

JRA1 Status

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Outline

- The Beam Telescope
- Readout and Control Hardware
- DAQ Software
 - Producers
 - Data Collector
 - Run Control
 - Log Collector
 - Root Monitor
- Summary



The Beam Telescope

- 6 telescope planes
- DUT movable via X-Y table
- Cooling can be provided
- Flexible geometry
- High-resolution planes close to DUT possible

QuickTime™ and a
TIFF (LZW) decompressor
e needed to see this picture.



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Hardware

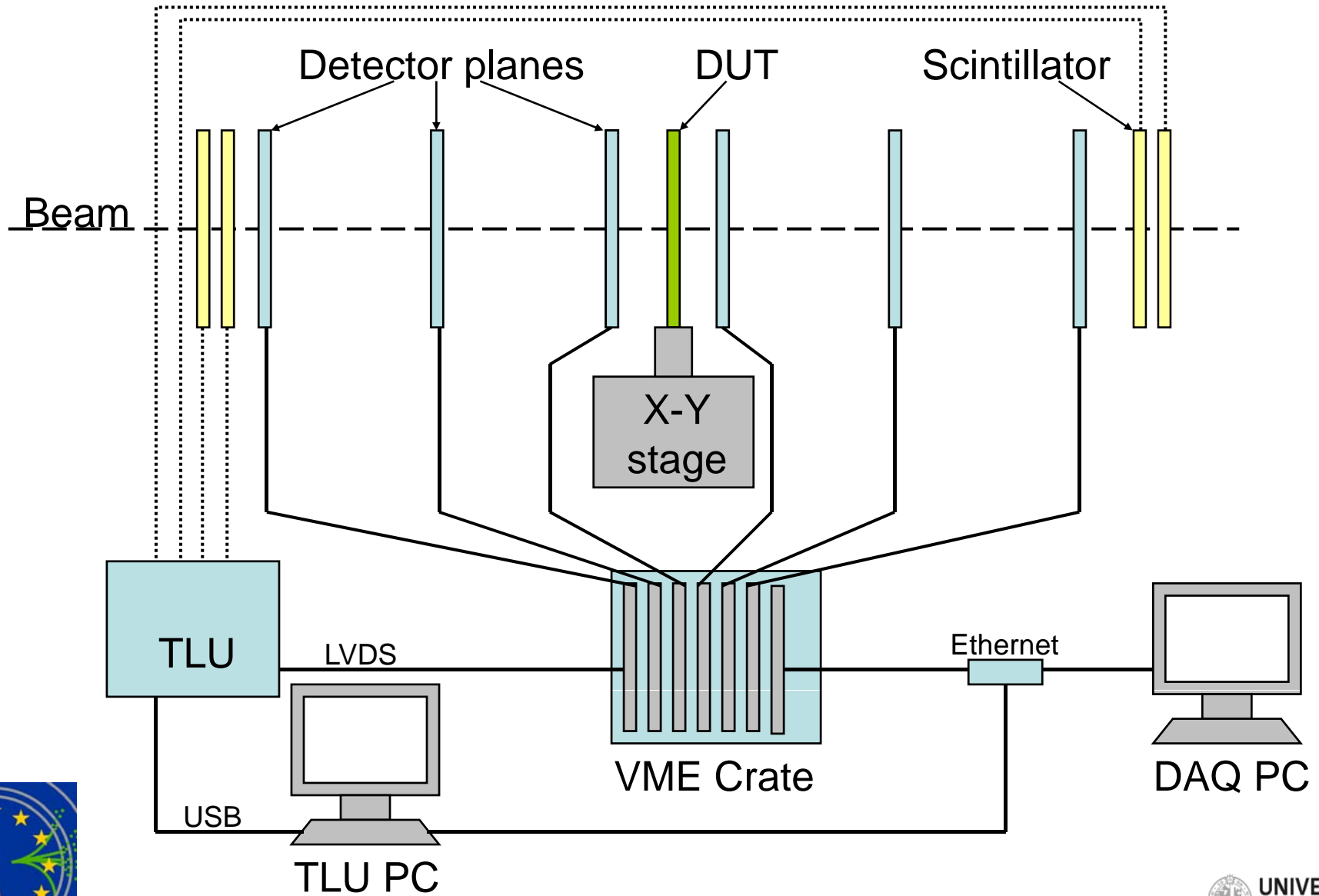
- MimoTEL sensors
256x256 pixels, 30 μm pitch
- EUDRB readout boards
(developed at INFN Ferrara)
- MVME6100 VME CPU
- Trigger Logic Unit
(developed at Bristol)
- Linux PC for TLU Control
- DAQ Computer: Mac Pro with
4x1TB RAID array for data



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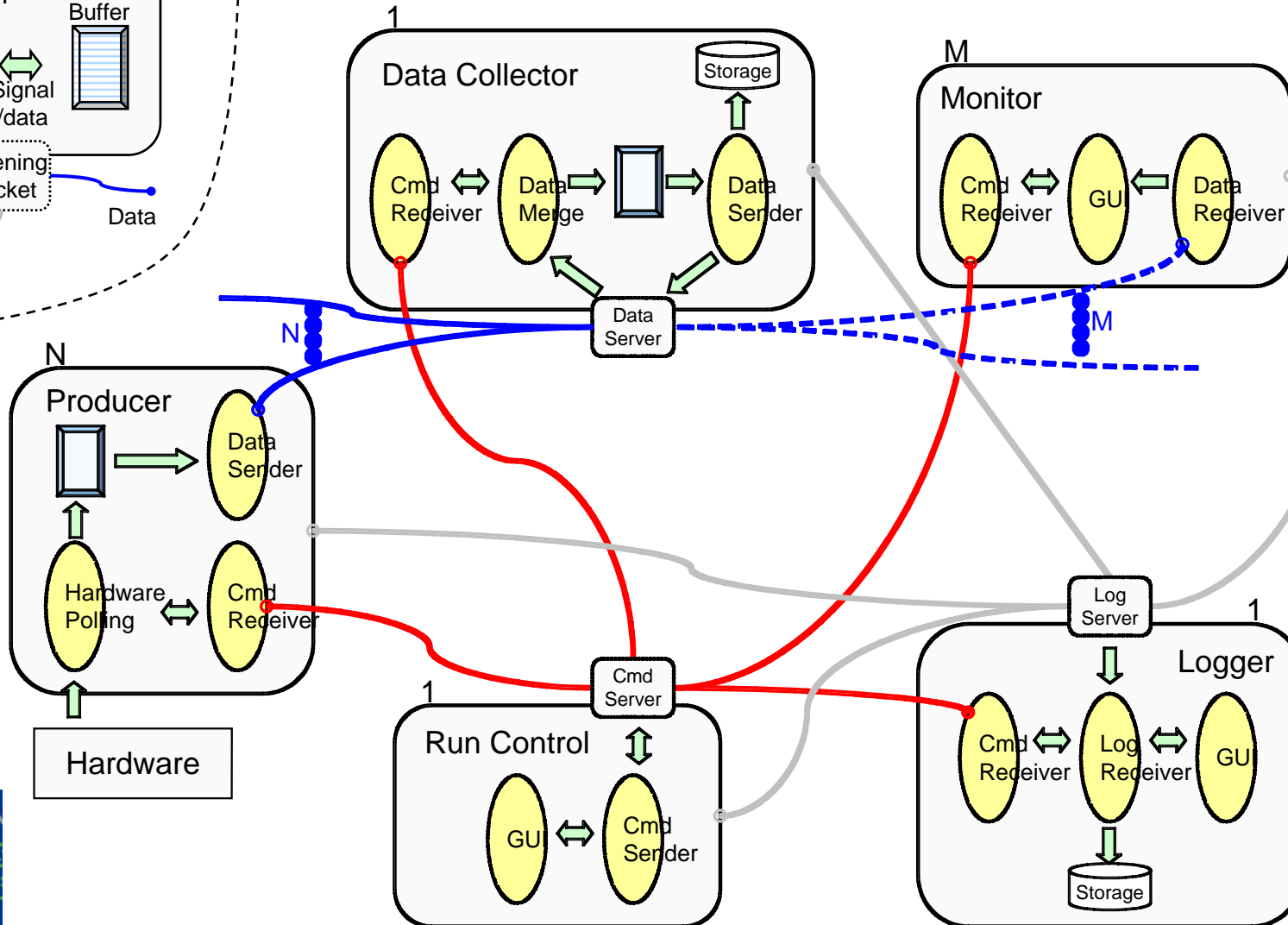
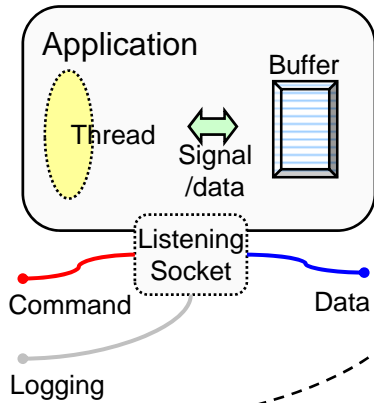
DAQ Software

- Custom DAQ software written in C++
- Uses POSIX for threads and sockets
- Run Control GUI using Qt
- Online Monitor using Root
- Runs on Mac OS X, Linux, and Windows (using cygwin)
- Highly modular, allowing DUTs to be easily integrated into the DAQ



Software Architecture

Key:



Producers

- These communicate with the hardware
- They receive commands from Run Control
- They send Events to the Data Collector
- Currently implemented:
 - TestProducer: sends dummy events under user control
 - TLUProducer: sends trigger number and timestamp information
 - EUDRBProducer: reads out EUDRBs and sends data in raw or zero-suppressed modes
 - DEPFETProducer: combination of DEPFET FileWriter with a Producer (receives data from DEPFET DAQ via TCP/IP)



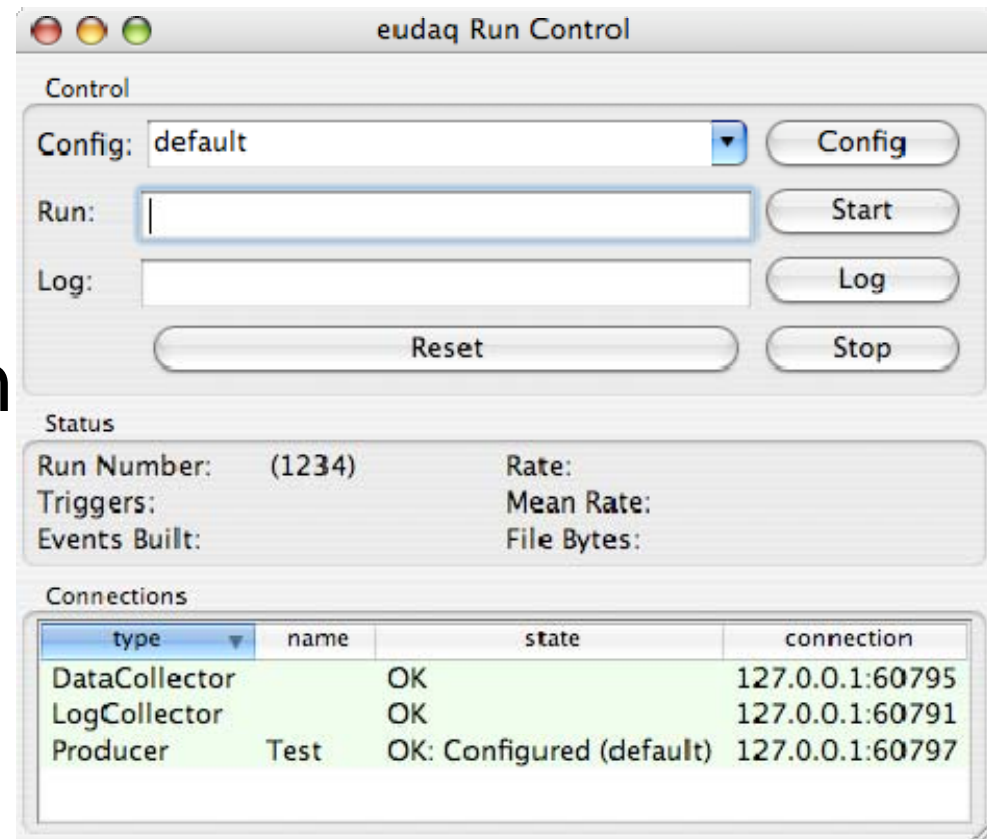
Data Collector

- Receives commands from Run Control
- Receives data from all the Producers
- Merges Events with same event number and writes them to file
- Currently writes custom binary format which is then converted to LCIO offline
- Once the LCIO conversion is fully validated we will write directly in LCIO



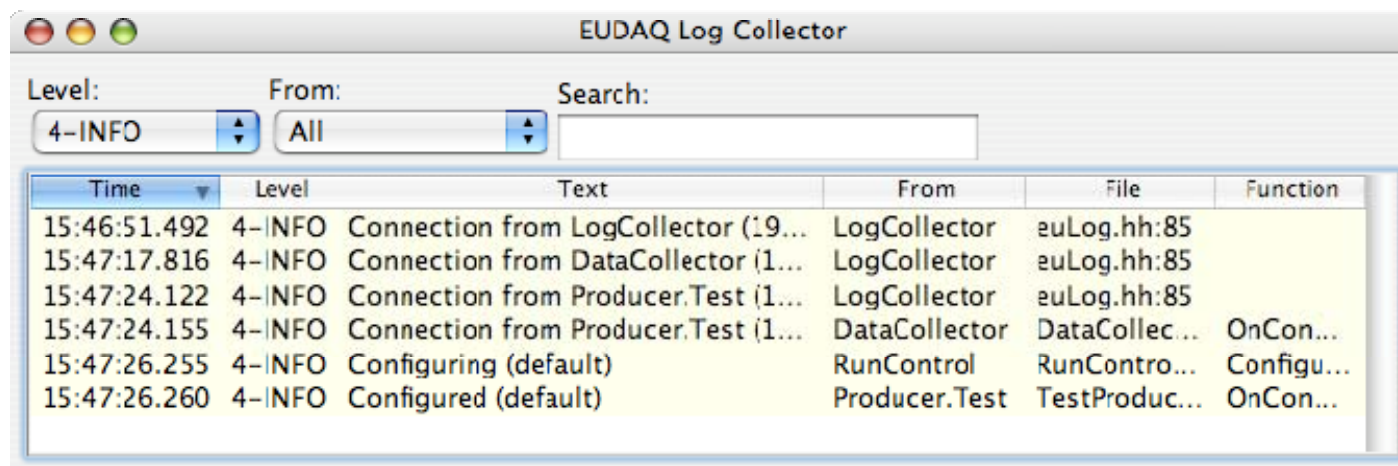
Run Control

- Controls the other processes
- Displays basic status information
- New version with Config GUI soon



Log Collector

- Receives log messages from all other processes, and saves them to file
- Keeps all log messages in a central location
- Can filter on level / source
- Can search in messages

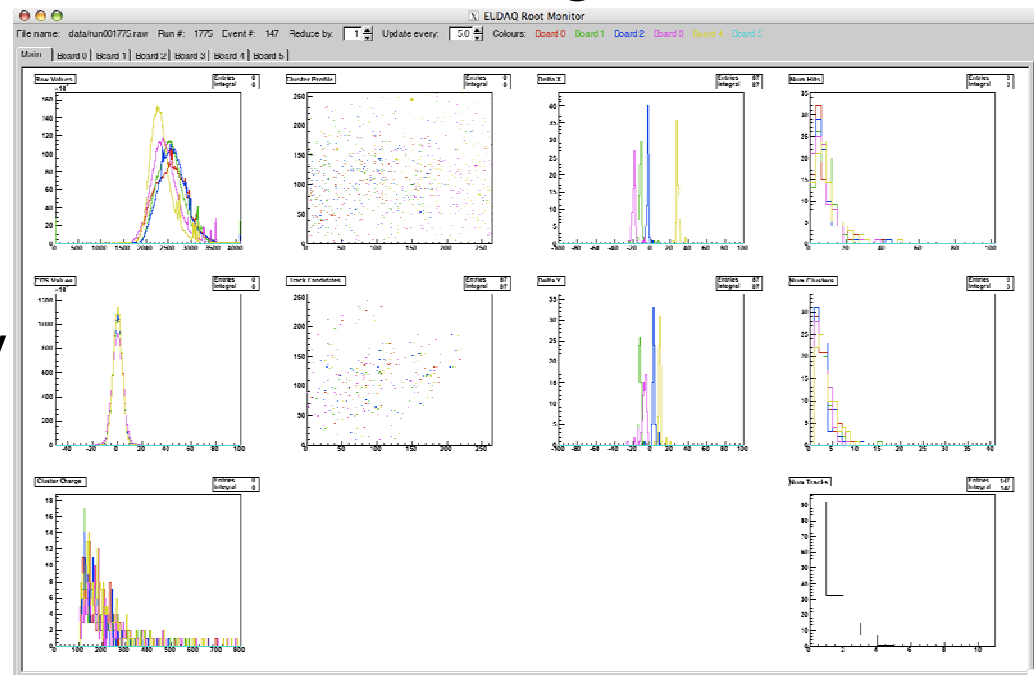


Time	Level	Text	From	File	Function
15:46:51.492	4-INFO	Connection from LogCollector (19...	LogCollector	euLog.hh:85	
15:47:17.816	4-INFO	Connection from DataCollector (1...	LogCollector	euLog.hh:85	
15:47:24.122	4-INFO	Connection from Producer.Test (1...	LogCollector	euLog.hh:85	
15:47:24.155	4-INFO	Connection from Producer.Test (1...	DataCollector	DataCollec...	OnCon...
15:47:26.255	4-INFO	Configuring (default)	RunControl	RunContro...	Configu...
15:47:26.260	4-INFO	Configured (default)	Producer.Test	TestProduc...	OnCon...



Root Monitor

- Reads data from the files on disk - doesn't slow down the DAQ if it gets behind
- Uses Root to generate various histograms, and for GUI
- Improvements:
 - Better GUI
 - More configurability



Summary

- Reasonably stable and usable DAQ system
- A few minor issues (speed, stability) but they are being worked on
- Easy to integrate other DUTs into the framework
- But it is lacking documentation at the moment

