

“hybmon” (Hybrid Monitor) Program Functionality

Run IIb Upgrade Workshop
Davis
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Outline

- Requirements and features of hybmon program for burn-in
- Stages of burn-in
- Time sequence of burn-in stages
- Offline monitoring and QA / QC
- Conclusions

Requirements

- Exercise SVX4 through series of patterns
- Test with full suite of “htests” at beginning and end
- Periodically check data integrity
- Monitor currents and voltages
 - shut down power to any hybrids operating above safe limits
 - periodically record levels for offline QA / QC
- Automate the sequence of events
- Provide logging

Features

- Connect and power-up 8 “arms” x 8 ports = 64 hybrids
- Read messages about status of tests on each hybrid
- Control state of each arm and hybrid, and the entire burn-in
- Define the duration of the burn-in stages

Hybrid Monitor, version 1.7

Configuration Voltages and Currents Pedestals and Gains Noise and Dnoise Messages

Configure:

- ◇ PATT0 ◇ PATT4
- ◇ h0 ◇ h32
- ◇ h1 ◇ h33
- ◇ h2 ◇ h34
- ◇ h3 ◇ h35
- ◇ h4 ◇ h36
- ◇ h5 ◇ h37
- ◇ h6 ◇ h38
- ◇ h7 ◇ h39
- ◇ PATT1 ◇ PATT5
- ◇ h8 ◇ h40
- ◇ h9 ◇ h41
- ◇ h10 ◇ h42
- ◇ h11 ◇ h43
- ◇ h12 ◇ h44
- ◇ h13 ◇ h45
- ◇ h14 ◇ h46
- ◇ h15 ◇ h47
- ◇ PATT2 ◇ PATT6
- ◇ h16 ◇ h48
- ◇ h17 ◇ h49
- ◇ h18 ◇ h50
- ◇ h19 ◇ h51
- ◇ h20 ◇ h52
- ◇ h21 ◇ h53
- ◇ h22 ◇ h54
- ◇ h23 ◇ h55
- ◇ PATT3 ◇ PATT7
- ◇ h24 ◇ h56
- ◇ h25 ◇ h57
- ◇ h26 ◇ h58
- ◇ h27 ◇ h59
- ◇ h28 ◇ h60
- ◇ h29 ◇ h61
- ◇ h30 ◇ h62
- ◇ h31 ◇ h63

System Status

Welcome to Hybrid Monitor, version 1.7!

Click on the "Help About ..." button on the bottom of "Messages" page for instructions

Questions and bug reports should be addressed to Igor Volobouev, igv@lbl.gov

No pattern boards connected
No hybrids connected

Burn-in Schedule

Burn-in time: 12 hrs 0 min

Run tests after 0 hrs 1 min

Measure currents every 0 hrs 1 min

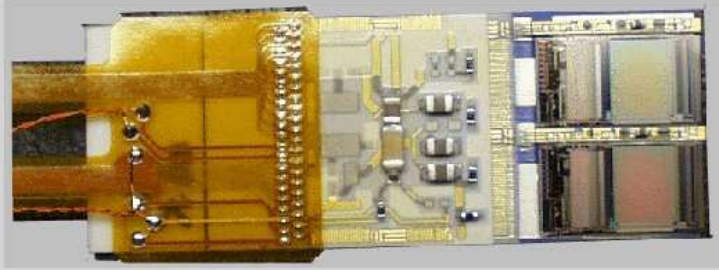
Check readout every 0 hrs 2 min

Configuration Actions

Don't press these buttons

Fri Jul 25 12:34 PDT 2003

Connected Running
Powered Read Out








Stages of Burn-in

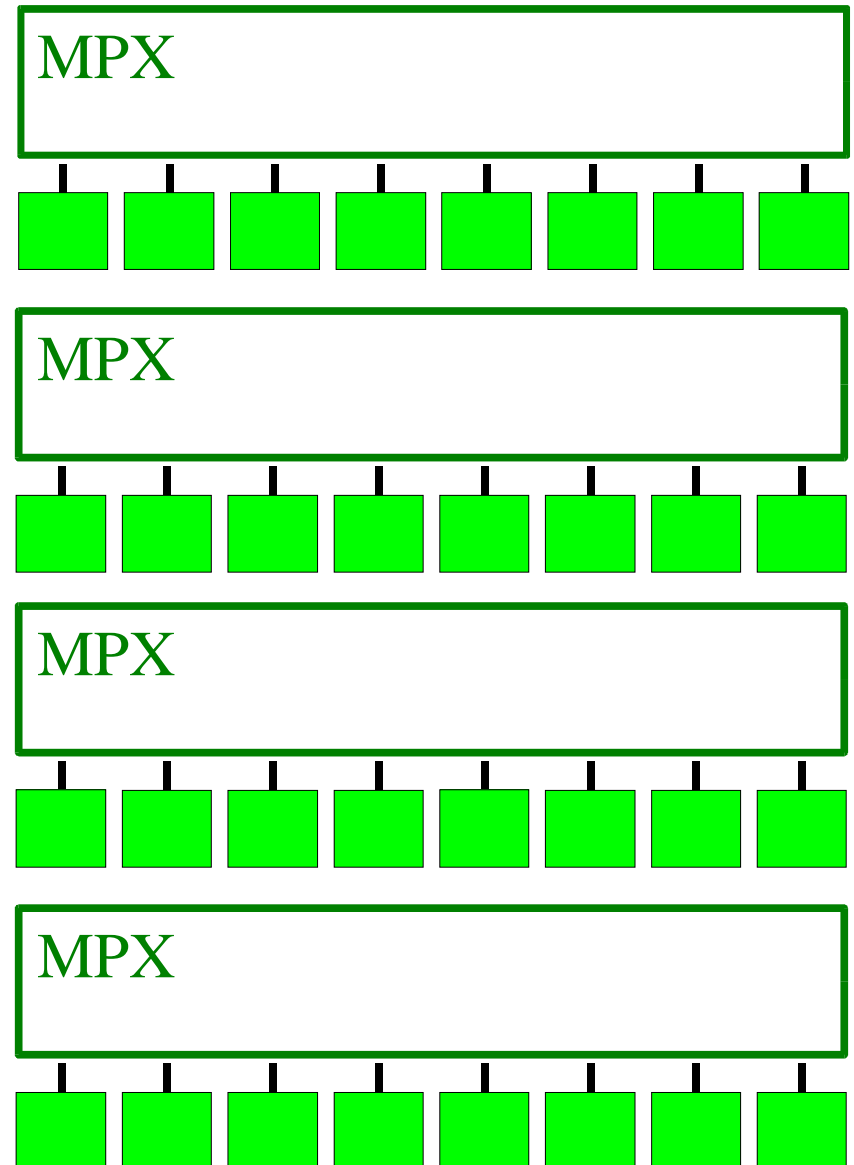
- **Burn-in pattern:**
 - This is the “default” state
 - Keeps hybrids in a tight loop of:
 initialize→acquire→digitize→readout
 but data is not read out through pattern board FIFO
 - Period of $\sim 50 \mu\text{s}$
- **Htests:**
 - 21 minute suite of tests, run at beginning and at end
- **Data readout integrity checks:**
 - Checks chip IDs, cell IDs, and channel numbers
 - Occurs at user defined interval (e.g. every 20 minutes)
- **Current and voltage monitoring:**
 - Checks and records AVDD, I_AVDD, I_DVDD, & hybrid ground
 - Occurs at user defined interval (e.g. every 2 minutes)

Hybmon, the Movie

The cast and crew:


- ⇒  Burn-in pattern
-  Current/Voltage measurement
-  Readout integrity check
-  Htest
-  Receiving same pattern as hybrid under test/check

(time is not to scale)




Hybmon, the Movie


The cast and crew:

 Burn-in pattern

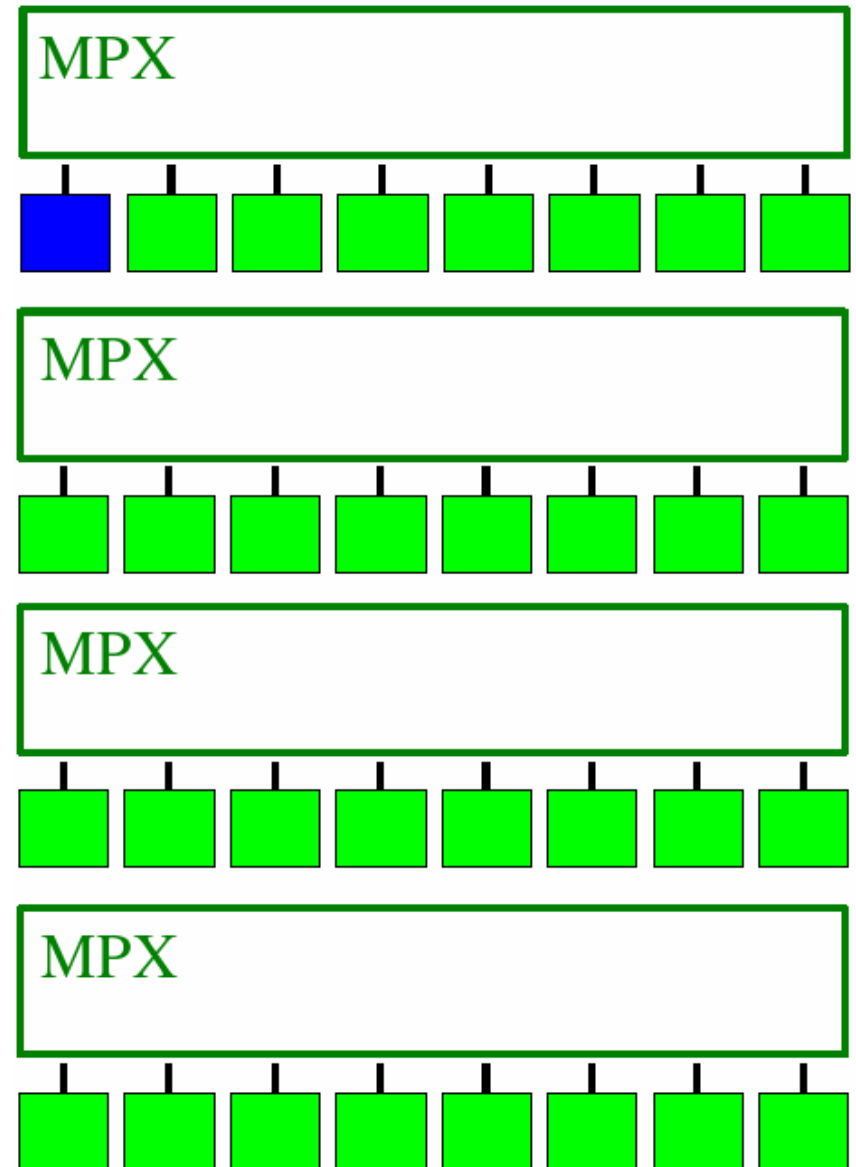
⇒  Current/Voltage measurement

 Readout integrity check

 Htest


 Receiving same pattern
as hybrid under test/check

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Hybmon, the Movie


The cast and crew:

 Burn-in pattern

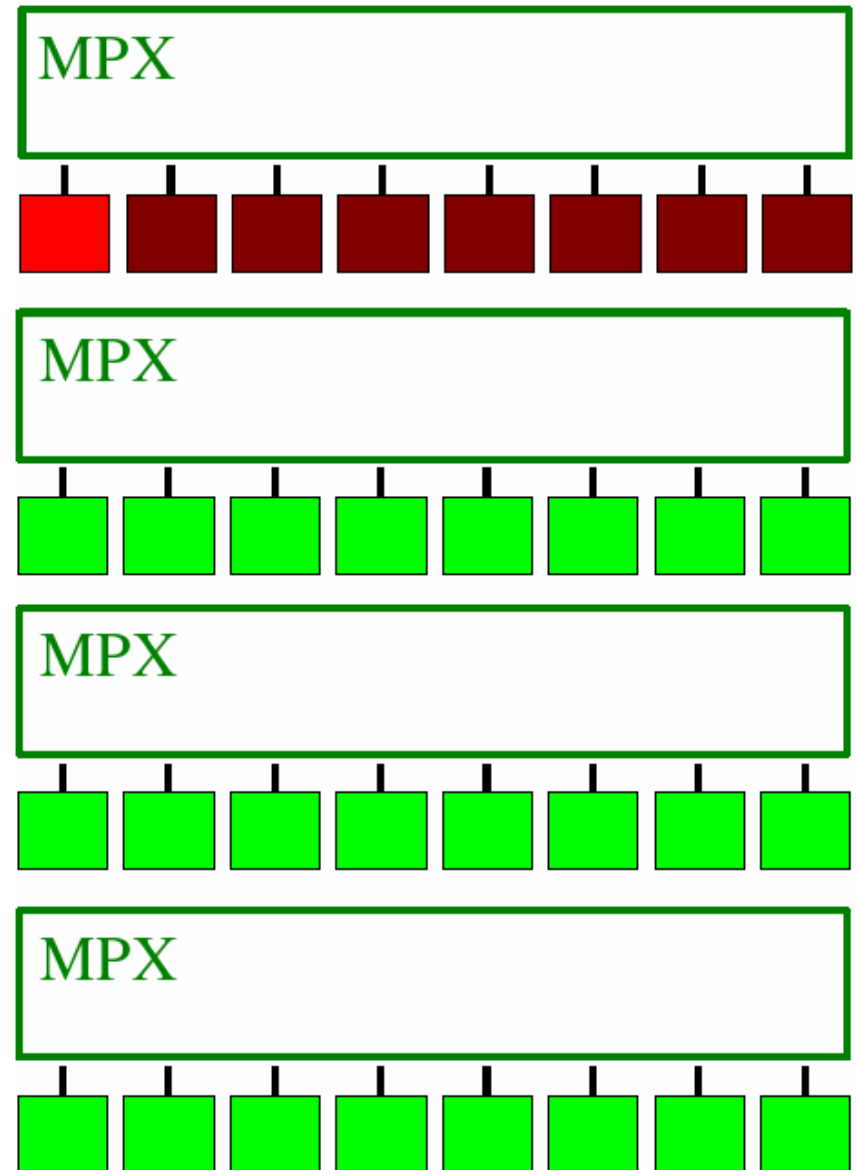
 Current/Voltage measurement

⇒  Readout integrity check

 Htest






 Receiving same pattern
as hybrid under test/check

(time is not to scale)

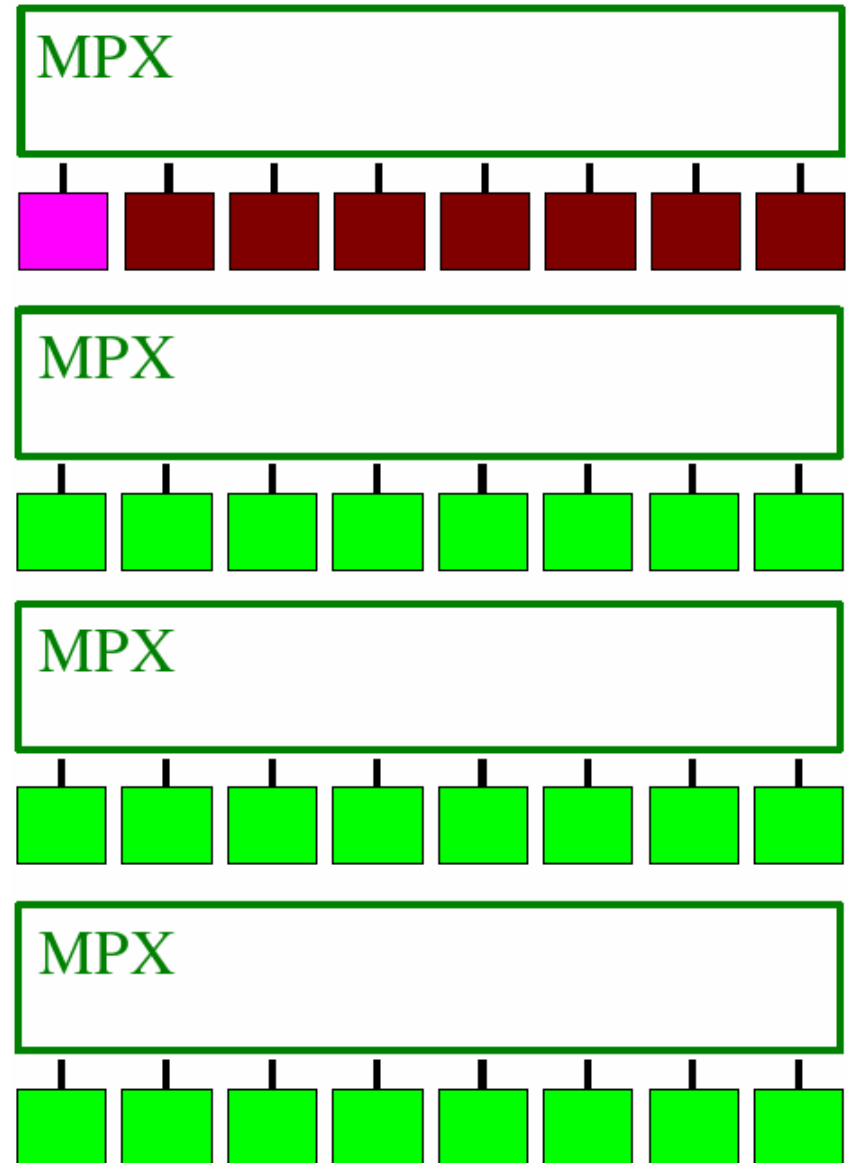


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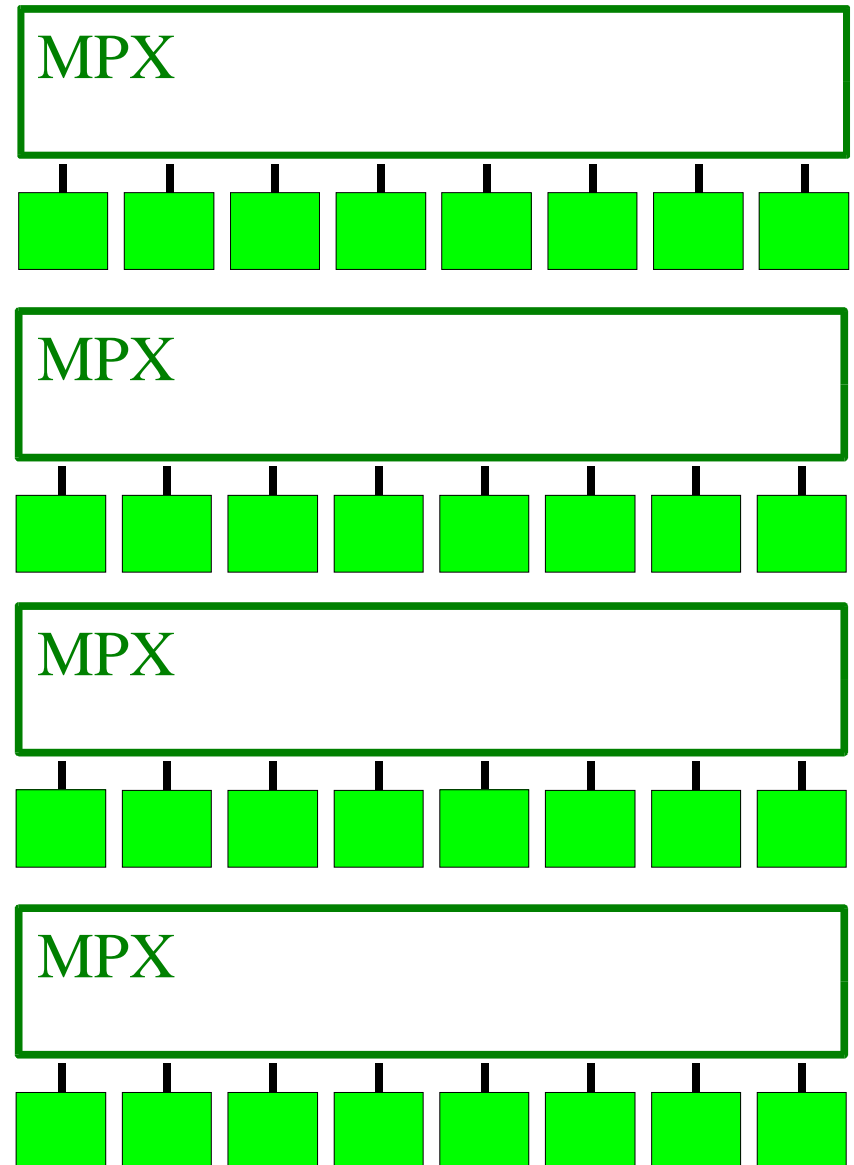


Hybmon, the Movie

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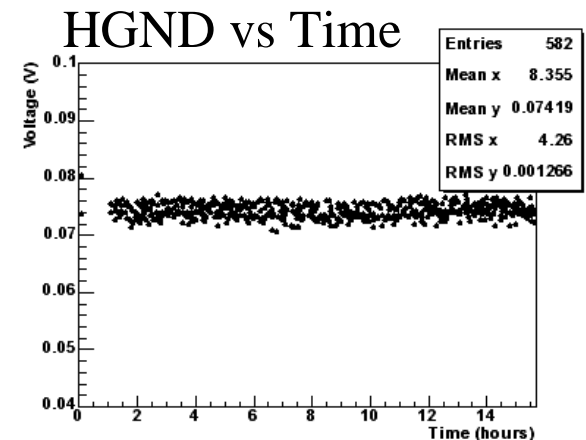
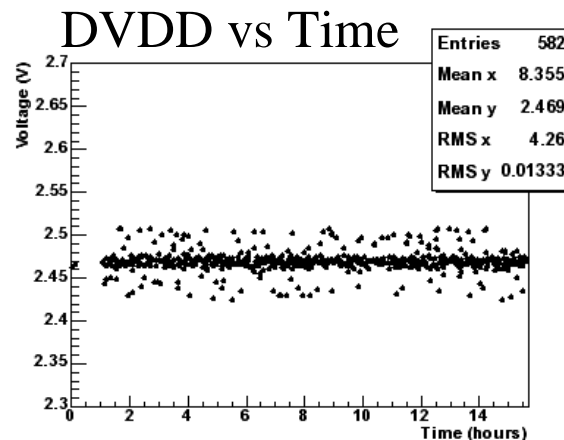
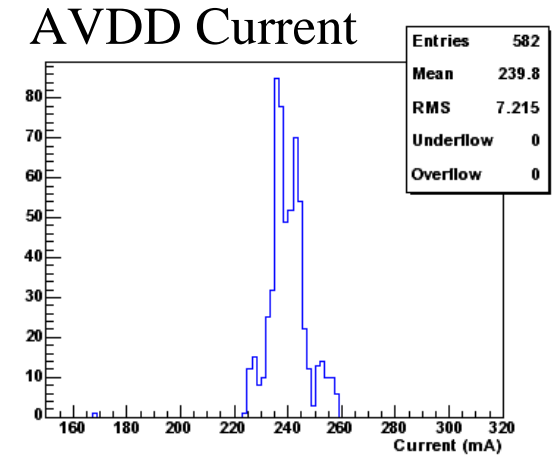
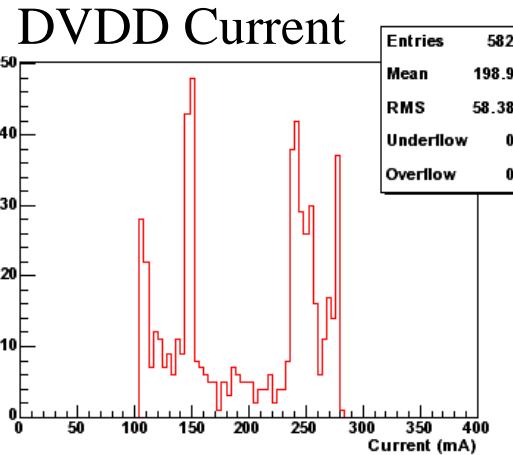
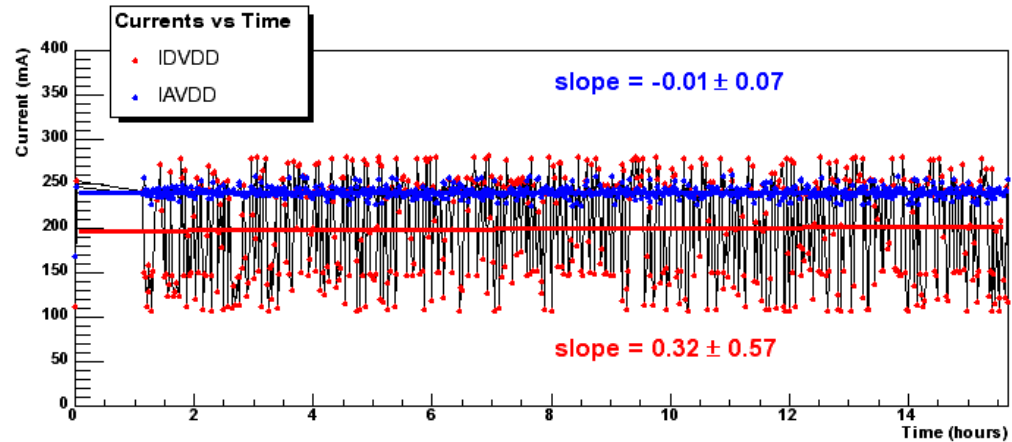


Offline Monitoring of Currents and Voltages

- Hybmon has been modified to write an ASCII file with date/time, current, voltage
- After (or during) burn-in, a root macro is used to generate a summary page for each hybrid involved
- Viewable on web and will be linked to burn-in section of hybrid tracker database

Current and Voltage for Hybrid h0043

Burn-in start: 07-24-2003 18:00:37 Burn-in end: 07-25-2003 09:41:27



Conclusions

- Earlier work has given us a feature-rich piece of software (Igor Volobouev / LBL)
- Hybmon has been upgraded to control up to 64 hybrids
- Preproduction will allow for final testing of the new features
- New offline monitoring tools to help with QA / QC