

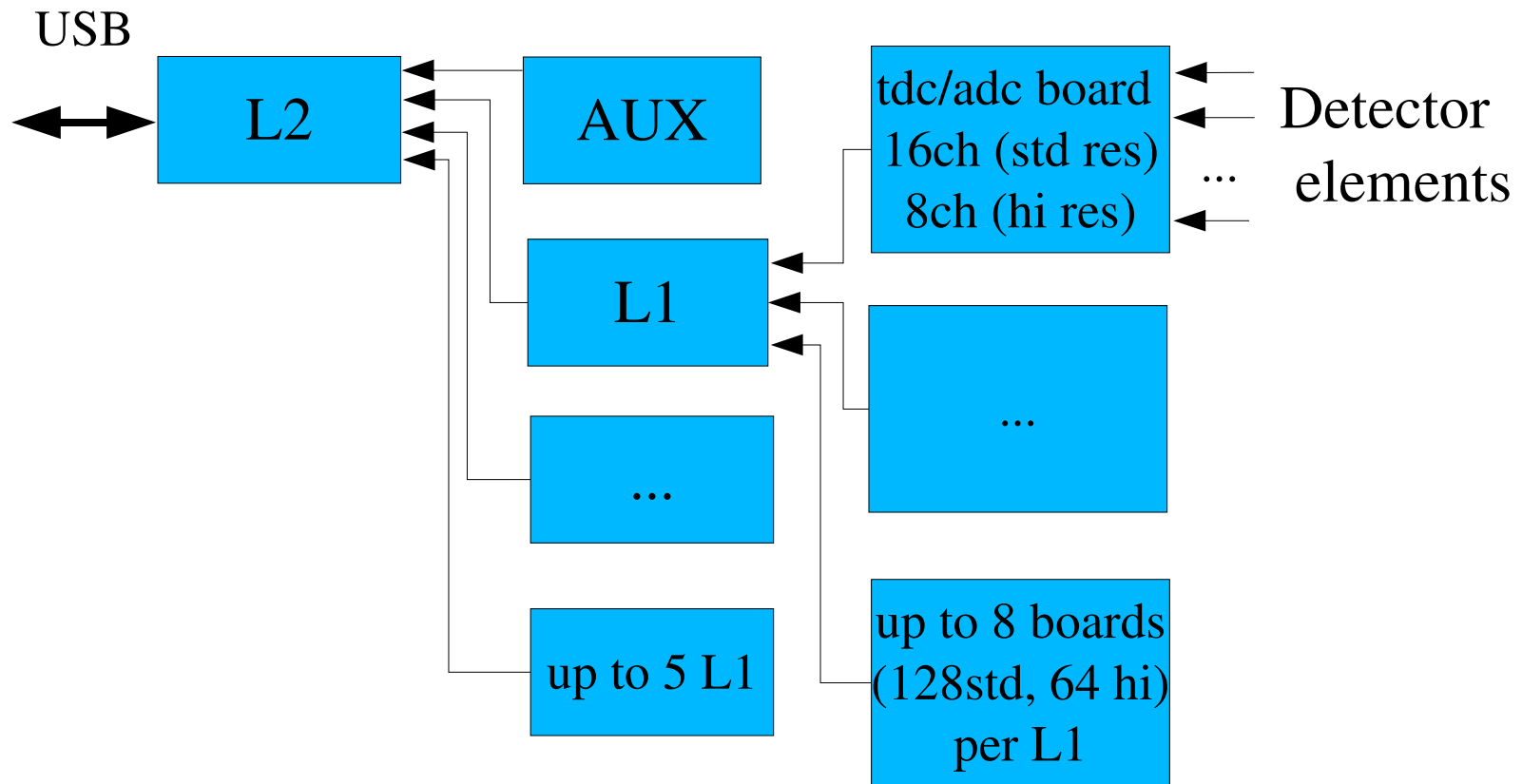
Vladimir Olshevsky, report on DIRAC collaboration meeting, November 16/17 2006, CERN.

1. Status of hardware for new (aka usb) readout
2. DAQ status
3. High voltage (software+hardware) status

Note: only section 2 is a responsibility of DAQ team

Status of hardware for new (aka usb) readout (1)

Layout of new USB readout



Status of hardware for new (aka usb) readout (2)

Planned: Detectors with new electronics

Upstream		Downstream	
IH	64 ch	VH	80 ch, high res
SF plane	480 ch	HH	64 ch
		CH+CHA+CHF	50 ch

Required number of modules (including spare ones)

L2	6
AUX	6
L1	12
TDC/ADC	61

Status of hardware for new (aka usb) readout (3)

Current status of hardware

(software status will be mentioned in DAQ section of report)

L2	1 completely ready	(needed: 6)
AUX	1 in progress (testing)	(needed: 6)
L1	None ready	(needed: 6)
TDC/ADC boards	2 completely ready	(needed:61)

Time estimation: not easy but possible to produce and tune all modules before may 2007

DAQ status

USB readout issues (1)

Incorporating to DAQ: - main idea is to hide all details from outer world.

Changes for outer world:

new sub-block in run event (thresholds, resolutions, etc.)

new detector data blocks with global addresses.

Items in new detector blocks - 2 32-bit words
(preliminary)

Global channel address (L2 + L1 + board + channel)

MSW: adc code (hi res) | LSW: tdc code(hi res)

No whole chain yet - no layout for run event sub-block

DAQ status

USB readout issues (2)

Done: - Generic USB tests (slow) and specific tests for L2
- custom driver for L2 (26 MB/s, concurrency not tested).

Partly done: - Read-out program (main logic)
- Event building (format checks, event extraction).
- cfg-parser (partial support for new hardware type).
- Run display

To be done: - new run event and detector blocks (real stuff).
- slow control and run control support
- putting all together and testing.

Desired: - automation of the detectors tuning. Slow control framework exists. (Request came from L.Afanasev).

DAQ status

USB readout issues (3)

Most time-consuming tasks:

“On-demand” writing of specific software for hardware tuning and testing (required this winter).

Final stage of incorporating to DAQ postponed till may 2007, will require 2x2 weeks at least.

DAQ status

DAQ hosts (SLC, 5+ computers)

Host	Duties	Constraints
diracvme	Readout, slow control, trigger control	DAQ only
daqdirac	Readout, slow control, trigger and run control, event building, recording.	DAQ only
dirachv	High voltage control, thresholds for SF.	HV+thresholds.
diracmon	General monitorings, dedicated for shift.	Shift, DAQ only.
diracdata	Local data pool, recording, quality check.	DAQ+QC only
other	May be added by subdetector groups.	Bandwidth if on dedicated network

DAQ status

Monitoring programs – had 2, now have 3 ?! Alphabetical list:

aim (author: Ol'shevskiy) – automatic, compares distributions against reference ones, informs shift crew on problems.

Operational, but still requires some work due to changes in the readout and layout of the detectors.

nomon (author: Hons) – interactive. replacement of omon.

Written from scratch. Has QT/Root based GUI.

Key design feature – ability to tune GUI and to define a set of detectors/histograms without altering source code.

Has both 1D and 2D distributions.

Large progress in development – unstable sometimes but usable already.

tmon (author: Gritsaj) – interactive, light-weight, suitable for tuning.

Written from scratch. Has gui front-ends (for gnuplot and root).

Able to collect 1D distributions (hit distributions, multiplicities, time and amplitude spectra).

DAQ status

Migrating to SLC4

Bad news

SLC3 planned to be phased out this year.

SLC4 seems to be slower and less stable (new kernel design)

If working on phased out system – less support, more constraints.

Status

Already running SLC4 - dirachv, diracdata.

To be done - diracvme, daqdirac, diracmon.

Main work - porting custom drivers for readout.

(diracvme and usb-subsystem on daqdirac).

DAQ status

General DAQ

Old system - completely ported, operational. Some runs collected.

Tests with large data samples (both size and number of events) – done, OK.

Data distribution scheme - extended, efficient mirroring to quality check host.

Counts for MCR: - done.

Informing shift on DAQ events - ready.

TBD

Tools for **custom** automatic backup/fast recovery of DAQ hosts.

Desired

“wizard” to help shift to start DAQ system from scratch.

High voltage (software+hardware) status (1)

LeCroy mainframes: unreliable hardware, retired.

Caen mainframes

Hardware: for all channels + spare frame and some spare modules

Old software

GUI-based program. Convenient but extremely unreliable (poor design, slow, driver-specific - does not use high level library, frequently damages contents of HV database).

New software

Low-level: CAEN library + CAEN drivers

High-level:

poormanhv - text-based, channel-oriented, inconvenient but fast and reliable. No plans for future development.