

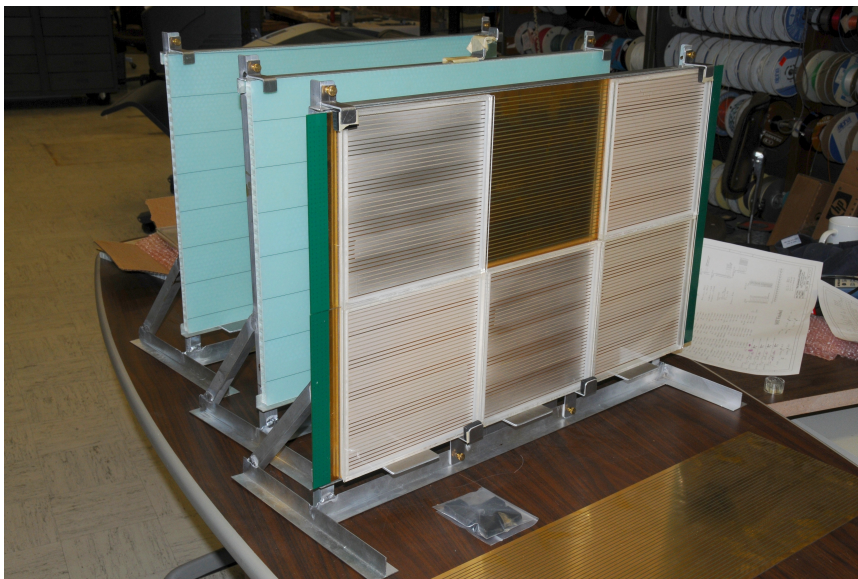
Supermodule Software, Firmware & DAQ

Edward May

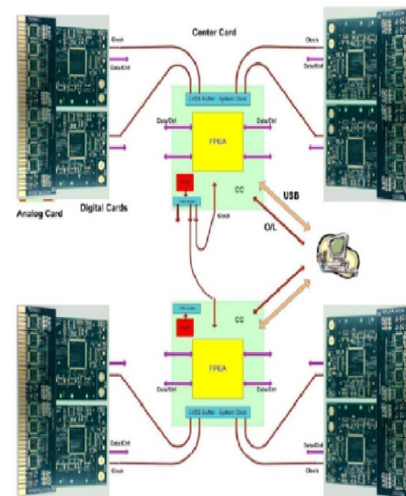
3rd LAPPD Collaboration Meeting

Argonne National Lab, 9-10 Dec 2011

Supermodule: Hardware View



Beam Test Configuration



Existing modules:

- Analog Card Rev.A- PSEC3
- Digital Card Rev.A- 1 piece PSEC3

New modules:

- Analog Card Rev.B:
-Change to PSEC4
- Digital Card Rev.B:
-Change to 5 pieces PSEC4
- Center Card: new design.

Mircea Bogdan

Super Module and other targets for DAQ software

- 8" detector module (60 channels)
- 2x3 Super Module panel (120 channels)
- Test beam modules (\geq 120 channels)
- Daniel Boone Detector prototype (2400 channels)

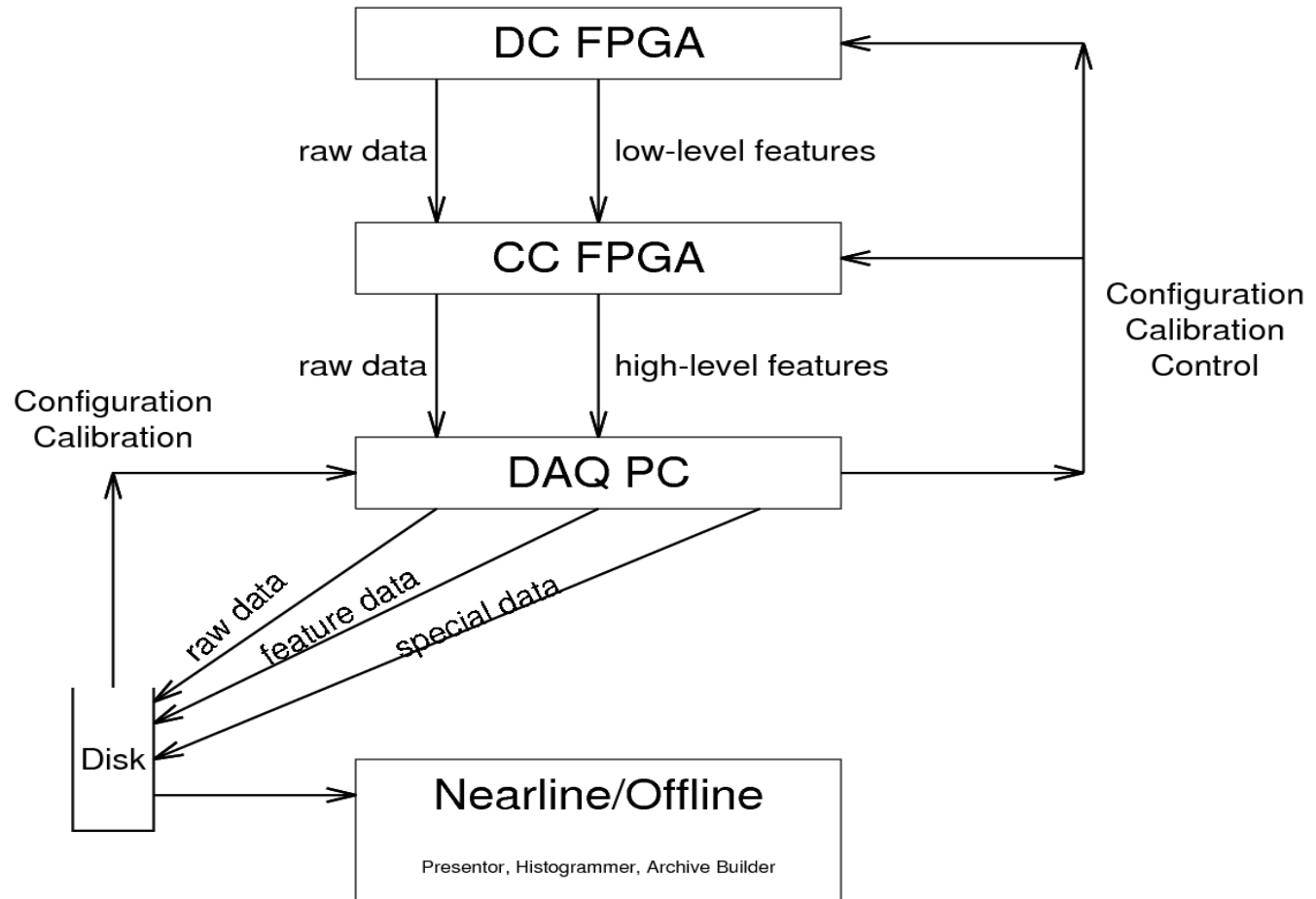


Documentation (needs work)

- Requirements
- Architecture
- Hardware Design
- Software API's



Data Flow



Functionality, Versioning and Coordination

- Digital Card FPGA
 - V0: 4 channel support (Evaluation board)
 - V1: 30 Channel support
 - IN: pedestals, channel mapping, configuration information
 - rOUT: address labeling, raw data, status information, error notification, checksums, standalone communication with DAQ PC
 - V2
 - IN: adds charge and time calibration
 - OUT: adds sparse data, local feature extraction
- Center Card FPGA
- DAQ Personal Computer
 - V0: Pedestals, Raw data to disk
 - V1: Configuration, calibration, run database; channel to real space mapping, raw data and feature histogramming, run control, polling synchronization, error control
 - V2 High Voltage Control and monitoring,
- Nearline/Offline

Projects, Developers and Schedule Hardware View

Project Name	Developer	Date Version 1 Available
Analog Card w/PSEC4	Eric Oberla	9 Jan 2011
Digital Card	Craig Harabedian	1 Mar 2011
Center Card	Mircea Bogdan	1 Mar 2011



Projects, Developers and Schedule Software View

Project Name	Developer(s)	Date Version 1 Available
Digital Card Firmware	Aaron Meyer Eric Oberla	V.0 exists for 4ch Eval Board V.1 needed by 1 Mar 2011
Center Card Firmware	Maxwell Hutchinson Craig Harabedian	V.1 needed by 1 Mar 2011
DAQ computer Code		V.0 exists for 4ch Eval Board V.1 needed by 1 Mar 2011
Calibration Software	Kurtis Nishimura	V.0 exist for time only offline version
Nearline/Offline code	Matt Wetstein Razib Obaid Alexander Vostrikov Andre Elagin	V.0 exists



Conclusions & Summary

- Clear needs and schedule
- Sufficient Effort to meet schedule
- Needs organization and documentation
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