Minutes of the FINUDA online meeting

LNF, 31/01/2005

Participants:

Diego Faso faso@to.infn.it
Paola Gianotti paola.gianotti@lnf.infn.it
Simonetta Marcello marcello@ph.unito.it
Elisabetta Pace elisabetta.pace@lnf.infn.it
Stefano Piano stefano.piano@ts.infn.it
Fulvio Pompili fulvio.pompili@lnf.infn.it
Federico Ronchetti federico.ronchetti@lnf.infn.it
Giuseppe Simonetti giuseppe.simonetti@ba.infn.it

Federico Ronchetti (LNF) joins DAQ group in order to help us with his computing and networking skills. Welcome!

The following items were discussed:

DAQ:
a) Next data taking rates and DAQ saturation point:
In order to improve the DAQ saturation rate the CAEN people changed the DMA chip, the memory and the clock of I/OSIM crams. The rate of DAQ saturation improved from 66 Hz to 120 Hz. Besides, 9 CAEN v2718 optical bridges and 2 VME crates (with a split backplane) were bought in order to divide the I/OSIM daq into 8 parts. With such a framework the I/OSIM daq saturation point due to cram's to cpu data transfer will be comparable to that of the other FINUDA sub-detectors (~400 Hz). Because the optical bridges are without CPU, the I/OSIM data will be reduced by 2 concurrent process running on fndrun. Such a hardware configuration needs a more powerful fndrun computer, therefore a 4-proc Opteron was bought. The next job will be the testing of the code and the bridges using SMP kernel to be finished by the end of March (Stefano Piano). The bridges and the crates are coming soon.

b) DAQ uptime: the new 100 MB/s Ethernet cards were installed in the CES diskless CPU's, Paola Gianotti and Federico Ronchetti will develop the new code to acquire data from GTS, TOF, STB and LMD using Ethernet link (UDP/IP) instead of differential PVIC. Another task crucial to improve the DAQ stability is the replacement of VIC links with the CES RTPC CPU's (Fulvio Pompili).

c) Single event raw data size: the packet size during the last runs was about 33 KB/event. Since the integral luminosity to be acquired will be about 1 (fb)^-1, it is crucial to reduce the packet size. In the raw data there are 14 KB/event of I/OSIM spy channels, Stefano Piano is developing a new code for I/OSIM zero suppression in

order to reduce/eliminate the spy channels from raw data without changing the raw data format. It is suggested that the LMD group takes into account the possibility to use the zero suppression in order to reduce the LMD data in the raw packet (Elena Botta).

DATA:
d) Electronic logbook status: Giuseppe Simonetti showed the status of the new electronic logbook of FINUDA (run summary repository) and the new Finuda on-line web pages (runinfo, scalers, istant values and time dependence graphs of trigger rates, online DAFNE rate reading, online all rate reading, istant values and time dependence graphs of luminosity parameters, historical graphics of trigger rates, historical graphics of luminosity parameters, online quality check). They are working well and, as soon as possible, the electronic book will be accessible to all people of the FINUDA experiment. Great!

e) Automatic backup procedure: The DAQ group asked Giuseppe Simonetti to develop and to integrate the automatic backup procedure with the electronic logbook and the on-line web pages.

f) Storage status: to store the data acquired during the first data-taking new disks (1.7 TB) were bought and they will be installed in the LNF computing hall (to share the data by means of afs). At the end of the 2005 the three-years warranty of DAQ disk-server will expire. Paola Gianotti, Stefano Piano and Federico Ronchetti are evaluating the needed storage, the possibility to order a new disk server and/or to extend the warranty of the present disk-server. Federico Ronchetti showed a possibile solution for FINUDA storage using a NAS system.

g) Finuda Database: the present Finuda database is too old and too static. Moreover, there are a lot of troubles to install it with the new 3.3 gcc compiler coming with new distributions. A topic of great importance is to understand how to make a proper design of relational database for Finuda experiment. The DAQ group asked Giuseppe Simonetti to evaluate the possibility to build the Finuda DB with mysql, which is working well for the electronic logbook.

ONLINE MONITOR AND SLOW CONTROL:
h) Detector slow-control upgrading: To reduce the dead time it is crucial to improve the slow control interface: one click to recover the whole FINUDA is less time spending than to remember several directions. The first step is to develop a "RECOVERY" button for each slow-

control (Elisabetta Pace for STB, Diego Faso for TOF, Diego Faso and Elena Botta for LMD) by the end of March. The DAQ group asked Elisabetta Pace to develop a simpler interface for the STB slow control and to integrate the CAEN PCI board in the STB slow-control by the end of March. Fulvio Pompili is working in order to send the Low Voltage Alarm to Mega Console.

i) It is necessary to develop the mega console. Beside, it is crucial to send from mega console and slow controls to run control some information as the gas mixing and the detector current values in order to save this information into raw data. This job will be discussed during the next online meeting.

l) Event display and slow-control alarm (single interface): it's crucial that the online monitor sends an alarm to the mega console if one or more histograms are not filled properly. The DAQ group asked Piergiorgio Cerello and Diego Faso to implement this task. At the end of February it will be possible to organize an online monitor meeting (Piergiorgio Cerello, Diego Faso, Paola Gianotti, Stefano Piano) in order to discuss the DAQ requirements (summary status, print-out, alarm, refresh button) and data transfer from GEB to monitor.

m) Pre-analysis software: The DAQ group asked to Diego Faso to integrate in the online monitor the pre-analysis software: DAFNE beam energy, beam position, boost calculation, luminosity calculation. Great effort!

TRIGGER:
n) Trigger upgrade: the DAQ group received from the FINUDA Collaboration to share the trigger documentation and to develop a more flexible Trigger. At present the Trigger Map/Scheme is already available in the FINUDA web page:
http://www.lnf.infn.it/esperimenti/finuda/Trigger/Trigger_home_page.htm
and two talks about the Trigger have been done by Simonetta Marcello inside the Collaboration (Iseo March 2002, Trieste May 2004):
http://www.lnf.infn.it/esperimenti/finuda/private/TrigRepTS504_sm.ppt
In order to improve the sharing of the Trigger information, the Trigger Group will provide soon a detailed documentation about the Trigger System.
Trigger Group asks for precise requirements for new Event Selection on the Trigger from the Collaboration in order to organise as soon as possible a Trigger meeting of experts (Simonetta Marcello, Paola Gianotti, Fulvio

Pompili, Luigi Busso, Vito Lenti) to discuss new developments and/or new design of the Trigger.
About TOF and trigger timing, Fulvio Pompili is working to develop a time calibration system in order to calibrate automatically the different slabs of TOFINO and TOFONE by means of the laser pulses.

ELECTRONICS:
o) New CAMAC controllers: two JENET camac controllers were installed by Fulvio Pompili, the code was already implemented and the controllers are working perfectly. By means of the new CAMAC controllers Fulvio Pompili is developing some useful tools in order to reset the remote CPU's, to send the LV alarm and to control the CAMAC crates and devices. Great!

p) Old and New Tofino Electronics: it's crucial to put Fulvio Pompili in contact with the Japan group in order to match the new TOFINO electronics with the DAQ system. We asked to Fulvio Pompili to send an e-mail to the Japan group by the end of the next week.

q) Common front-end status: Fulvio Pompili is working in order to build a common front-end but he needs some directions about new Tofino.

r) New tdc's: to acquire both high and low mean-timer signals the DAQ group needs to buy new TDC's. Vincenzo Paticchio and Luigi Busso are involved in order to look for some VN1488 TDC's or eventually to test a V775 TDC. The MT signals are used for trigger purpose. Therefore, connecting the high MT signals to the TDC's means to limit possible new triggers.

s) New constant-fraction's: Giuseppe Simonetti told us that they are coming soon !

CABLING:
t) Installation and Maintenance: the new cables (cross-talking free) are coming, the installation will be done during the next shutdowns thanks to Luciano Passamonti and Sandro Tommasini.

FINUDA NET:
u) OS upgrade (both windows and linux): Federico Ronchetti is studying a method to automatically upgrade and maintain both Windows and Linux computer. Thanks a lot Federico !

Please, send me any comments,

Kind regards,
Stefano Piano