

hurricane-binutils

A Hurricane assembler and disassembler

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Moving to Hurricane

- ▶ Tape-out of lightly-modified DREAMER RTL this winter
- ▶ Focus on DSP applications, not RTL emulation
- ▶ DREAMER compiler doesn't generate good code
- ▶ RTL bugs

hurricane-binutils

- ▶ NOT a port of GNU – it just does the same thing
- ▶ `libhurricane-bfd.so`
 - ▶ Named after GNU's `libbfd.so`
 - ▶ A HEX parser
 - ▶ DREAMER instruction format disassembler
- ▶ `hurricane-objdump`
 - ▶ Like GNU's `objdump`
 - ▶ Just a command-line interface to `libhurricane-bfd.so`
- ▶ `hurricane-as`
 - ▶ A DREAMER assembler
 - ▶ Also exposed as `libhurricane-as.so`, but not well

Goals

- ▶ Decouple Hurricane tools from DREAMER encoding
 - ▶ Allow us to change the instruction encoding
- ▶ Allow hand-written Hurricane assembly benchmarks
- ▶ Ease the writing of `hurricane-sim`, an ISA simulator
- ▶ Allow for `hurricane-torture`

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- ▶ `hurricane-as (libhurricane-as.so)`
 - ▶ Run `hurricane-objdump`, diff against original HEX file
 - ▶ Works for Histogram.hex
 - ▶ No debug info

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... inst->x()->imm().value() ...
 - ▶ if (inst->d()->dir().valid())
... inst->d()->dir().value() ...

More Work to Do

- ▶ How to describe an instance of Hurricane to our tools
 - ▶ Legal instruction formats
 - ▶ Available opcodes
 - ▶ Restrictions on data placement
 - ▶ Optimizer information
- ▶ How do we write the per-tile compute function? C?