SFO15-TR6-B: OpenJDK

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OpenJDK Development (JDK9)

- All development now upstream
  http://hg.openjdk.java.net/jdk9
- All issues tracked by JIRA issues
  http://bugs.openjdk.java.net
- All changes require formal review
  1 reviewer for aarch64 only changes
  2 reviewers for changes to shared code
OpenJDK Development (JDK8)

- JDK8 still in upstream branch [http://hg.openjdk.java.net/aarch64-port/jdk8](http://hg.openjdk.java.net/aarch64-port/jdk8)
- Bug fixes, optimisations etc backported from JDK9 to JDK8 (typically monthly).
- Changes to JDK8 merged from JDK8 update projects (jdk8u20, jdk8u40, jdk8u60) into aarch64 port.
OpenJDK Development (JDK7)

- JDK7 End of Life as of April ‘15
- Continued support in IcedTea project sponsored by RedHat.
- Bug fixes etc from JDK8/JDK9 merged less frequently (typically every 3-6 months).
- Development
  [http://icedtea.classpath.org/hg/icedtea7-forest](http://icedtea.classpath.org/hg/icedtea7-forest)
- Release
  [http://icedtea.classpath.org/hg/icedtea7](http://icedtea.classpath.org/hg/icedtea7)
Linaro OpenJDK Engineering Builds

- Aim is to provide a stable monthly build of JDK 7, 8 & 9
  [http://openjdk.linaro.org/releases](http://openjdk.linaro.org/releases)
- Announcements on linaro-openjdk@lists.linaro.org
- Engineering build may contain critical patches not yet upstreamed (source code provided in release).
- Not a substitute for full releases in distros
  - Not packaged, released as tarball, no dependencies
  - No security certificates
  - May depend on specific vsns of shared libs
Linaro OpenJDK Overnight Testing

- Overnight testing run on hosted HW in Lava lab
- Currently testing is JDK8 only
- Goal is to move this to ci.linaro.org for JDK8 and JDK9

https://projects.linaro.org/browse/BB-63

- Results emailed to aarch64-port-dev@openjdk.java.net
  and published to http://openjdk.linaro.org
Linaro OpenJDK Overnight Testing

- Currently 2 builds (client, server) and 4 test suites
  - Build client, server release (0:33 hours)
  - JTReg - Java Test Regression test suite (3:36 hours)
    - 9531 individual tests (x2 - client, server)
  - JCStress - Java Concurrency Stress test (12:00 hours)
    - 11556 individual tests
  - SpecJBB2013 - Performance test (2:39 hours)
  - Hadoop - Performance test (0:11 hours)
- Total runtime > 19 hours
Linaro OpenJDK Development

- Two main threads, optimisation/enhancement & bug fixing
  - OpenJDK Performance Optimisations
    https://projects.linaro.org/browse/LEG-23
  - OpenJDK code maintenance and bug/security fixes
    https://projects.linaro.org/browse/LEG-24
- Individual issues tracked in OpenJDK JIRA instance
  http://bugs.openjdk.java.net
  and linked to from the LEG-23/LEG-24 issues
Linaro OpenJDK Sponsorship

- We work with members to sponsor patches to OpenJDK
- Linaro is a signatory to the OCA (Oracle Contributor Agreement)
- Linaro has commit privileges to OpenJDK9
- We can work with members to fast track patches and improve chances of patches being accepted
- All patches still subject to review by OpenJDK9 reviewers
- Patches which modify shared code require sponsorship by Oracle internal reviewers
Linaro OpenJDK Optimisation

8131062: aarch64: add support for GHASH acceleration
8130687: aarch64: add support for hardware crc32c
8129426: aarch64: add support for PopCount in C2
8086087: aarch64: add support for 64 bit vectors
8085805: aarch64: AdvancedThresholdPolicy lacks tuning of InlineSmallCode size
8079565: aarch64: Add vectorization support for aarch64
8081289: aarch64: add support for RewriteFrequentPairs in interpreter
8079564: Use FP register as proper frame pointer in JIT compiled code on aarch64
8079203: AARCH64: Need to cater for different partner implementations
8075930: AARCH64: Use FP Register in C2
Linaro OpenJDK Maintenance/bug fixes

8133842: aarch64: C2 generates illegal instructions with int shifts >=32
8133352: aarch64: generates constrained unpredictable instructions
8133935: aarch64: fails to build from source
8132010: aarch64: regression test fails
    compiler/intrinsics/sha/cli/TestUseSHA256IntrinsicsOptionOnSupportedCPU.java
8131362: aarch64: C2 does not handle large stack offsets
8131483: aarch64: illegal stlxr instructions
8131358: aarch64: test compiler/loopopts/superword/ProdRed_Float.java fails when run with debug VM
8129551: aarch64: some regressions introduced by addition of vectorisation code
8081294: aarch64: fails to build on ubuntu wily
8081790: aarch64: SHA tests fail