

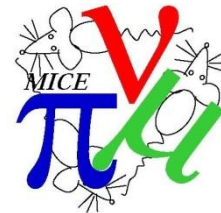
Detector DAQ

Jean-Sebastien Graulich, Geneva

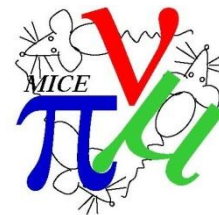
- o Achievements Since CM26
- o DAQ Upgrade
- o CAM/DAQ integration
- o Online Software
- o Tracker DAQ
- o Trigger System upgrade
- o Schedule Milestones
- o Summary



Achievements since CM24



- ◆ **DAQ system upgrade didn't happen**
 - Confusion in dates -> I arrived to late
 - Not wise to do in the middle of a run
 - Postponed to July
- ◆ **EPICS linked to DATE**
 - CAM data in online data stream
 - DATE status available in EPICS
- ◆ **Online Software reorganized**
 - Unpacking update
 - Online Monitoring update



DAQ System Upgrade

◆ Status

- A parallel, updated, DAQ system is installed on 3 spare PCs (miceacq07, miceacq08, miceraid2a)
- Currently running with the old system (miceacq04, miceacq06 and miceraid1a)
- The new system is tested and operational for DAQ but not for data transfer to the GRID
- All recent developments made on the new system

◆ Upgrade is needed for

- Standard system backup and restoration procedure
- Solving memory limitation from the DAQ
- Compatibility with James Software

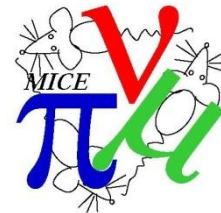
+ replacement of the faulty VME interface causing de-sync

◆ Will happen in July 19th

Local user files will disappear !



CAM/DAQ integration (1)



◆ CAM Data in the online Data Stream

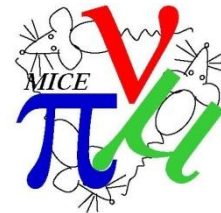
- Some CAM variables are read at the end of the spill and send to the DATE data file
- A special, software, DATE equipment is ready on the new DAQ system
- Made possible by James Leaver
- Requires linking EPICS and James' software with the DATE readout code

◆ Next steps

- Finalize the list of variable: Magnet currents + ???
- Write unpacking software
 - Needed before the CAM data can be used in G4MICE
- Define a procedure for backward compatibility in case of update the list of variables



CAM/DAQ integration (2)

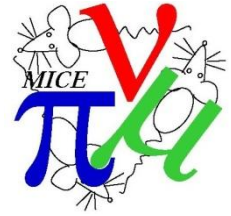


◆ DATE Status is available under EPICS

- Three states implemented: `TAKING_DATA`, `RUN_COMPLETE`, `IDLE`
- Credits to James and Vassil
- Based on a standalone application running on `miceacq07`, spying on the DATE internal Distributed Information Manager (DIM)
- Allows automatic filling of the configuration database at the end of the run

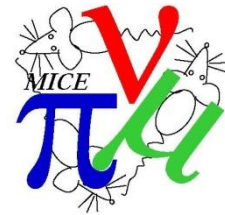
◆ Next steps

- Implement error states
- Use it to trigger audible alarm in case of crash (or when Online Monitoring is not running when DAQ is `TAKING_DATA`)
- Integrate the application in the central CAM process manager



Online Software

- ◆ **Online Software (re)organization continued**
 - Using Online Repository
 - Unpacking and Online Monitoring updated
 - Online Reconstruction being included
 - Consolidated basis for future development
 - Mainly unpacking and online monitoring of Tracker data
 - ◆ **James' Software (aka MICETrackerSoftware) has been adopted as the official MICE Online Software framework**
 - Installed and maintained on all Online Machines
 - Need a student to help on writing documentation this summer (under my supervision)
-



Online Software Update

◆ Unpacking

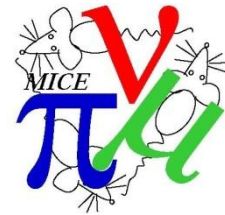
- Improved to handle exceptions
- The CKOV fADC produces corrupted headers, providing wrong information about the memory structure of the event. Not recoverable -> Skip the spill
- New unpacking version will be distributed soon

CAEN contacted

◆ Online Monitoring

- We had 4 parallel versions (Online/offline, DATE/no DATE) -> Maintenance made difficult
- Unified code will minimal DATE dependency (Vassil)
- Running now in test mode, released soon
- **Online Monitoring must run at all time !**

Will be in alarm handler



Tracker DAQ

◆ Readout code

- Developed by Hideyuki
- Needs to be merged within the MICE framework

◆ Unpacking code

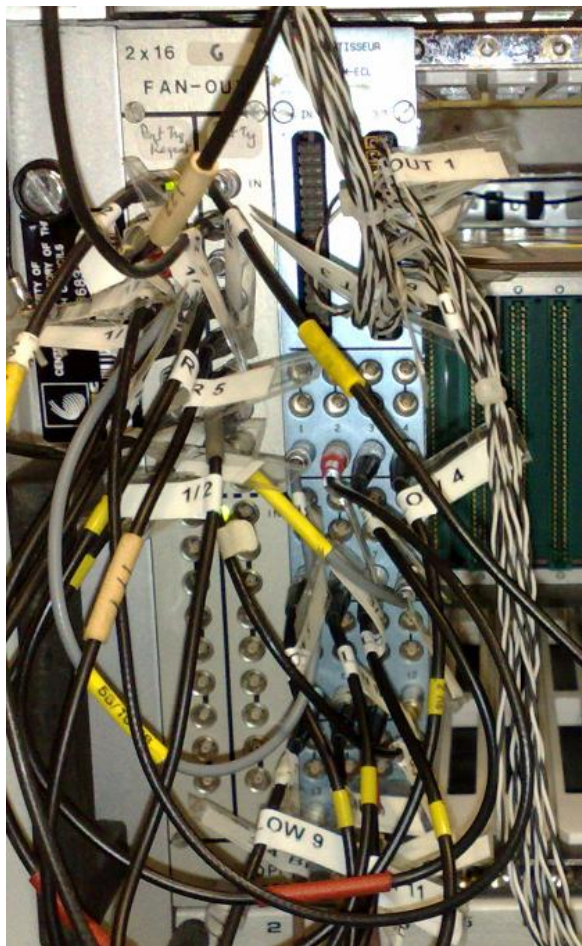
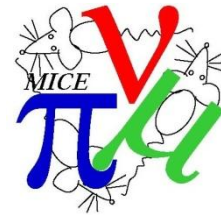
- Existing code not compatible with the unpacking package
 - Needs rewriting
 - Waiting for the new unpacking version

◆ Status

- Two machines being prepared in Lab 7 (D. Adey)
 - OS upgrade
 - DATE and Online Software installation
 - (Will have them included in the MiceNet VLAN)



Trigger System Upgrade



- ◆ See my talk at CM26
- ◆ Ready for installation:
 - Simpler TOF trigger cabling
 - Particle trigger distribution

Postponed to the end of the run campaign

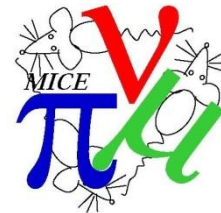
- ◆ Still in preparation:
 - TOF TDC Trigger and clock distribution
 - FADC trigger distribution

A dedicated board is being designed in Geneva, expected for December 2010

- ◆ Help needed for documentation !!!



Schedule Milestones

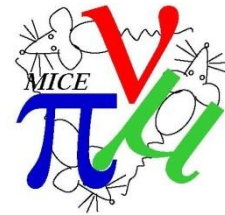


◆ From CM26

- ◆ CAM data in Online Data Stream ready on the mirror system
- ◆ Tracker integrated in DAQ and OLM July 10
- ◆ TOF TDC Clock Synchronization March 10 -> Dec 10
 - Priority has changed, need to consolidate the Online System first
- ◆ Burst Gate Signal in the Trigger System Need support here
- ◆ DAQ System upgrade Mai 10 -> July 10

◆ New Milestones

- ◆ DAQ in alarm handler (audible alarm) July 10
- ◆ Unpacking and Monitoring software release August 10
- ◆ Trigger System upgrade (+documentation) August 10



Summary

- ◆ DAQ System upgrade postponed
- ◆ DAQ/CAM integration is progressing
 - More than 2 years old milestone passed !!!
- ◆ Online Software upgrade
- ◆ Integration of Tracker DAQ has started