

Toolchain Infrastructure

Rob Savoye, Oct 28, 2013



What Are The Goals ?

- Automation of builds and snapshot releases
- Continuous builds & testing
- Better regression and performance analysis
- Automated Benchmarking

Software In Use

- Jenkins - Popular automation software, already used by the LAVA team.
- DejaGnu - Testing framework used by the GNU toolchain
- Linaro Cbuild - Version 1
- Linaro Cbuild - Version 2

Jenkins Builds

cbuild [Jenkins] x LAVA-QA-Test-Developer x WorkingGroups/ToolChair x WorkingGroups/ToolChair x 14 Linaro - Calendar x

https://ci.linaro.org/jenkins/view/toolchain/job/cbuild/

Linaro

Jenkins > toolchain > cbuild

Back to Dashboard
Status
Changes

Build History (trend)

#1789	(pending—cortex-a15-3 is offline)	
#1788-aarch64_be-none-elf	Oct 14, 2013 3:49:00 AM	
#1787-aarch64-none-elf	Oct 14, 2013 3:48:59 AM	
#1786-aarch64_be-none-linux-gnu	Oct 14, 2013 3:48:58 AM	
#1785-aarch64-none-linux-gnu	Oct 14, 2013 3:48:57 AM	
#1784-arm-none-linux-gnueabi	Oct 14, 2013 2:26:37 AM	
#1783-arm-none-linux-gnueabi	Oct 14, 2013 2:26:36 AM	
#1782-aarch64_be-none-elf	Oct 14, 2013 2:26:23 AM	
#1781-aarch64-none-elf	Oct 14, 2013 2:24:48 AM	
#1780-aarch64_be-none-linux-gnu	Oct 14, 2013 2:24:47 AM	
#1779-arm-none-linux-gnueabi	Oct 14, 2013 2:03:17 AM	
#1778-aarch64-none-linux-gnu	Oct 14, 2013 2:03:16 AM	
#1777-arm-none-linux-gnueabi	Oct 14, 2013 1:58:17 AM	
#1776-aarch64_be-none-elf	Oct 14, 2013 1:45:35 AM	
#1775-aarch64-none-elf	Oct 14, 2013 1:40:22 AM	
#1774-aarch64_be-none-linux-gnu	Oct 14, 2013 1:40:21 AM	
#1773-aarch64-none-linux-gnu	Oct 14, 2013 1:22:19 AM	

Project cbuild

Cbuildv2 test bed.

[Recent Changes](#)

[Latest Aggregated Test Result \(no tests\)](#)

Upstream Projects

Permalinks

- [Last build \(#1770-aarch64_be-none-elf\), 3 hr 25 min ago](#)
- [Last stable build \(#1770-aarch64_be-none-elf\), 3 hr 25 min ago](#)
- [Last successful build \(#1770-aarch64_be-none-elf\), 3 hr 25 min ago](#)
- [Last failed build \(#1734-aarch64_be-none-elf\), 3 days 12 hr ago](#)
- [Last unsuccessful build \(#1734-aarch64_be-none-elf\), 3 days 12 hr ago](#)

Jenkins Build Now Page

The screenshot shows the Jenkins web interface for a job named 'cbuild' in the 'toolchain' folder. The page is titled 'Build Now' and includes a 'Configure' link. On the left, there is a 'Build History' section with a '(trend)' link, listing 20 previous builds with their IDs, names, and timestamps. The main area contains configuration options for the build, including checkboxes for 'runtests', 'build_type', and 'bootstrap', and text input fields for 'target', 'gmp_snapshot', 'mpc_snapshot', 'mpfr_snapshot', 'gcc_snapshot', 'binutils_snapshot', 'linux_snapshot', 'node_selector', and 'tarballs'. A 'Build' button is located at the bottom of the configuration area.

Jenkins toolchain cbuild

Build Now
Configure

Build History (trend)

- #1789 (pending—cortex-a15-3 is offline)
- #1788-aarch64_be-none-elf Oct 14, 2013 3:49:00 AM
- #1787-aarch64-none-elf Oct 14, 2013 3:48:59 AM
- #1786-aarch64_be-none-linux-gnu Oct 14, 2013 3:48:58 AM
- #1785-aarch64-none-linux-gnu Oct 14, 2013 3:48:57 AM
- #1784-arm-none-linux-gnueabihf Oct 14, 2013 2:26:37 AM
- #1783-arm-none-linux-gnueabihf Oct 14, 2013 2:26:36 AM
- #1782-aarch64_be-none-elf Oct 14, 2013 2:26:23 AM
- #1781-aarch64-none-elf Oct 14, 2013 2:24:48 AM
- #1780-aarch64_be-none-linux-gnu Oct 14, 2013 2:24:47 AM
- #1779-arm-none-linux-gnueabihf Oct 14, 2013 2:03:17 AM
- #1778-aarch64-none-linux-gnu Oct 14, 2013 2:03:16 AM
- #1777-arm-none-linux-gnueabihf Oct 14, 2013 1:58:17 AM
- #1776-aarch64_be-none-elf Oct 14, 2013 1:45:35 AM
- #1775-aarch64-none-elf Oct 14, 2013 1:40:22 AM
- #1774-aarch64_be-none-linux-gnu Oct 14, 2013 1:40:21 AM
- #1773-aarch64-none-linux-gnu Oct 14, 2013 1:22:19 AM
- #1772-arm-none-linux-gnueabihf Oct 14, 2013 1:22:18 AM
- #1771-arm-none-linux-gnueabihf Oct 14, 2013 1:17:58 AM
- #1770-aarch64_be-none-elf Oct 13, 2013 12:18:46 PM
- #1769-aarch64-none-elf Oct 13, 2013 9:35:25 AM
- #1768-aarch64_be-none-linux-gnu Oct 13, 2013 9:34:48 AM
- #1767-aarch64-none-linux-gnu Oct 13, 2013 7:48:34 AM
- #1766-arm-none-linux-gnueabihf Oct 13, 2013 6:40:12 AM

runtests Enable or disable running "make check" after a build.

target The target architecture to build a toolchain for

gmp_snapshot The release of GMP to use for this build

mpc_snapshot The release of MPC to use for this build

mpfr_snapshot The release of MPFR to use for this build

gcc_snapshot The release of GCC to use for this build

binutils_snapshot The release of binutils to use for this build

linux_snapshot The version of the Linux kernel headers used to build a C library

build_type Enable if a cross build.

node_selector Defines a label to restrict where the job should be executed. This could also be a node name. For building on x86-64 machines use: toolchain_cloud For building on A15 machines use: cortex-a15-1 cortex-a15-2 cortex-a15-3 For building on A9 machines use: cortex-a9-1 cortex-a9-2 Or you can use node tags to dynamic find a build node: arm, a15, precise This tells jenkins I want a ARM A15 Precise build node.

debug If enabled, this turns on bourne shell debugging, and produces volumuous output. This is only useful to Cbuildv2 developers.

bootstrap Enable bootstrapping. For a cross compiler this builds a native GCC. which is then used to compile the cross compiler. For native, it builds GCC, and then uses that to recompile itself.

tarballs Build source and binary tarballs.

Build

Jenkins Test Results Page

jenit-parsing #11 Test Re x LAVA-QA-Test-Developer x WorkingGroups/ToolChair x WorkingGroups/ToolChair x Linaro - Calendar x

https://ci.linaro.org/jenkins/view/toolchain/job/junit-parsing/lastBuild/testReport/

Robert Savoye (rob.savoye@linaro.org) | log out

Jenkins toolchain junit-parsing #11 Test Results [ENABLE AUTO REFRESH](#)

Test Result

291 failures (+17), 905 skipped (-427)

1,196 tests (-410)
Took 0 ms.

All Failed Tests

Test Name	Duration	Age
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-48089.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-53094-1.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-object2.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-object2.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-pedantic.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-pedantic.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/constexpr-typeid.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/enum23.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/implicit11.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/lambda/lambda-conv3.C	0 ms	1
>>> g++-XFAIL.g++.dg/cpp0x/lambda/lambda-eh.C	0 ms	1

Jenkins Test Result Page

The screenshot shows a web browser window with the following tabs: "junit-parsing #11 test - g...", "LAVA-QA-Test-Developer", "WorkingGroups/ToolChair", "WorkingGroups/ToolChair", and "Linaro - Calendar". The address bar contains the URL: [https://ci.linaro.org/jenkins/view/toolchain/job/junit-parsing/lastBuild/testReport/\(root\)/g++-XFAIL/g__dg_parse_dtor3_C_2/](https://ci.linaro.org/jenkins/view/toolchain/job/junit-parsing/lastBuild/testReport/(root)/g++-XFAIL/g__dg_parse_dtor3_C_2/). The browser's address bar also shows "Chrome OS veri...", "Imported From Fi...", "Linaro", "Lightning DB", and "Current News".

The page header features the Linaro logo on the left, a search bar with the text "search", and the user "Robert Savoye (rob.savoye@linaro.org) | log out" on the right. Below the header is a breadcrumb navigation path: "Jenkins > toolchain > junit-parsing > #11 > Test Results > (root) > g++-XFAIL > g++.dg/parse/dtor3.C". A link "ENABLE AUTO REFRESH" is located to the right of the breadcrumb.

The main content area displays a large red "Failed" status. Below it, the test name "g++-XFAIL.g++.dg/parse/dtor3.C (from DejaGnu)" is shown. To the right, a message states "Failing for the past 1 build (Since #11)" with a link "Took 0 ms.". Below this, a message says "This test was not claimed. Claim it." with a "Claim it" link. The "Error Message" section contains the text: "-std=c++98 implemented DR272 (test for bogus messages, line 11)".

A left-hand sidebar contains navigation links: "Back to Project", "Status", "Changes", "Console Output", "View Build Information", "History", "Environment Variables", "Test Result", and "Previous Build".

The footer of the page includes a link "Help us localize this page" on the left, and "Page generated: Oct 14, 2013 9:56:42 PM", "REST API", and "Jenkins ver. 1.509.4" on the right.

What's Next ?

- More automation via Jenkins
- Web based test result analysis
- Benchmarking support added to Cbuildv2
- Depreciating Cbuildv1
- Integrate glibc so it can replace eglibc

Future Graphing

