aqlrv32-setup

aqlrv32 core setup documentation and First run!

Getting started

Set your Paths:

Add the following paths to your .bashrc file in ~:

```
export PATH=$HOME/proj/binaries/riscv-toolchain/bin:$PATH
export RISCV_PATH="$HOME/proj/binaries/riscv-toolchain"
export RISCV_TOOLCHAIN=$RISCV_PATH
export RISCV_GCC="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-gcc"
export RISCV_OBJCOPY="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-objcopy"
export RISCV_LD="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-ld"
export RISCV_OBJDUMP="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-objdump"
export SPIKE_PATH=$RISCV_TOOLCHAIN/bin
```

or run the following command:

```
echo 'export PATH=$HOME/proj/binaries/riscv-toolchain/bin:$PATH
export RISCV_PATH="$HOME/proj/binaries/riscv-toolchain"
export RISCV_TOOLCHAIN=$RISCV_PATH
export RISCV_GCC="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-gcc"
export RISCV_OBJCOPY="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-objcopy"
export RISCV_LD="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-ld"
export RISCV_OBJDUMP="$RISCV_TOOLCHAIN/bin/riscv64-unknown-elf-objdump"
export SPIKE_PATH=$RISCV_TOOLCHAIN/bin' >> ~/.bashrc
```

```
source ~/.bashrc
```

Setting up Toolchain

```
mkdir -p ~/proj/tools; cd ~/proj; mkdir -p binaries/riscv-toolchain; cd
tools;
```

```
git clone https://github.com/riscv/riscv-gnu-toolchain
```

For Ubuntu

```
sudo apt-get install autoconf automake autotools-dev curl python3 libmpc-dev libmpfr-dev libgmp-dev gawk build-essential bison flex texinfo gperf libtool patchutils bc zlib1g-dev libexpat-dev
```

```
sudo apt-get -y install python3-pip
```

```
cd riscv-gnu-toolchain; mkdir build; cd build
```

```
../configure --prefix=$RISCV_PATH  --enable-multilib
```

```
make
```

Wait for a while it will take sometime to build up.

Lcov setup

```
cd ~/proj/tools/
```

```
git clone https://github.com/linux-test-project/lcov.git
```

```
sudo make install
```

Verilator Setup

Installing Verilator

Prerequisites:

```
sudo apt-get install git perl python3 make autoconf g++ flex bison ccache
```

```
sudo apt-get install libgoogle-perftools-dev numactl perl-doc
```

Ubuntu only (ignore if gives error)

```
sudo apt-get install libfl2
```

Ubuntu only (ignore if gives error)

```
sudo apt-get install libfl-dev
```

Ubuntu only (ignore if gives error)

```
sudo apt-get install zlibc zlib1g zlib1g-dev
```

Only first time

```
git clone https://github.com/verilator/verilator
```

Every time you need to build:

For csh; ignore error if on bash

```
unsetenv VERILATOR_ROOT
```

For bash

```
unset VERILATOR_ROOT
```

```
cd ~/proj/tools/; cd verilator;
```

Make sure git repository is up-to-date

```
git pull
```

Use development branch (e.g. recent bug fixes)

```
git checkout master
```

Use most recent stable release

```
git checkout stable
```

Create ./configure script

```
autoconf
```

Configure and create Makefile

```
./configure
```

```
make -j `nproc`
```

Build Verilator itself (if error, try just `make`)

```
sudo make install
```

```
make test
```

Cloning the Core

```
mkdir -p ~/proj/cores/; cd ~/proj/cores/;
```

```
git clone https://github.com/aamir-sultan/aqlrv32.git
```

Setup and First Run

Only first time

```
source ~/.bashrc
```

Enter the repo

```
cd aqlrv32
```

```
make verilator=1 all
```

Wait for the run to complete. If everything is working fine then the run will be completed sucessfully.

For further details on the core one can refer to

```
https://github.com/aamir-sultan/aqlrv32.git
```