



Finalization of the front-end electronics installation this summer:		
<u>TL2:</u>	installation of analog modules and three crates during the open days for the TL2 line (Mercury, Venus and Earth). 2 <sup>nd</sup> gateway installed in the gallery.	
<u>All the c</u>	<u>crates:</u> debu transmiss	ug & tests with calibration at first, then with beam: big work on ions and network between crates and gateways. Soft debug.
<u>An</u>	<b>alog parts</b> :	16 modules for mixed pick-ups (CERN & Uppsala BPM's and BPI's).
<u>Dig</u>	<b>gital FE</b> :	31 front-end boards for mixed CERN/LAPP analog electronics.
<u>Cra</u>	ates :	<ul> <li>8 crates from Mercury to Neptune with up to 5 chained DFE.</li> <li>1 distribution board per crate: timing, power supplies and</li> </ul>





Hardware problems: Software solutions...

- Jitter on acquisition: 2 different jitters still not well understood.

FPGA on DFE suspected for "long" jitter and timing/distribution board suspected for "short" jitter.

<u>Solutions:</u> tuning of the timing distribution levels and measurement of the introduced jitter in the different parts of the chain (tomorrow access).

If no result, trigger implementation on the soft to stabilize and synchronize the pulses.

<u>noise</u>: the background noise is not colored noise but due to the offset voltage of analog memory cells. Systematic error → repetitive 16 samples noise pattern.
 <u>Solutions</u>: this baseline can be averaged and captured in a calibration procedure then real time subtracted to the raw data.

Estimated time : 1 month.





Software problems: Software solutions...

- <u>Specs master reset</u>: due to rare transmission problem (specially on Mars crate) Stops the acquisition and forces to reset boards manually.

 $\rightarrow$  had been solved by a different reset procedure on the soft.

- <u>Fesa processes and software stability:</u> several clues (trajectory) for the fesa crash. Stops the acquisition and forces to restart fesa process.

 $\rightarrow$  Lapp and Cern work on it...







Lapp scientific council decided on July to continue our contribution to CTF3 with a new acquisition R&D: simplest system with a continuous sampling based on CLIC specifications.

- $\rightarrow$  simplest architecture: 12 bits, 500Msps rad-hard ADC.
- → definition of a new stronger transmission protocol and network (optical, wireless...).
- $\rightarrow$  all-around beam generic acquisition.
- $\rightarrow$  autonomous rad-hard power supplies and calibrations.

Specifications to be discussed with the collaboration.

Foreseen for ITB: whatever the status, we are going to ask 2,5 men and 50k€/year to the LAPP/IN2P3 next month and sign a kind of MoU for 2 years of participation.

Could upgrade the current system on CTF3...