Contents

• Cosmic Trigger Detectors
• Status of PMTs and HV Cabling
• Front End Electronics
• DAQ setup and Equipment needs
Cosmic Trigger Detectors

• Completed work on 2nd detector:
  • Light leak test
  • Cosmic tested oscilloscope
  • Covered with foam for protection
  • Positioned over top of HCAL blocks

• To be completed:
  • Connect HV and Signal cables
HV crates and rack

Two LeCroy HV mainframes
- 16 slots each
- 12 channels per slot
- All short cables available
- Ready to install patch panels and cables
Status of PMTs and HV Cabling

• Completed:
  • PMT/bases installed on 3 of 4 HCAL quarters [215 PMTs total]
  • HV patch panels installed on HCAL quarters
  • 216 of 288 HV cables installed
  • Remaining 72 HV cables found and set aside
  • 339 HV patch cables located and set aside
  • HV Cable map completed

• To be completed:
  • Install remaining PMTs and cables (CMU sending 73 PMT/bases)
  • Complete HV cable labeling
  • Support multi-wire HV cables back to HV rack and install patch panel at the racks
  • Patch HV crates to HV patch panels at crates
Front End Electronics

• Completed:
  • Front end electronics racks have been assembled
  • NIM bins installed
  • (2 of 18) 50/50 splitter panels installed
  • (10 of 10) Patch panels built and installed

• To be completed:
  • PMT to Amplifier signal cables being relabeled
  • Need (16) more 50/50 splitter panels
  • Need “JLab/UVa” sum modules
  • **Identify or make short cables**
  • Wire up the circuit
## 4.3 HCAL-J: Electronics and Cabling Inventory*

<table>
<thead>
<tr>
<th>HCAL-J Signal Cables List [in hand]</th>
<th>HCAL-J Front End Modules List</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 288 BNC-LEMO (Length 12 m, Delay 30 ns); [156]</td>
<td>• 18 Amplifier 10x, PS776, NIM; [18]</td>
</tr>
<tr>
<td>• 576 BNC-LEMO (Length 2 m, Delay 10 ns); [90]</td>
<td>• 19 Discriminator, PS706, NIM; [19]</td>
</tr>
<tr>
<td>• 298 BNC-LEMO (Length 1 m, Delay 5 ns); [10]</td>
<td>• 18 Summing Module 36 in, UVa 120, NIM; [new]</td>
</tr>
<tr>
<td>• 882 LEMO-LEMO (Length 2 m, Delay 10 ns); [0]</td>
<td>• 3 Summing Module 4 in, UVa 133, NIM; [new]</td>
</tr>
<tr>
<td>• 50 LEMO-LEMO (Length 1 m, Delay 5 ns); [20]</td>
<td>• 5 Fan In/Fan Out, PS740, NIM; [2]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCAL-J Front End Patch Panels List</th>
<th>We also need:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 5, 64x BNC-BNC, PP1-PP5, 64 in; [5, done]</td>
<td>• 1 RACK [1, done]</td>
</tr>
<tr>
<td>• 5, 64x BNC-BNC, PP6-PP10, 64 in; [5, done]</td>
<td>• 600 Signal Cables about 100 m (minimum length 75 m) [72, ECAL]</td>
</tr>
<tr>
<td>• 18, 16x BNC-BNC, SP, 16 in; [2, in progress]</td>
<td></td>
</tr>
</tbody>
</table>

*List of Equipment Provided by Vincenzo Bellini at July Collaboration Meeting*
Requirements:
1) (10) 64-channel patch panels [2 U]
2) (1) 16 channel timing patch panel [1 U]
3) (1) NIM bin for timing [5 U]
4) (1) triple scalar unit [1 U]
5) (1) NIM bin fan [1 U]
6) (1) Oscilloscope [4 U]
7) (2) VME crates [11 U]
8) (1) CAMAC crate [9 U]
9) (4) crate shelves to act as “cable” trays for incoming signals
10) Route signals down side of racks to DAQ crates

HCAL DAQ Layout (Preliminary)
HCAL DAQ Equipment Needs (Preliminary)

- (10) 64x BNC-BNC patch panels [10, done]
- (1) 16x BNC-BNC timing patch panel [1, done]
- (1) CAMAC crate [1, done]
- (1) NIM bin and cooling fan [1, done]
- (1) Triple scalar [1, done]
- (2) power distribution modules [2, done]
- (2) VME crates [1]
- (17) Caen c207 discriminators [16]
- (18) FADC [4]
- (5) F1TDC [2]
- (576) BNC-LEMO cables (y ns) [0]
- (20) ELC ribbon cables (y ns) [0]
- (xx) LEMO-LEMO cables (y ns) [0]
Current State of DAQ Setup (Preliminary)

- **Completed:**
  - Installed CAMAC discriminators (NIM -> ECL)
  - Installed NIM crate for timing
  - Installed 10 patch panels (5 ADC / 5 TDC)
  - Installed 2 power distributions panels
  - Installed VMEx64 vxs crate with some FADCs

- **To be completed:**
  - Find and install remaining modules
  - Install second VME crate and modules
  - Install supports for cable bundles in back
  - Install cable tray to route TDC cables to top
  - Complete patch panel connections to signals
Estimate of manpower needs to complete

• Complete PMT/HV installation: 3 to 4 person-days
• Cable preparation: 80 – 120 person-days
• Wiring of the scheme: 30 person-days

• Current Workers
  • Binh Ton – NCCU (~32 hours per week)
  • John Matter – UVa (~10-12 hours per week)
  • Bogdan – JLab (few hours per week)
  • Chuck Long – Hall A Tech (few hours per week)
Contributors for September-October

• Bogdan Wojtsekhowski – JLab
• William Tireman* – NMU
• Chuck Long – JLab
• Lubomir Pentchev– JLab
• Armen Stepanyan - JLab
• Binh Ton – NCCU
• John Matter – UVa

*Special thanks to Thia Keppel and Hall A for travel support
Other Slides
Estimate of manpower needs to complete

• Complete PMT/HV installation: 3 to 4 person-days
• Cable preparation: 80 – 120 person-days
• Wiring of the scheme: 30 person-days

• Current Workers [person-days estimate between now and January 1st]
  • Binh Ton – NCCU (~32 hours per week) [30 person-days]
  • John Matter – UVa (~10-12 hours per week) [12 person-days]
  • Bogdan – Jlab (few hours per week) [10 person-days??]
  • Chuck Long – Hall A Tech (few hours per week) [20 person-days??]

• Well, it’s a pure guestimate – ~70 person-days

• Future Workers
  • I’ll return in January and March(??) for one week and may bring an UG student
  • Others?