip
- RISC-V at Wikipedia

Chapter 4: Understanding Instruction Formats and Pseudoinstructions

- RISC-V Specifications at the RISC-V International website
- Spike RISC-V ISA Simulator at GitHub
- RISC-V Sliderules

Chapter 5: The Modularity of RISC-V as an ISA

- RISC-V Specifications at the RISC-V International website
- RISC-V International Website
- Google Drive Folder for RISC-V Members
- RISC-V at WikiChip
- RISC-V at Wikipedia

- RISC-V Sliderules

Chapter 6: Privileges and the Memory Model

- RISC-V Exchange
- Curated List of RISC-V Resources at GitHub
- RISC-V Specifications
- RISC-V International Website
- Google Drive Folder for RISC-V Members
- RISC-V Learn Online at the RISC-V International Website
- RISC-V at Wikichip
- RISC-V at Wikipedia
- Spike RISC-V ISA Simulator at GitHub
- RISC-V Sliderules
- Five EmbedDev Website

Chapter 7: Assembly Language for RISC-V

Assembly Language References

- RISC-V Assembly Programmer's Manual
- RISC-V Reference Card (James Zhu)

ISA Specifications (Base ISA and ISA extensions)

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- The RISC-V Instruction Set Manual, Volume II: Privileged Architecture
- A list of recently ratified extensions
- The RISC-V Reader: An Open Architecture Atlas (Patterson & Waterman, 2017)

Non-ISA Specifications (Everything else)

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- RISC-V ABIs Specification
- RISC-V External Debug Support
- RISC-V Supervisor Binary Interface Specification
- RISC-V UEFI Protocol Specification

Chapter 8: Writing and Debugging RISC-V Assembly Code

Assembly Language References

- RISC-V Assembly Programmer's Manual
- RISC-V Reference Card (James Zhu)

RISC-V Simulators

- Venus online simulator
- Venus Extension for Visual Studio Code
- A RISC-V Interpreter developed for Cornell University's CS 3410 course
- Ripes, a visual computer architecture simulator and assembly code editor for RISC-V
- Spike RISC-V ISA Simulator

ISA Specifications (Base ISA and ISA extensions)

- RISC-V Instruction Set Manual, Volume I: Unprivileged ISA
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- A list of recently ratified extensions
- The RISC-V Reader: An Open Architecture Atlas (Patterson & Waterman, 2017)

Chapter 9: High Level Languages for RISC-V: C Programming

- RISC-V GNU Toolchain
- Spike (RISC_V functional ISA simulator)
- pk (RISC-V proxy kernel and bootloader)
- Qemu

- Qemu documentation for RISC-V systems
- gprof documentation

Chapter 10: The GNU C Compiler for RISC-V

- GCC compiler options for RISC-V
- GCC general documentation of function attributes
- GCC documentation of common function attributes
- GCC documentation of RISC-V specific function attributes
- GCC optimization options
- GCC general documentation of inline assembly
- GCC extended inline assembly
- GCC constraints with inline assembly
- RISC-V ELF psABI Document

Chapter 11: Clang and LLVM for RISC-V

- LLVM
- Clang
- LLVM's RISC-V support
- LLVM optimizer

Chapter 12: RISC-V Operating Systems & Tools

- Privileged Specification version 20211203
- Princeton COS 318 Mutex implementation

Chapter 13: Firmware for RISC-V Platforms

- RISC-V SBI specification
- RISC-V ELF psABI Document

- OpenSBI Deep Dive (Anup Patel)
- OpenSBI, at GitHub

Chapter 14: General Purpose RISC-V Operating Systems

- Privileged Specification version 20211203