

LIM, March 8, 2021

Connected: Andre Sailer (chair), Ivan Razumov, Ari Kraut, Guilherme Amadio, Reiner Hauser, Omar Zapata, Ben Couturier, Oksana Shadura, Johannes Elmsheuser, Ilias Goulas, Edward Moyse, Gerardo Ganis, Gunter Folger, Marco Clemencic, Ewelina Lobodzinska, Attila Krasznahorkay, Graeme Stewart

Apologies: Pere

Indico: <https://indico.cern.ch/event/1011071/>

Next meeting: March 22, 2021

Status of things

Nightlies

- Upgraded packages for the dev[34] and dev[34]python2 development builds
- New: boost_histogram ([SPI-1824](#)), tabulate ([SPI-1825](#))
- Upgraded: Boost 1.75 ([SPI-1819](#)), PyJWT 2.0.1 ([SPI-1820](#)), gdb 10.1 ([SPI-1831](#)), ACTS 6.0.0 ([SPI-1841](#)), pip 21.01 ([SPI-1840](#)), CORAL/COOL 3.3.5 ([SPI-1724](#)), spark 3.1.1 (dev3 only, [SPI-1839](#))
- Removed: pyTimber, pyjapc, pjlsa, jpype, cmmnbuild ([SPI-1807](#))
- Recipe changes:
 - dbg: Build root with “LLVM_BUILD_TYPE=Debug”
 - slows down Gaudi tests by factor 5-10
 - LLVM_BUILD_TYPE disable again?
 - Oksana: Vasil merged the fix, can you keep it a few more days?
 - Gerri: No problem keeping this enabled for a couple of days
- dev[34]Cuda
 - Nothing to report
- devArm
 - Nothing to report

Releases

LCG_98python3_ATLAS_7 (for generators) ([SPI-1822](#))

- Attila: Latest issue with the text file containing packages inside a layer. Local version gets into a weird state?

- Ivan: When we install the RPMS we create .txtfile, created during RPM creation from the build info files created when packages are installed from binary tarfiles. .txt.installed file is populated by the actual installed packages, when RPM is installed it is added to txt.installed file. When first create the layer this code wasn't properly ported to the "pipeline". When the creations script was run this wasn't re-created. Forgot about .txt.installed. The files should be fixed now, and are the same. Please try again.
- Attila: Will test in the nightlies again.

LCG_88b

Patch for superchic 4.02p1 being added [SPI-1794](#)

Attila: Heard no complains

Ewelina: Madgraph OK, Superchic included tonight

LCG_99_LHCB_5 ([SPI-1842](#))

Ivan: was waiting to be sure the RPM creation is working

LCG_100:

With the upcoming release of ROOT 6.24.00 the stakeholders are asked to voice their wishes for LCG_100 in [SPI-1799](#)

- Oksana: Marco what is the status of ROOT-7361 (avx use in roofit)
- Marco: We do not want dynamic dispatch, but if it is in roofit I don't care. Need to know what is running
- Can we switch to root-6.24-branches in dev4?
 - Marco: yes please do so
 - Attila/Johannes: OK for ATLAS
 - Andre: **Will switch for tonight build**
- XrootD 5.1.0
 - Johannes: How well is it tested?
 - Oksana: Some issues with tests in ROOT
 - Johannes: Analysis jobs are using xrootd version in root
 - Gerri: In root or in LCG?
 - Attila: We build the same xrootd version as in ROOT ourselves. Not aware that anyone is asking for it
 - Gerri: Version 5 has been around for some time.
 - Johannes: OK if it goes to dev4, we have tests for this
 - Attila: Not a complete blocker if there are issues
 - Gerri: Put the latest xrootd4 into LCG_100, then put xrootd5 into dev4
 - Johannes: 5 is OK, we just have to watch the tests

- Andre: LHCb?
- Marco: No strong opinion
- Andre: **We put 5 in and check if the tests are failing**

Other issues:

Coral/Cool:

- Johannes: Following the discussion two weeks ago, started the process of building our TDAQ software, moving CORAL/COOL out of the LCG stack.
- Reiner: Treating CORAL/COOL as an external project. One tiny change to let it be build.
- Attila: No conceptual issue. Should be possible to do properly
- Johannes: What would be a deadline?
- Andre: **LCG_101?**
- Johannes: Sounds reasonable

NXCals removing acc-py packages

- Omar: why are they being removed? They are heavily used
- Ari: We were asked them to be removed by the developers because of issues with updating them. The repository is no longer available to update them.
- Omar: Can we discuss this?
- Ari: We can discuss with the authors of these packages?
- Gerri: Can you point the user asking for the updates to these tickets
- Omar: removed from which stack?
- Andre: removed from dev3/4 and now LCG_95apypython3_nxcals
- **Discussion to be continued offline**

compile gcc with "--enable frame pointer" when then makes "--f-no-omit-frame-pointer" the default

- Marco: disable "omit-frame-pointer" for whole stack. Performance overhead basically negligible. bug in gcc 10.2 that doesn't let one enable this flag. As it is complicated to rebuild the whole stack, should start this with gcc11. Another option would be a different stack with a different platform (-opt+eft?). But not in a hurry, so we can wait until gcc11.
- Andre: What is "basically negligible"?
- Marco: Depends on what is done, because one register less is available. Less than 1%.
- Andre: Is this going to affect dbg or opt?
- Marco: Enabling the flag not noticeable for debug builds.
- Gerri: Can enable this in the future and see. Two builds are probably impractical to maintain?
- Johannes: Cannot comment at the moment. One percent might be acceptable if there is better debugging.

- Attila: One percent isn't that small, but let's test it and see
- Marco: Alternative is to have a new platform.
- Gerri: Needed for how many platform? GCC11
- Marco: for the compiler of our choice. **Will open ticket**

cuda 11.2

- Omar: According to <https://docs.nvidia.com/cuda/cuda-toolkit-release-notes/index.html> need kernel version CUDA 11.2.0 GA >=460.27.03 and adapt many more packages, <https://github.com/NVIDIA/k8s-device-plugin> <https://github.com/NVIDIA/nvidia-docker>
- Andre: As far as I understand this is only in contrib, does not go into the LCG stacks.
- Attila: Can you not preemptively update? nvidia-docker etc. kept up-to-date usually? Keep drivers updated
- Omar: Need to test before releasing upon the users.

Instruction set update

- Marco: Complicated to add many different instructions "avx2+fma...", even worse with "avx512+..."
 - Shortcut: skylake_avx512 (which is what gcc calls the processor), natural conclusion: use haswell (etc.) in the name. Cryptic names, but shorter binary tags, easier to pass to gcc or clang in "--march".
 - In gcc11 or clang12 can use micro-architecture levels v2 (sse4.2), v3 (avx2),... Difference is that generic level uses generic tuning, not processor specifics. For example our trigger binary will target the actual CPUs used. For the grid maybe generic v2 tag.
 - Python package which does this: archspec (developed as part of spack)
- Reiner: RedHat plans on micro architecture level: <https://developers.redhat.com/blog/2021/01/05/building-red-hat-enterprise-linux-9-for-the-x86-64-v2-microarchitecture-level/>
- Graeme: HSF TN was a best guess, but the world is moving on. EESSI is also using archspec
- Marco: change is backward compatible, can still use x86_64. But we may ask to have haswell builds.
- Gerri: Which instruction sets to build?
- Marco: had a similar discussion for openBlas? Have anyway enabled SSE4.2 (_v2).
- Gerri: Using Nehalem for openBlas (maybe).
- Marco: Was developing similar than archspec, but that one has more features. DIRAC pilot is using its own copy of archspec. Would use a copy outside of the LCG stack.
- Gerri: Could add archspec in contrib.
- Marco: Could change the instruction set with the new compiler version?
- Gerri: Makes sense, have to wait for gcc11 and clang12, which gives us some time. Have to prepare for book keeping etc.

Spack: Discuss next Monday, March 15 in exceptional meeting

Alice: NTR

Atlas: NTR

CMS: No Connection

LHCb:

- Marco: can we have a clang11 build of LCG_99? Because the clang10 still have some quirks. Would help us to prepare for LCG_100.
 - Attila: By the way, we build our own clang and compile the ATLAS software. It is not possible to mix clang build with gcc8 and packages build with clang with a different gcc.
 - Andre: Shouldn't be a problem to build LCG_99 with clang11, or at least try once we have clang11.
- Marco: Have been think about asking for power9 builds for the stack. It was mentioned at the Architects Forum that a power9 machine would be available
 - Attila: Do you have resources?
 - Marco: Hard to say, as we don't have the software to run on power9. Would be clients of a power9 build on a prototype stage.
 - Andre: Need to see with Maria Girone if/how we can access this machine
 - Gerri: And then find someone to work on it
 - Ben: Could maybe use spack to build the stack on power9

SWAN: NTR

BE/NXCals: NTR

AOB: