Test stand at CAEN

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A VME crate is installed at CAEN

- CPU VME VP717
- connected to the internal wired CAEN network
- access to internet is available

A few important points about the CPU:

- VME interface chip is Tsi148
 - this chip is a completely different chip with respect to the one used in older VP cards (ie. VP315 widely used in ATLAS)
- the device drivers for Tsi148 run only with 64-bit kernels and userspace utilities
 - ATTENTION! Nothing stops you from trying to use it with 32-bit systems: it just doesn't work with random errors

The VME CPU will work only with TDAQ 04-00-xx 64-bit

There are three possibility to run TDAQ software:

- From the AFS distribution hosted at cern.ch
- ▶ From the Cern-VM FS (cvmfs) distribution hosted at cern.ch
- From a local installation of the TDAQ distribution

On the cern.ch AFS space are hosted several TDAQ software releases, including the ones suitable for our VME CPU. Running from AFS is simple: just source the proper configuration files (our software is already setup for this). Issues:

- CAEN bandwidth is limited, very long startup times
 - If the cache is setup correctly once the TDAQ software is sourced/used once should run like locally
- AFS sometimes triggers also complex authentication with cern.ch that hangs everything for minutes

The AFS solution is not ok at CAEN

CernVM-FS is also a remote filesystem like AFS, but optimized for distribution of software.

Cache is persistent so with the exception of the very first time the software runs like a local installation, but setup is easy like AFS. Issues:

- Limited choice of TDAQ releases
- The only 64-bit version available is 04-00-00, the most used version in ATLAS is 04-00-01

The CernVM-FS is ok at CAEN with some issues

Local installation is fast, but requires complex installation procedure (see https://twiki.cern.ch/twiki/bin/view/Main/TDAQLabBologna) and maintenance.

Issues:

- Only release 04-00-00 was available for 64-bit
- I requested and obtained o4-00-01, but we are the first trying to use it
- Once a release is installed it's very difficult to update / install another release, the best option is to start from scratch
- I wasn't able to install the development part of the release, to compile programs we must use a remote version (AFS or CernVM-FS) or compile somewhere else

The local installation is ok at CAEN with some issues

- In principle all three options to run TDAQ on the CAEN crate are possible and tested
- AFS is not really usable
- CernVM-FS is ok, but it's limited to o4-oo-oo
 - I don't see a real problem with this, but we should check with some TDAQ sw expert
- Local installation is ok, but there are issues
 - 04-00-01 64-bit is not tested and can be broken easily
 - 04-00-00 64-bit is better, but see the previous point
 - right now it's not possible to compile without AFS (I might solve this in the future)
- The crate is usable for testing boards

Some other issues to discuss:

- CAEN is not happy to leave the crate running during the night when no one is around
- CAEN desire is reasonable: the crate is not monitored (for electrical problems, temperature, etc.)
- if in the future we want to run long tests (> 1 day) it's better to think well in advance how to add monitor/security to the crate