



gem5 Workshop 2023

*Welcome
Presentation*

Presentation by Bobby R. Bruce

It's great to see y'all here



<https://www.gem5.org/events/isca-2023>

The high-level agenda:

- 20 presentations.
- A panel Session: “The Future of gem5”.
- Poster session.
- Awards.

House keeping:

- Coffee Break: 11:00 – 11:20
- Lunch: 12:30 – 14:00
- Coffee Break: 15:30 – 16:00
- Closing: 17:00

Most important thing: WiFi

Network: FCRC2023

Password: fcrc23ACM

Why are we here?



- The leading open-source computer-system architecture simulator.
- Officially released 2011 (though merger of m5, 2002, and GEMS, 2000).
- Over 20,000 commits, over 450,000 lines of code.
- Over 1,000 commits in the last year.
- Distributed development: Industry, Academia, Research Labs, anyone,

Why are we here?



The purpose of the gem5 Workshop is to give members of the gem5 community to meet in person, share their work, and discuss and plan for the future of gem5.

What's happened since we last met?

*A small selection of
noteworthy
achievements.*



What's happened since we last met?

The 2022 Bootcamp



- 50 attendees.
- 5 Full days.
- A comprehensive course on gem5.
- Hosted at UC Davis, all expenses paid.

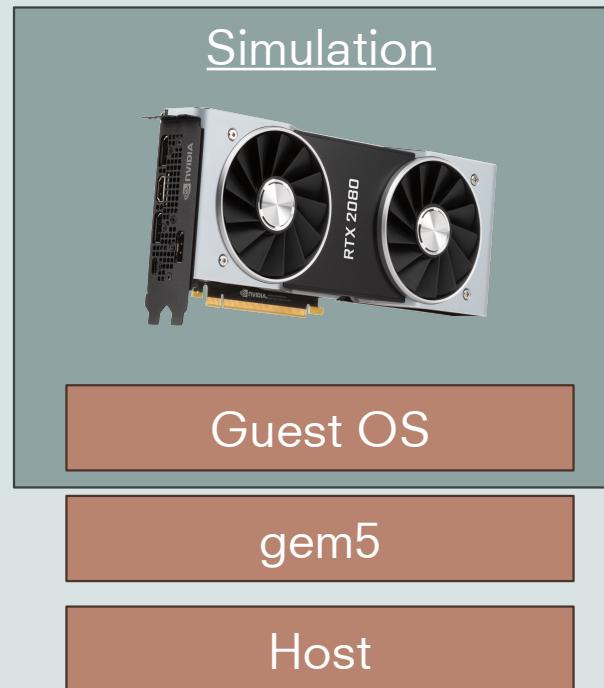


Feedback received:

- 95% "strongly agreed" that the Bootcamp was valuable in getting started with gem5.
- 95% "agreed" or "strongly agreed" that the Bootcamp helped them accomplish their research goals.
- 81% were "more confident" or "much more confident" in modifying gem5.

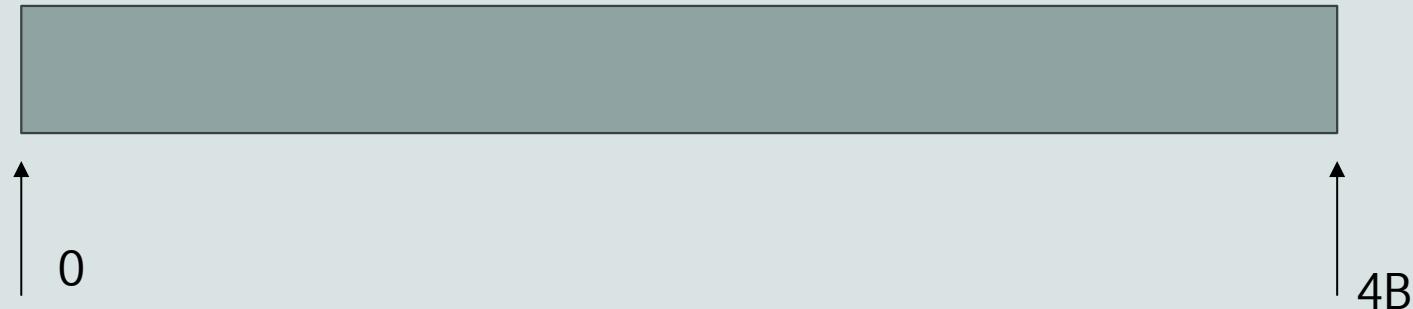
What's happened since we last met?

GPU-FS



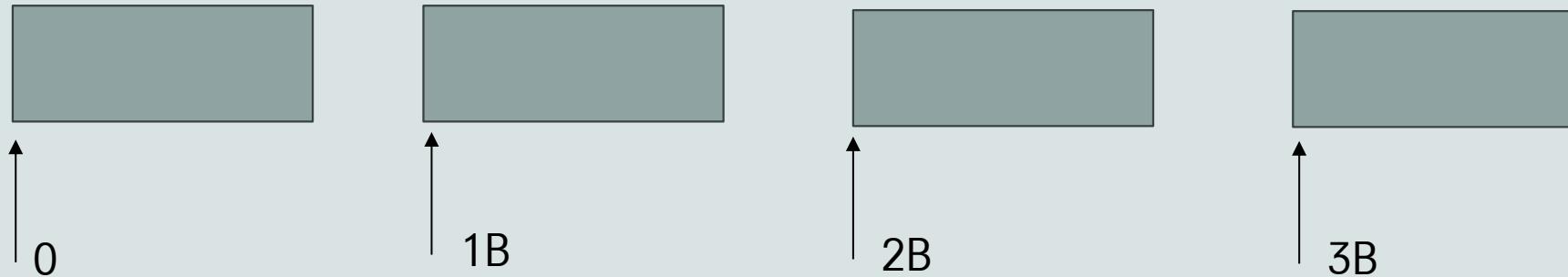
What's happened since we last met?

Simpoint/Looppoint



What's happened since we last met?

Simpoint/Looppoint



What's happened since we last met?

All/gem5



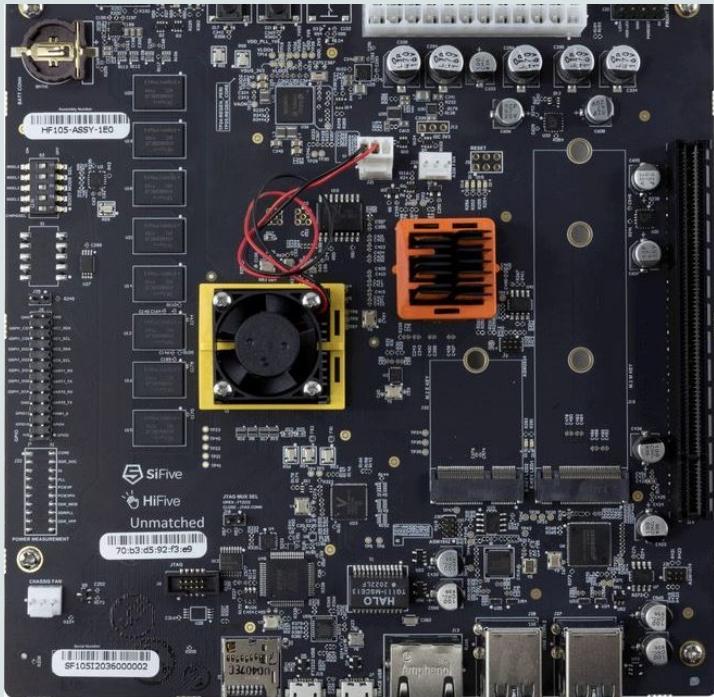
pre-Version
22.1



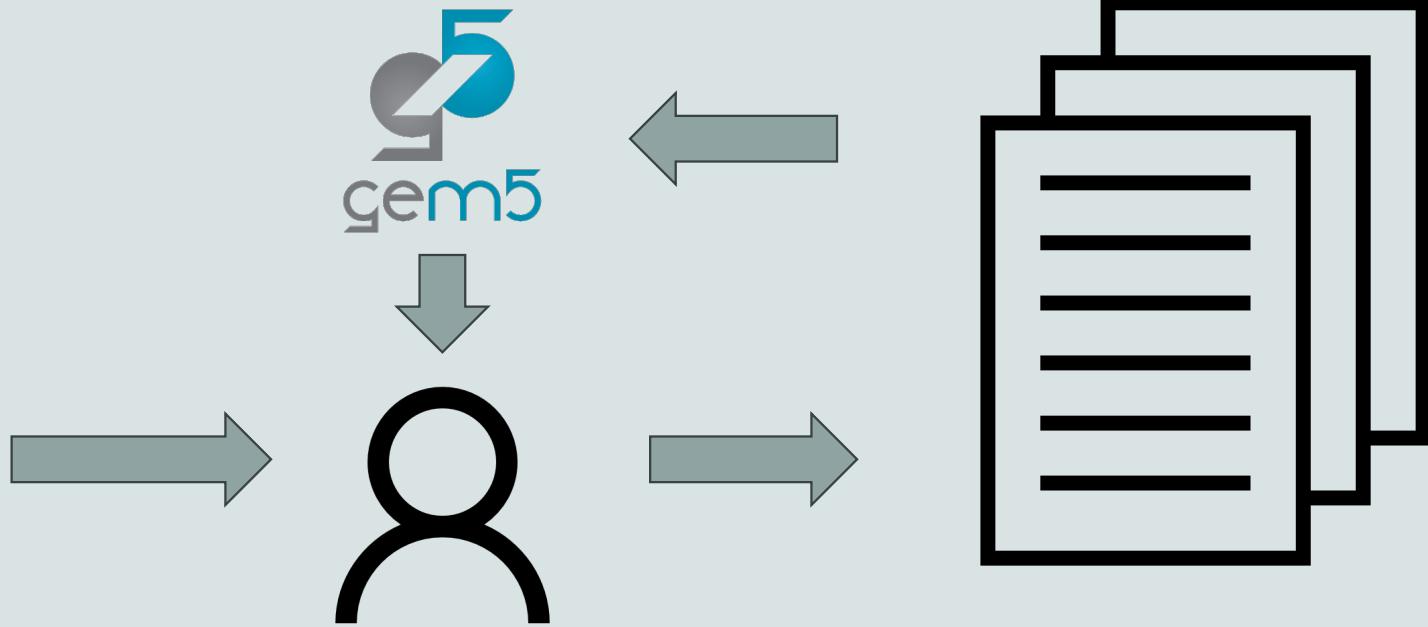
Version
22.1+

What's happened since we last met?

Started “Known Good Configs”



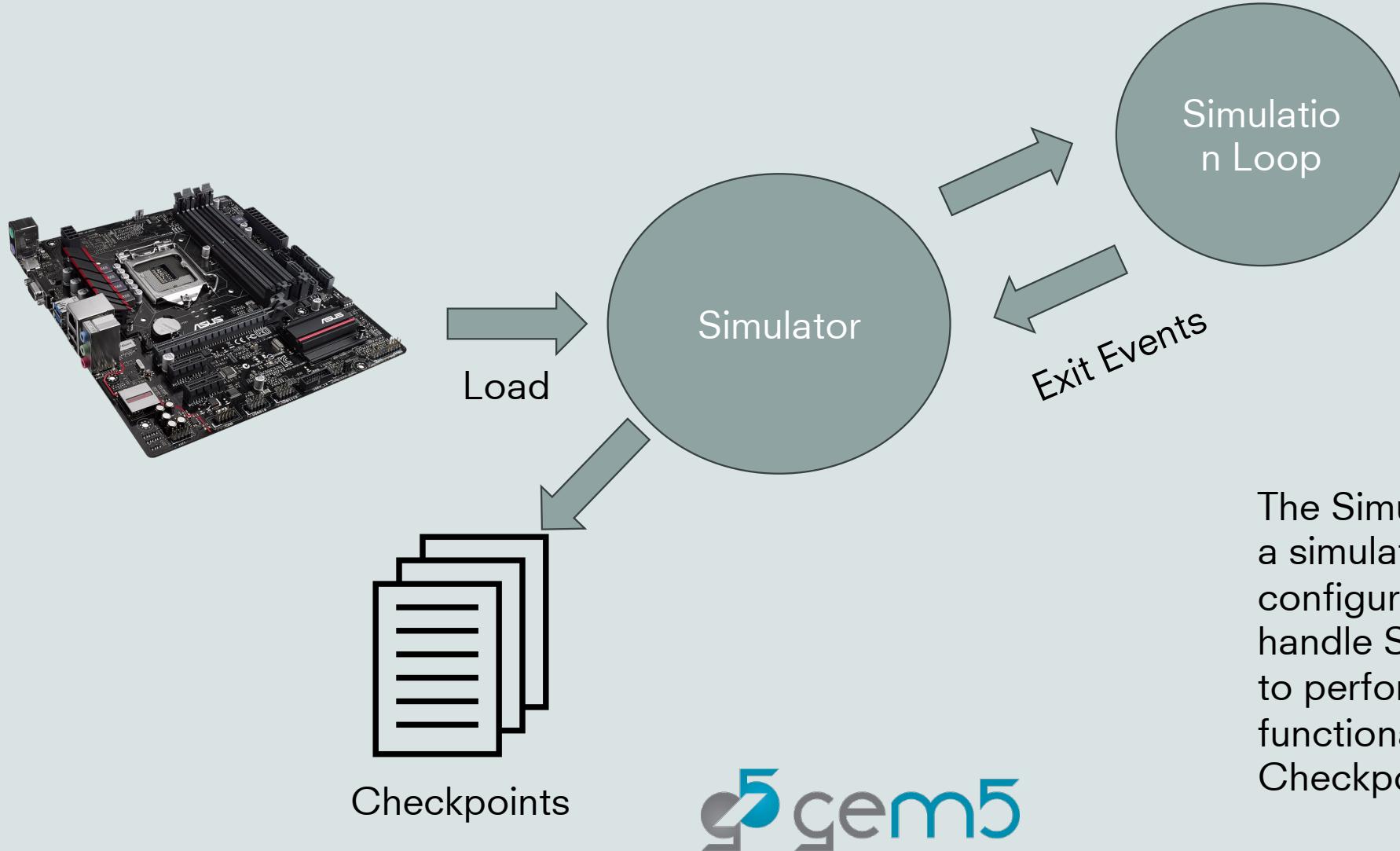
SiFive Unmatched Board



RISCV Matched Board

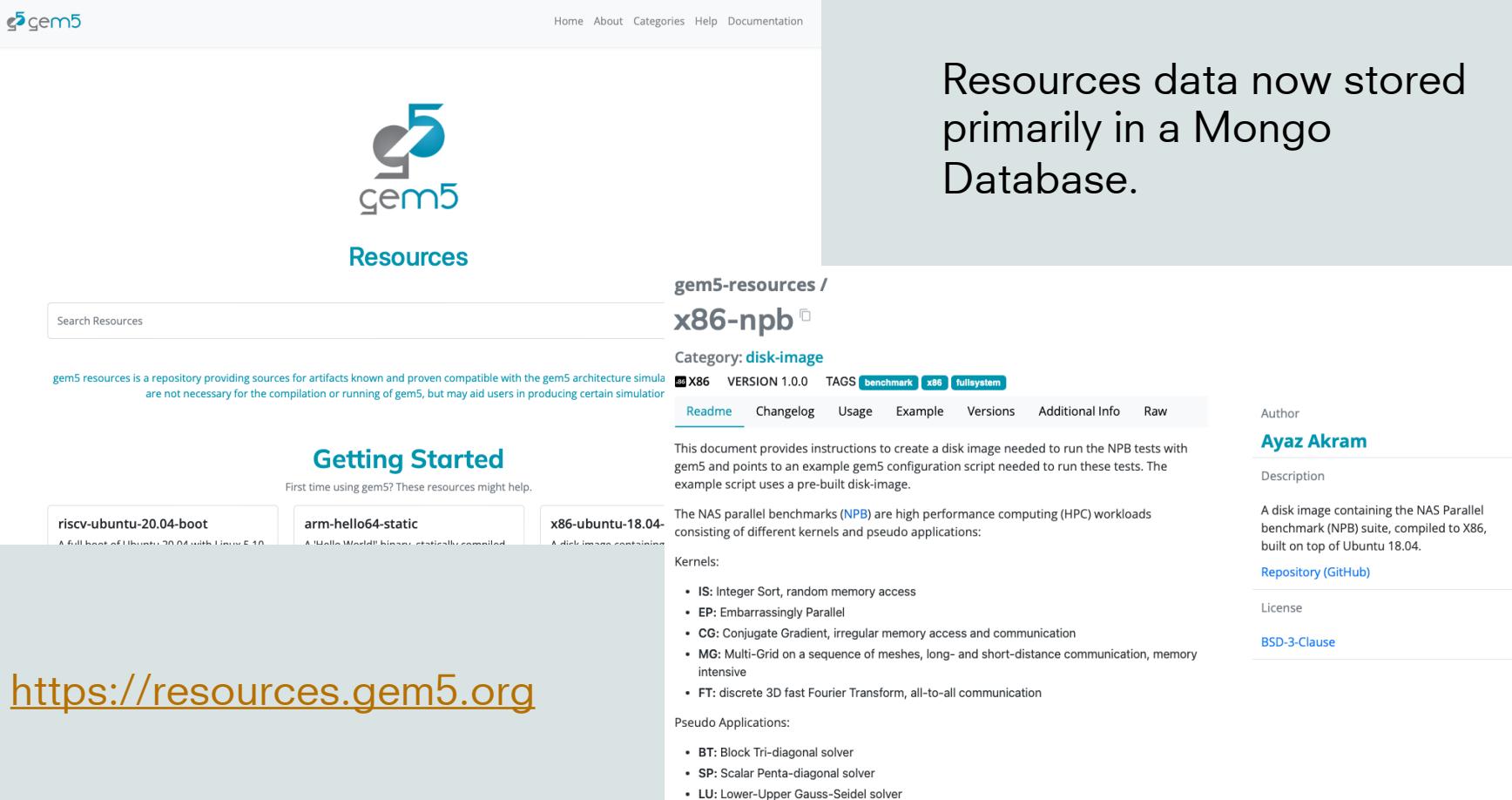
What's happened since we last met?

Simulator Module



What's happened since we last met?

gem5 Resources Improvements



The screenshot shows the gem5 Resources website. The top navigation bar includes links for Home, About, Categories, Help, and Documentation. The main content area features the gem5 logo and a "Resources" section. A search bar is available. Below this, there's a "Getting Started" section with links to "riscv-ubuntu-20.04-boot", "arm-hello64-static", and "x86-ubuntu-18.04". A note states: "gem5 resources is a repository providing sources for artifacts known and proven compatible with the gem5 architecture simulator. These artifacts are not necessary for the compilation or running of gem5, but may aid users in producing certain simulation results." On the right, a detailed view of the "x86-npb" resource is shown under the "gem5-resources /" category. It is categorized as "disk-image". The resource has version 1.0.0 and tags for benchmark, x86, and filesystem. It includes links for Readme, Changelog, Usage, Example, Versions, Additional Info, and Raw. The Readme section contains instructions for creating a disk image for NPB tests. The Author is listed as Ayaz Akram. The Description notes that it is a disk image containing the NAS Parallel Benchmark suite for X86. The License is BSD-3-Clause.

Resources data now stored primarily in a Mongo Database.

<https://resources.gem5.org>

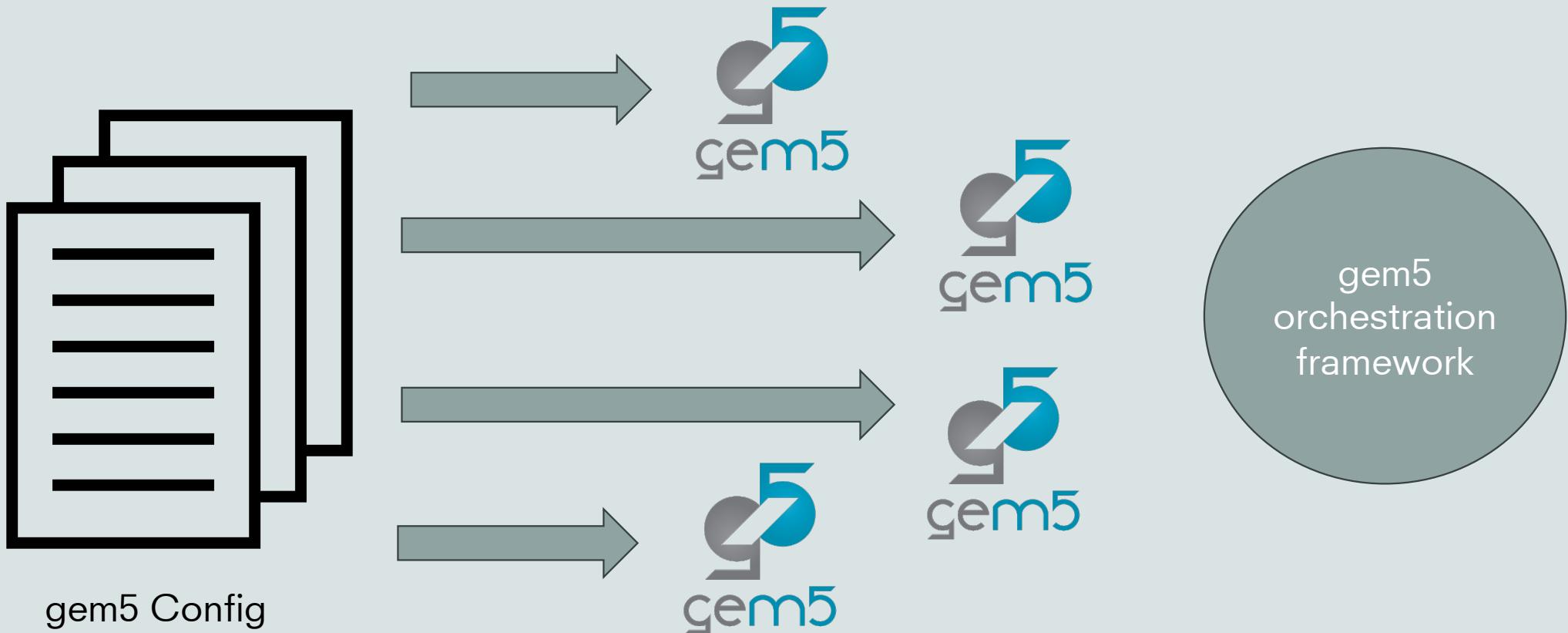


What are we working on?

*A sneak peek of
features to come.*

What are we working on?

Multiprocessing



What are we working on?

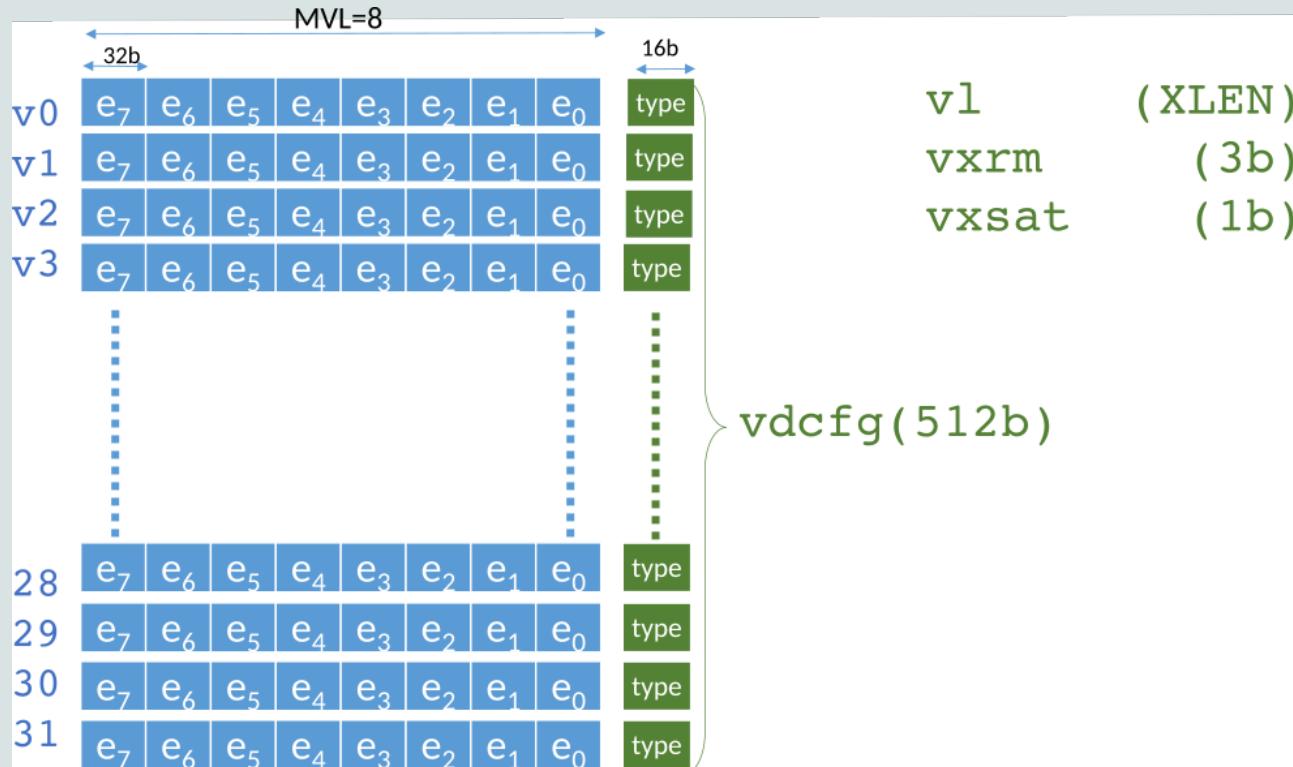
gem5Art Revival



- Automatically log the state of a simulation.
- Enables reproduction of a simulation.
- Completely recreate a simulation run via a standardized definitions of a simulation.
- Better manage simulation outputs (a cleverer “m5out”).

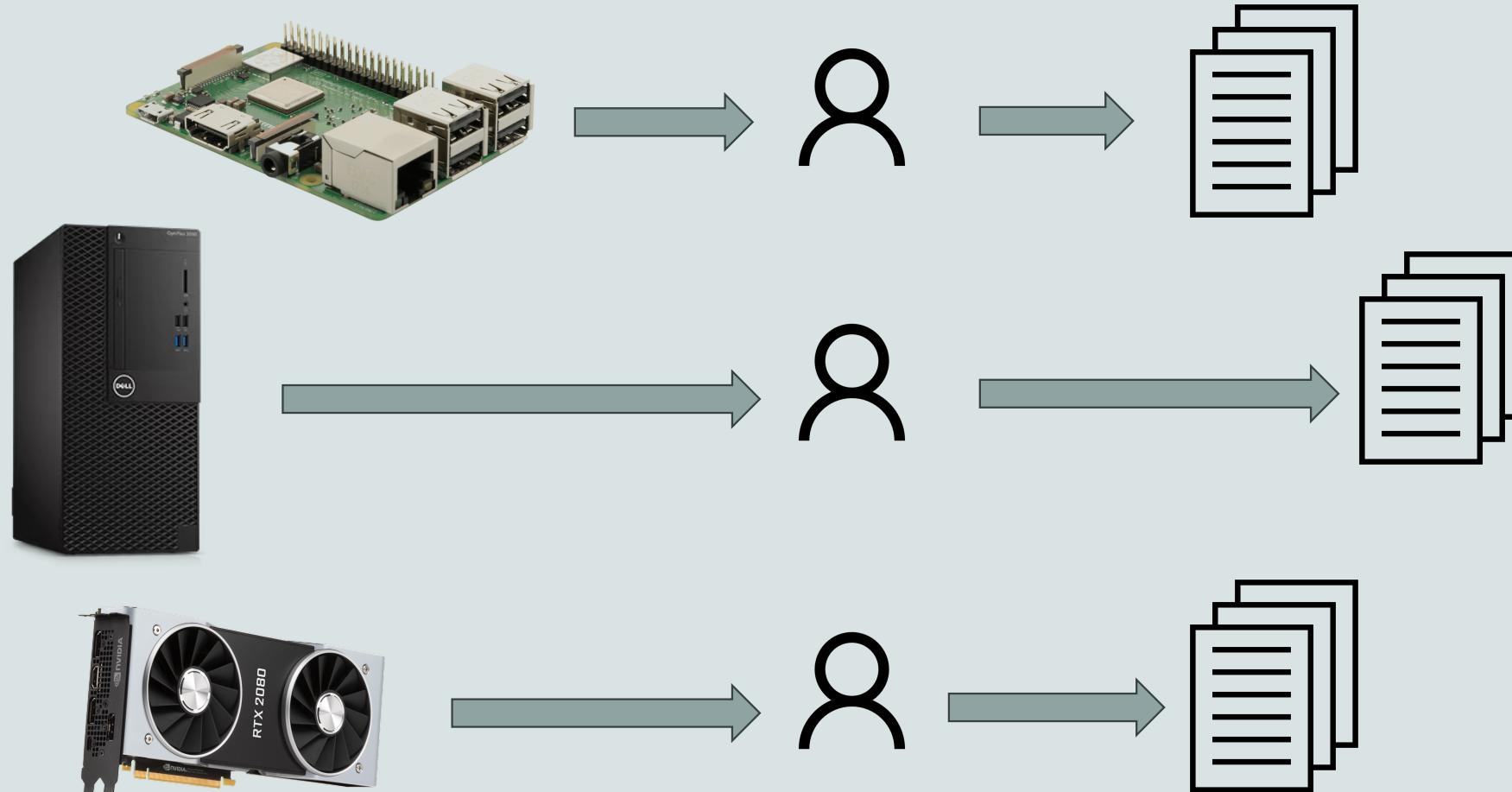
What are we working on?

RISC-V Vector Extensions



What are we working on?

More Known Good Configs



Announcement!

We have positions available!

Joint MIT-UC Davis postdoc to model systems over time:

<https://tinyurl.com/mit-ucd-pd>

<https://arch.cs.ucdavis.edu/projects/investigating-performance>

Full-time software developer position at UC Davis coming soon

