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San Francisco 2015

# SFO15-212: OpenJDK on ARM 32bit

**Presented by**

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**Date**

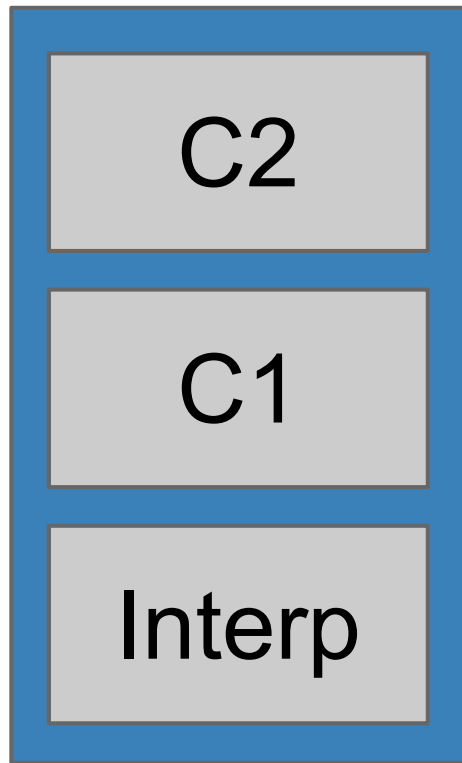
Tuesday 22 September 2015

**Event**

SFO15

# Hotspot

- Two interpreters
  - Zero
  - Template
- Two compilers
  - C1
  - C2



# Existing

- 32-bit:
  - OpenJDK 7, 8, 9 : Zero
  - Icedtea 7 : Zero, ARM microJIT & ASM interpreter.
- 64-bit:
  - OpenJDK 7, 8, 9: Full Temp. Interp, C1, C2

# Technical Choices

- Based on AArch64 port
- Kept as much as possible same
- Minor changes to frame layout
- Fewer registers meant use of sp as esp too - in hindsight perhaps not the best choice.

# Template

ISHL:

(Stack: ..., <val>, <sft>)

pop {r0} ; (ldr r0, [sp], #4)

pop {r1} ; (ldr r1, [sp], #4)

lsl r0, r1, r0

ldrb r9, [r5, #1]!

add ip, r9, #768 ; 0x300

ldr pc, [r4, ip, lsl #2]



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# Progress

- Currently only working on ARMv7, but aiming to target ARMv6 too.
- Works with a range of programs, javac, eclipse, jedit etc...
- Hard-float and soft-fp (not tested)
- Some known bugs and issues remaining.

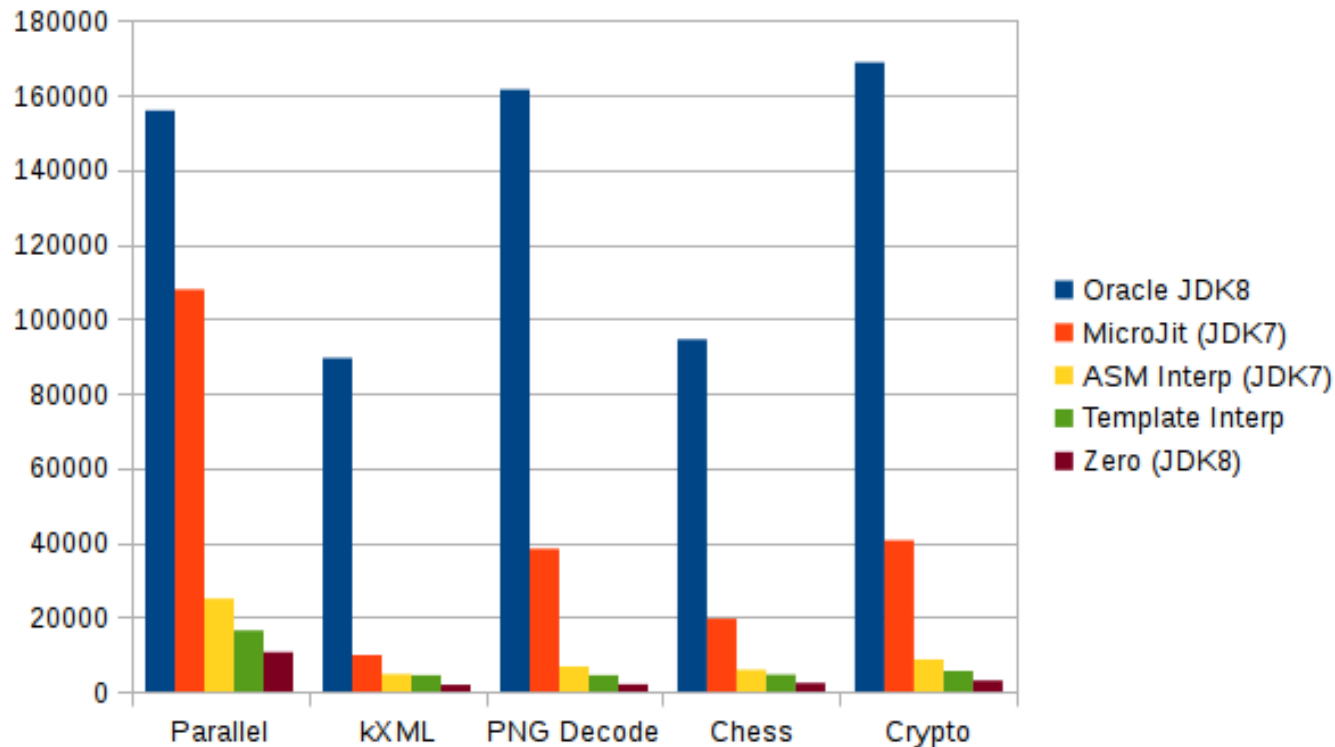
# Demo



# Benchmarks

EEMBC GrinderBench 1.0

Quad-core ARMv7 1.7Ghz, 2GB ram

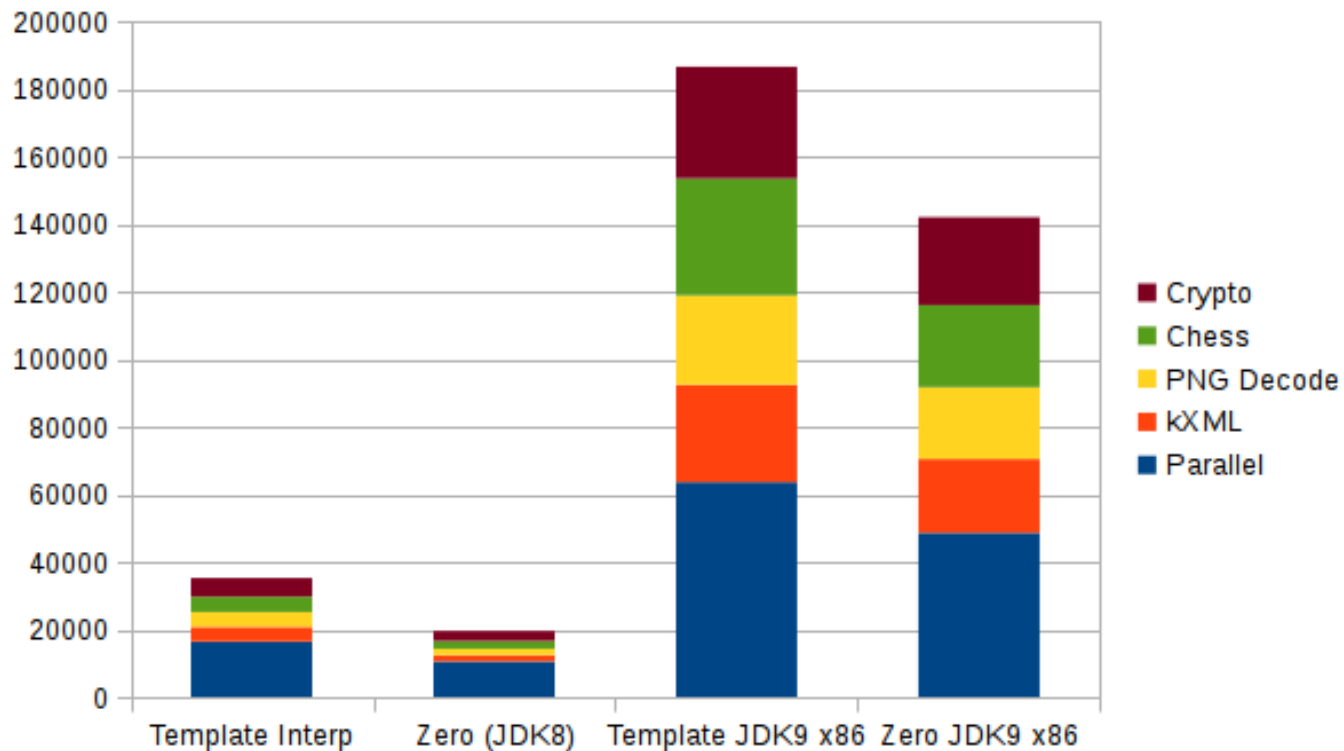


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# Benchmarks II



# Code

Latest code at:

<https://bitbucket.org/joe-j/aarch32-openjdk>

Binaries and info at:

<http://openjdk.linaro.org>

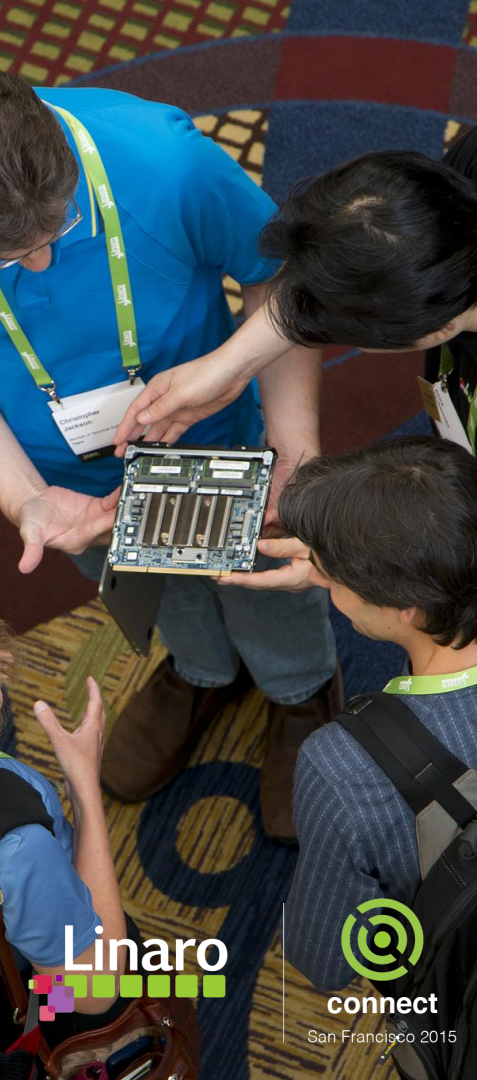


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# Future Work

- Needs a clean up
- Work on build system and packaging
- 64-bit atomic loads and stores
- Hopefully moving to an Ictea repository
- Needs more testing.



# Questions?

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