



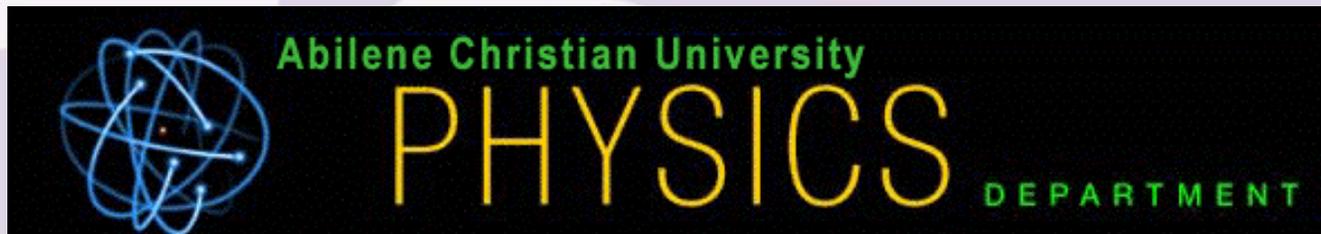
MuTr Shutdown Work

Rusty Towell

for

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

And



JUNE 22, 2004 at the Muon Physics and Forward Upgrades Workshop

Disclaimers

- I'm only reporting on work being done
- I have not done all of this work

- But ...
- I'm glad to help where there is a need
- I'm at BNL until the first of August
- Donald Isenhower and 2 ACU students are also available to help.

Outline

From Mike's Email on June 2, 2004

- 1) HV problems in station-1 north
- 2) problems in south sta-3 oct-7
- 3) LV distribution control replacement
- 4) FPGA code
- 5) Building more spare RX cards
- 6) Optical alignment DAQ replacement
- 7) Dallas chip readout software rework

HV problems in station-1 north

- Water leak found last Friday
- Fixed by John T.
- It was a small hose from the ‘can manifold’ to a FEM.
- It was marked as bad????
- Other issues???
- “check for leak north sta-1 oct-6 gap-3”

problems in south sta-3 oct-7

- All 3 boards in one FEM replaced by Imran.
- Problem seems to be solved, but ...
- It was an intermittent problem

LV distribution control replacement

- ACU group working on this.
- Thanks to all who have been replying to emails.
- Your continued input is appreciated.

LV Distribution Cards - Outputs

- South card number 24 was again replaced this year.
- Sal investigated the problem of overheating on the board. His conclusion was that the connector was the cause.
- The connector on the power cable for the south card numbers 8, 10, 20, and 24 were replaced.
- Every card for the south arm received an application of the stabilant.
- In north only cards 21-34 received the stabilant because we decided cards 1-20 were too risky to touch due to the number of cables.

Remaining power distribution issues or non-issues

- The power cables to south card 26 and 27 are swapped. Should this be changed?
- The plastic molex guard/connector was missing on north card 30.
- South card 14 has output channel 1 disconnected and its associated cable is plugged into channel 9 of the distribution card.

LVD Control Transition to ADAM

- LVD Board Count
 - North: 34
 - South: 31
- 10 channels per LVD board, but not all in use
- ADAM modules 16-bit
- Clean mapping:
 - 3 LVD boards per 2 ADAM module
 - Leaves 16th channel blank
 - Requires 23 modules for North, 21 for South

North Ribbon Cable Mapping from LVD Cards to ADAM Modules

	A1	A2	A3	A4	A5	A6	A7	A8
chn								
1	Card #1 chn 1-10	Card #3 chn 1-10	Card #4 chn 1-10	Card #5 chn 1-10	Card #7 chn 1-10	Card #9 chn 1-10	Card #10 chn 1-10	Card #12 chn 1-10
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	Card #2 chn 1-5	Card #2 chn 6-10	Card #5 chn 1-5	Card #5 chn 6-10	Card #8 chn 1-5	Card #8 chn 6-10	Card #11 chn 1-5	Card #11 chn 6-10
12								
13								
14								
15								
16								

	A9	A10	A11	A12	A13	A14	A15	A16
chn								
1	Card #13 chn 1-10	Card #15 chn 1-10	Card #16 chn 1-10	Card #18 chn 1-10	Card #19 chn 1-10	Card #21 chn 1-10	Card #22 chn 1-10	Card #24 chn 1-10
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	Card #14 chn 1-5	Card #14 chn 6-10	Card #17 chn 1-5	Card #17 chn 6-10	Card #20 chn 1-5	Card #20 chn 6-10	Card #23 chn 1-5	Card #23 chn 6-10
12								
13								
14								
15								
16								

	A17	A18	A19	A20	A21	A22	A23
chn							
1	Card #25 chn 1-10	Card #27 chn 1-10	Card #28 chn 1-10	Card #30 chn 1-10	Card #31 chn 1-10	Card #33 chn 1-10	Card #34 chn 1-10
2							
3							
4							
5							
6							
7							
8							
9							
10							
11	Card #26 chn 1-5	Card #26 chn 6-10	Card #29 chn 1-5	Card #29 chn 6-10	Card #32 chn 1-5	Card #32 chn 6-10	
12							
13							
14							
15							
16							

A18	A19	A20	A21	A22	A23
S/C-11, a5, #1	S/C-11, a7, #1	Cam-12, #4	Cam-11, #7	Cam-08, #5	Cam-08, #2
S/C-11, a5, #2	S/C-11, a7, #2	Cam-12, #3	Cam-04, #1	Cam-08, #7	Cam-08, #3
S/C-11, a5, #3	S/C-11, a7, #3	Cam-12, #5	Cam-04, #2	Cam-07, #1	Cam-08, #4
S/C-11, a5, #4	S/C-11, a7, #4	Cam-12, #7	Cam-04, #3	Cam-07, #2	Cam-08, #5
S/C-11, a5, #5	S/C-11, a8, #1	Cam-11, #1	Cam-04, #4	Cam-07, #3	Cam-08, #6
S/C-11, a5, #6	S/C-11, a8, #2	Cam-11, #2	Cam-04, #5	Cam-07, #4	Cam-08, #7
S/C-11, a5, #7	S/C-11, a8, #3	Cam-11, #3	Cam-04, #6	Cam-07, #5	T
S/C-11, a5, #8	S/C-11, a8, #4	Cam-11, #4	Cam-04, #7	Cam-07, #6	T
X	X	Cam-11, #5	Cam-05, #1	Cam-07, #7	T
X	X	Cam-11, #6	Cam-05, #2	Cam-06, #1	X
S/C-11, a4, #1	Dem-11, #1	Cam-11, #6	Cam-05, #3	Cam-06, #1	
S/C-11, a4, #2	Dem-11, #2	Cam-11, #7	Cam-05, #4	Cam-06, #2	
S/C-11, a4, #4	Dem-11, #3	Cam-12, #1	Cam-05, #5	Cam-06, #3	
X	Dem-11, #4	Cam-11, #1	Cam-05, #6	Cam-06, #4	
X	Dem-11, #5	Cam-12, #2	Cam-05, #7	Cam-06, #5	

****ABBREVIATIONS****

FEM = FEM
 a = Station
 # = Cable

S/C = Synchronization
 a = Station
 # = Spans

Cam = Camera
 Q = Quadrant
 T = Unknown Cable

E/W = East/West

Note: There is an unused 1 in the 34th LVD card to change module.

Note: Every channel on the 1 is channel 10. An ADMN must have some flexibility for cable swap

GUI for Control of ADAM Modules

- Currently in process of constructing GUI to turn on/off correct groups of channels
- Should have:
 - Master On/Off toggle for North and South
 - Power up all FEMs/Glink2Clinks/Cameras
 - Correct order and with necessary timing delay
 - Also ability to power up octants individually
- This is the last piece we need before the change-over will start.

LV change-over schedule

- The ACU students are working on the GUI this week.
- The north ADAMS modules are ready to install.
- The mapping is complete.
- The required modification to the cables is understood.
- Work should start on the north arm next week.
- South arm will wait until the north arm is complete and for 4 more ADAMS modules.
- Work will be completed before the end of July.

FPGA code

- Work still on going
- Downloads but doesn't work. (?)
- General agreement that the lamp shade can be replaced.
 - Emails from Ed and Doug suggest that this will happen this week.

Building more spare RX cards

- ??????
- “Steve Boose ready to proceed 10 more to be built” - Mike

Optical alignment DAQ replacement

- Work to be done in August.
- After LV work is finished.

Dallas chip readout software rework

- Currently, the Dallas-chip readout software reads out every chip from every node and charts the results in a ROOT histogram.
- Advantages:
 - it works now
 - it allows at-a-glance checking of the trend
- Disadvantages:
 - no way to track an individual sensor
 - no historical record
 - slow to read (each node has to read out its chips serially)

Dallas chip readout software rework (2)

■ Planned work:

- write a new interface that allows for reading out a signal chip
- Archive data to the database (this will allow viewing with strip charts)

■ This work is dependent on John H. having the time to help Christopher Smith.

■ John's question for us,

- "Does reading out the Dallas chips increase the noise in the FEE?"
- John believes that for this to be a useful system, it should run automatically and constantly.

Questions?

- Does anyone know of work that needs to be done that has not been covered?
- I'm at BNL until the first of August
- Donald Isenhower and 2 ACU students are also available to help.

North Map of LVD Output Channels to ADAM Modules

chn	A1	A2	A3	A4	A5	A6	A7	A8
1	FEM-01, 01, #1	FEM-01, 03, #1	FEM-01, 04, #1	FEM-02, 02, #1	FEM-02, 03, #1	FEM-02, 05, #1	FEM-02, 06, #1	FEM-02, 08, #1
2	FEM-01, 01, #2	FEM-01, 03, #2	FEM-01, 04, #2	FEM-02, 02, #2	FEM-02, 03, #2	FEM-02, 05, #2	FEM-02, 06, #2	FEM-02, 08, #2
3	FEM-01, 01, #3	FEM-01, 03, #3	FEM-01, 04, #3	FEM-02, 02, #3	FEM-02, 03, #3	FEM-02, 05, #3	FEM-02, 06, #3	FEM-02, 08, #3
4	FEM-01, 01, #4	FEM-01, 03, #4	FEM-01, 04, #4	FEM-02, 02, #4	FEM-02, 03, #4	FEM-02, 05, #4	FEM-02, 06, #4	FEM-02, 08, #4
5	FEM-01, 01, #5	FEM-01, 03, #5	FEM-01, 04, #5	FEM-02, 02, #5	FEM-02, 03, #5	FEM-02, 05, #5	FEM-02, 06, #5	FEM-02, 08, #5
6	FEM-01, 01, #6	FEM-01, 03, #6	FEM-01, 04, #6	FEM-02, 02, #6	FEM-02, 03, #6	FEM-02, 05, #6	FEM-02, 06, #6	FEM-02, 08, #6
7	FEM-01, 01, #7	FEM-01, 03, #7	FEM-01, 04, #7	FEM-02, 02, #7	FEM-02, 03, #7	FEM-02, 05, #7	FEM-02, 06, #7	FEM-02, 08, #7
8	FEM-01, 01, #8	FEM-01, 03, #8	FEM-01, 04, #8	FEM-02, 02, #8	FEM-02, 03, #8	FEM-02, 05, #8	FEM-02, 06, #8	FEM-02, 08, #8
9	FEM-01, 01, #9	FEM-01, 03, #9	FEM-01, 04, #9	FEM-02, 02, #9	FEM-02, 03, #9	FEM-02, 05, #9	FEM-02, 06, #9	FEM-02, 08, #9
10	FEM-01, 01, #10	FEM-01, 03, #10	FEM-01, 04, #10	X	X	X	X	X
11	FEM-01, 02, #1	FEM-01, 02, #6	FEM-02, 02, #1	FEM-02, 02, #6	FEM-02, 04, #1	FEM-02, 04, #6	FEM-02, 07, #1	FEM-02, 07, #6
12	FEM-01, 02, #2	FEM-01, 02, #7	FEM-02, 02, #2	FEM-02, 02, #7	FEM-02, 04, #2	FEM-02, 04, #7	FEM-02, 07, #2	FEM-02, 07, #7
13	FEM-01, 02, #3	FEM-01, 02, #8	FEM-02, 02, #3	FEM-02, 02, #8	FEM-02, 04, #3	FEM-02, 04, #8	FEM-02, 07, #3	FEM-02, 07, #8
14	FEM-01, 02, #4	FEM-01, 02, #9	FEM-02, 02, #4	FEM-02, 02, #9	FEM-02, 04, #4	FEM-02, 04, #9	FEM-02, 07, #4	FEM-02, 07, #9
15	FEM-01, 02, #5	FEM-01, 02, #10	FEM-02, 02, #5	X	FEM-02, 04, #5	X	FEM-02, 07, #5	X

chn	A9	A10	A11	A12	A13	A14	A15	A16
1	FEM-03, 01, #1	FEM-03, 03, #1	FEM-03, 04, #1	FEM-03, 06, #1	FEM-03, 07, #1	G/C-01, 0, #1	G/C-02, 01, #1	G/C-02, 07, #1
2	FEM-03, 01, #2	FEM-03, 03, #2	FEM-03, 04, #2	FEM-03, 06, #2	FEM-03, 07, #2	G/C-01, 0, #2	G/C-02, 01, #2	G/C-02, 07, #2
3	FEM-03, 01, #3	FEM-03, 03, #3	FEM-03, 04, #3	FEM-03, 06, #3	FEM-03, 07, #3	G/C-01, 0, #3	G/C-02, 01, #3	G/C-02, 07, #3
4	FEM-03, 01, #4	FEM-03, 03, #4	FEM-03, 04, #4	FEM-03, 06, #4	FEM-03, 07, #4	G/C-01, 0, #4	G/C-02, 01, #4	G/C-02, 07, #4
5	FEM-03, 01, #5	FEM-03, 03, #5	FEM-03, 04, #5	FEM-03, 06, #5	FEM-03, 07, #5	G/C-01, 0, #5	G/C-02, 01, #5	G/C-02, 07, #5
6	FEM-03, 01, #6	FEM-03, 03, #6	FEM-03, 04, #6	FEM-03, 06, #6	FEM-03, 07, #6	G/C-01, 0, #6	G/C-02, 01, #6	G/C-02, 07, #6
7	FEM-03, 01, #7	FEM-03, 03, #7	FEM-03, 04, #7	FEM-03, 06, #7	FEM-03, 07, #7	G/C-01, 0, #7	G/C-02, 01, #7	X
8	FEM-03, 01, #8	FEM-03, 03, #8	FEM-03, 04, #8	FEM-03, 06, #8	FEM-03, 07, #8	G/C-01, 0, #8	G/C-02, 01, #8	X
9	FEM-03, 01, #9	FEM-03, 03, #9	FEM-03, 04, #9	FEM-03, 06, #9	FEM-03, 07, #9	G/C-01, 0, #9	G/C-02, 01, #9	X
10	FEM-03, 01, #10	FEM-03, 03, #10	FEM-03, 04, #10	FEM-03, 06, #10	FEM-03, 07, #10	G/C-01, 0, #10	X	X
11	FEM-03, 02, #1	FEM-03, 02, #6	FEM-03, 05, #1	FEM-03, 05, #6	FEM-03, 08, #1	FEM-03, 08, #6	G/C-02, 04, #1	G/C-02, 05, #1
12	FEM-03, 02, #2	FEM-03, 02, #7	FEM-03, 05, #2	FEM-03, 05, #7	FEM-03, 08, #2	FEM-03, 08, #7	G/C-02, 04, #2	G/C-02, 05, #2
13	FEM-03, 02, #3	FEM-03, 02, #8	FEM-03, 05, #3	FEM-03, 05, #8	FEM-03, 08, #3	FEM-03, 08, #8	G/C-02, 04, #3	G/C-02, 05, #3
14	FEM-03, 02, #4	FEM-03, 02, #9	FEM-03, 05, #4	FEM-03, 05, #9	FEM-03, 08, #4	FEM-03, 08, #9	G/C-02, 04, #4	G/C-02, 05, #4
15	FEM-03, 02, #5	FEM-03, 02, #10	FEM-03, 05, #5	FEM-03, 05, #10	FEM-03, 08, #5	FEM-03, 08, #10	G/C-02, 04, #5	X

chn	A17	A18	A19	A20	A21	A22	A23
1	G/C-03, 01, #1	G/C-03, 05, #1	G/C-03, 07, #1	Cam-02, #4	Cam-03, #7	Cam-06, #6	Cam-08, #2
2	G/C-03, 01, #2	G/C-03, 05, #2	G/C-03, 07, #2	Cam-02, #5	Cam-04, #1	Cam-06, #7	Cam-08, #3
3	G/C-03, 01, #3	G/C-03, 05, #3	G/C-03, 07, #3	Cam-02, #6	Cam-04, #2	Cam-07, #1	Cam-08, #4
4	G/C-03, 01, #4	G/C-03, 05, #4	G/C-03, 07, #4	Cam-02, #7	Cam-04, #3	Cam-07, #2	Cam-08, #5
5	G/C-03, 01, #5	G/C-03, 05, #5	G/C-03, 07, #5	Cam-03, #1	Cam-04, #4	Cam-07, #3	Cam-08, #6
6	G/C-03, 01, #6	G/C-03, 05, #6	G/C-03, 07, #6	Cam-03, #2	Cam-04, #5	Cam-07, #4	Cam-08, #7
7	G/C-03, 01, #7	G/C-03, 05, #7	G/C-03, 07, #7	Cam-03, #3	Cam-04, #6	Cam-07, #5	?
8	G/C-03, 01, #8	G/C-03, 05, #8	G/C-03, 07, #8	Cam-03, #4	Cam-04, #7	Cam-07, #6	X
9	X	X	X	Cam-03, #5	Cam-05, #1	Cam-07, #7	X
10	X	X	X	Cam-03, #6	Cam-05, #2	Cam-08, #1	X
11	G/C-03, 03, #1	G/C-03, 04, #2	Cam-01, #1	Cam-01, #6	Cam-05, #3	Cam-06, #1	
12	G/C-03, 03, #2	G/C-03, 04, #3	Cam-01, #2	Cam-01, #7	Cam-05, #4	Cam-06, #2	
13	G/C-03, 03, #3	G/C-03, 04, #4	Cam-01, #3	Cam-02, #1	Cam-05, #5	Cam-06, #3	
14	G/C-03, 03, #4	X	Cam-01, #4	Cam-02, #2	Cam-05, #6	Cam-06, #4	
15	G/C-03, 04, #1	X	Cam-01, #5	Cam-02, #3	Cam-05, #7	Cam-06, #5	

Device: FEM = FEM
 Location: s = Station
 Other: # = Cable

****ABBREVIATIONS****
 G/C = GSiW2Click
 s = Station
 X = Spare

Cam = Camera
 q = Quadrant
 ? = Unknown Cable

S/W = East/West

Note: There is an unknown output cable mapped from the 34th LVD card to channel 7 of the 23rd ADAM module.

Note: Every channel on the LVD boards is mapped to a channel on an ADAM module in order to provide some flexibility for cable swaps.