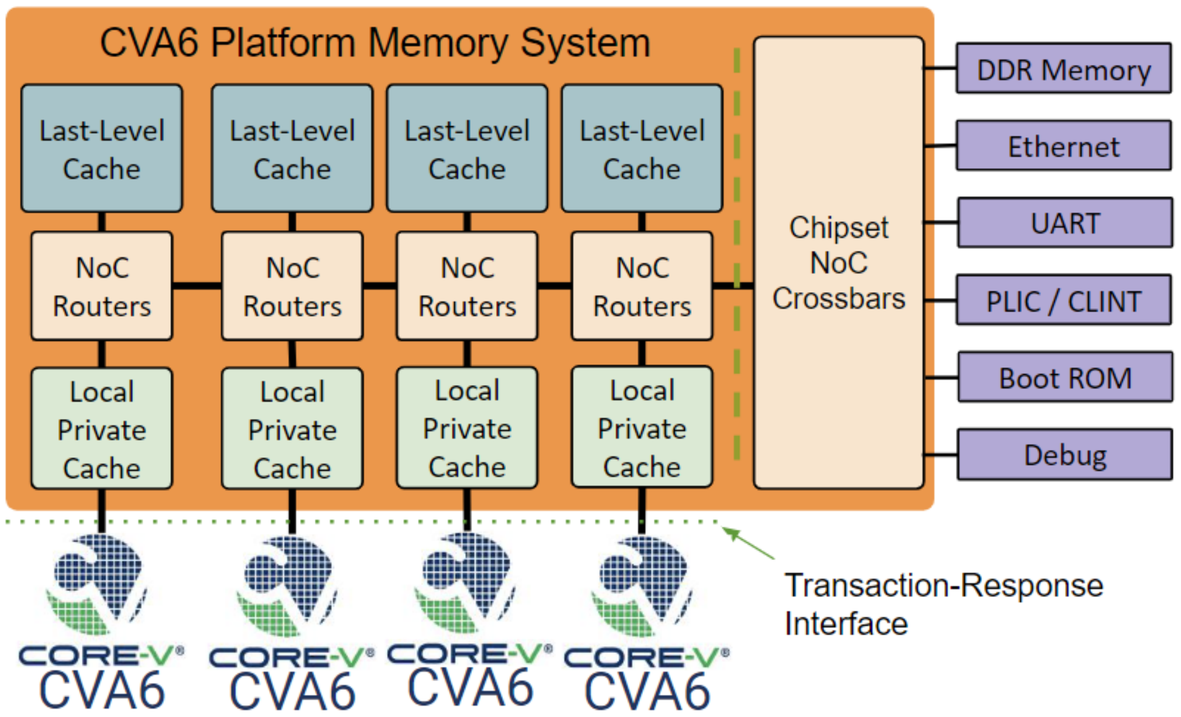
CVA6-PLATFORM

VENDOR-NEUTRAL, CYCLE-ACCURATE, CLOUD-BASED RISC-V SW DEVELOPMENT

Authors	Presenters
Moiz Hussain (10xEngineers), moiz.hussain@10xengineers.ai Duncan Bees (OpenHW Group), duncan@duncanbeestechnologies.com Professor Jonathan Balkind (UCSB), jbalkind@ucsb.edu	Flo Wolhrab (OpenHW Group), flo@openhwgroup.org Mario Rodriguez (OpenHW Group), mario@openhwgroup.org

CLOUD-BASED CVA6 S/W DEVELOPMENT



USE CASE SUMMARY

CVA6-Platform is designed to support software development for

- Firmware
- Kernel
- Applications

Configurations include

- Locally hosted FPGA development board
- Cloud-hosted, scalable FPGA resource
- Cloud-hosted, scalable FPGA resource with full CI architecture

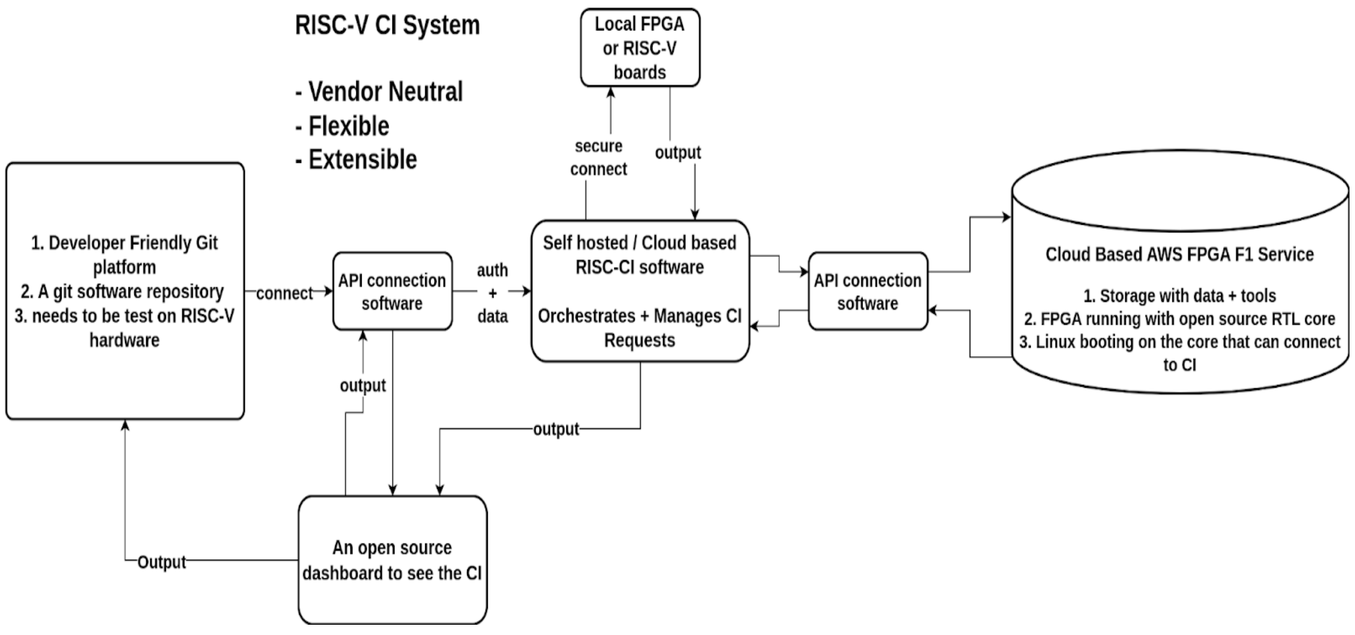
HARDWARE CONFIGURATION

- 2-8 core CVA6 implementations on local and cloud-based (AWS F1) FPGA
- Appropriate NoC, RAM, storage and peripherals.
- Initial two-core CVA6-Platform is supported with RV64GC core support.
- Migrate toward eight-core configurations, and advanced ISA features such as RVV Vector
- The processor core and accompanying cache, NoC, and chipset elements available in permissively licensed open–source, community driven RTL repos.
- TRL5 verification

SOFTWARE SUPPORT

- Provide a vendor-neutral RISC-V platform which can evolve quickly to support new ISA features
- Cycle level timing accuracy supports driver development, cache intensive applications, and real time software
- Firmware including working boot, and working linux (buildroot and/or distros) with documentation.
- RISC-V profile RVA20U64 initially supported.
- RVA22U64 supported in future.

CI ARCHITECTURE FOR CLOUD S/W DEVELOPMENT



GET INVOLVED: CVA6 @ OPENHW GROUP

- CVA6 and Supporting technologies
  - 64-bit application class and 32-bit embedded class
  - Superscalar
  - Vector
  - Hypervisor
  - Cache
  - NoC
- Mature Community ecosystem
  - Fully open-source, permissive license
  - TRL5 verification using CORE-V Verif
  - Fully documented
  - Part of a suite of full open-source cores

@openhwgroup
https://www.openhwgroup.org
github.com/openhwgroup

info@openhwgroup.org