A RISC-V VIRTUAL MACHINE

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BTA DESIGN SERVICES
your project, our team

Topics

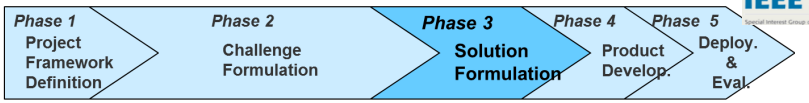
- Why?
- What?
- Where? When? Who?
- How?

IEEE and Open Source

Three-year project, launched in 2008

IEEE Canada Humanitarian Initiatives Committee

Incubate
Demonstrate
Educate
IEEE SIGHT



IEEE Standards Association Open Source

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Maker Faire (2006)

ARDUINO (2005)

ECLIPSE FOUNDATION (2004)

fablabs.io (2001)

creative commons (2001)

Raspberry Pi (2009)

MakerBot (2009)

RapidSMS unicef (2008)

openstack (2010)

open source hardware OSHWA (2010)

IEEE OPEN open.ieee.org (2010)

CERN (2011)

Support of KiCad (2013)

OPNFV (2012)

RISC-V

OPENHW GROUP

NGSPICE
Qucs
VERILATOR
GPL
gEDA
EDA
FreeCAD

Why create a RISC-V VM?

- Make it easier for those unfamiliar with toolchain:
  - SW toolchain: GCC/GDB, Jlink cable driver, Eclipse-IDE and Imperas fast HW model to execute SW.
  - HW toolchain: HDL simulator and cycle-accurate HW model.

- Virtual Machine pre-configured with RISC-V toolchains for anyone wanting to study, configure as-preferred, modify or physically-implement hardware.
- Permissive open source license.

What – out of RISC-V VM scope

- Not a full-featured development environment
- Not intended to generate production ready HW
- Not bug-free
- Not supported by dedicated team
- Not guaranteed to work for you out-of-the-box (TLC required)

What - RISC-V VM features

- Ubuntu image < 5GB 4GB RAM, 2 vCPU, 20GB dynamic HDD, USB support and toolchains:
  - PDF reader (evince), web browser (links2), X11-editor (gvim)
  - Users/Passwords: root/****, user/abc123 (sudo) -> change
  - Command-line interface to processor
  - Eclipse-IDE/OVPsim to run and debug SW
  - Verilator to run and debug functional HW and cycle-accurate HW/SW
  - Full NXP Vega board toolchain

Who, When, Where - RISC-V VM future

- BTA Design Services to continue maintenance

RISC-V VIRTUAL MACHINE

BTA RISC-V VIRTUAL MACHINE

- Beta release at OSD forum 2019, next:
  - Release 1.0 after CENGN project competed (webinar?)
  - intermediate releases for bug fixes and improvements
  - Release 2.0 planned for OSD forum 2020

OSDForum
OPEN SOURCE DEVELOPER FORUM

- Support of VM through:

https://github.com/openhwgroup/riscv_vm/