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DCS Software Forum

Place to had the software information and news

Dac Scans Data Structure

By Cesar - 24 April 2006

Here are the structures for the root files to store all the dada for the DAC scans, we will have to multiply the hit arrays by 6, our unit is a router=6 halfstaves

DAC Scans Containers Documentation

Just go to :

- <http://tydes.home.cern.ch/tydes/doc/SPDscan/> 

Mean Threshold Scan

- nSteps
 - ♦ integer, the number of dac scans
- sCurves [nSteps][10][32][256]
 - ♦ integer array constains the scurves (hits) for one Half Stave the size varies with the number of dac scans
- tpAmp[nsteps]
 - ♦ Table with the Test pulse amplitude, size dependes of number of scans
- dacStart, dacEnd, step
 - ♦ integers with the dac settings for the scan
- nTriggers
 - ♦ number of triggers of the scan

Min Treshold

- Hits [nSteps][10][32][256]
 - ♦ integer array containing the hits for all the dac indexes set
- dacNumber
 - ♦ Dac number in the pixel chip used for the scan * dacStart, dacEnd, step
 - ♦ integers the dac settings for the scan
- nTriggers
 - ♦ number of triggers of the scan

Uni Matrix Scan

- Hits [10][32][256]
- triggers

Mood Headers

By Ivan - 27 June 2006

So now in the raw data we will have this new information, The folowing example is for a Mean Threshold

Scan.

- Eq. Header
- Scan Header
 - ◆ Header lenght
 - ◆ Router Number (bit 0..5 : RouterNumber, bit 6..11: HS scanned)
 - ◆ Type (bits 0..7 operation mode, bit 8 : 0 = Normal data, 1 = Histogram format)
 - ◆ Triggers
 - ◆ Chip Present 1 (HS 2, 1, 0)
 - ◆ Chip Present 2 (HS 5, 4, 3)
 - ◆ DACStart, DACEnd, Step, DAC Identifier (8 bit registers)
 - ◆ Row start, Row end, DAC Index/ row index (8,8,16 bits)
 - ◆ DACHigh0, DACLow0, DACHigh1, DACLow1,DACHigh2 (HS 0,1)
 - ◆ DACHigh0, DACLow0, DACHigh1, DACLow1,DACHigh2 (HS 2,3)
 - ◆ DACHigh0, DACLow0, DACHigh1, DACLow1,DACHigh2 (HS 4,5)
 - ◆ TPAmplitude0 (*100)
 - ◆ TPAmplitude1
 - ◆ TPAmplitude2
 - ◆ TPAmplitude3
 - ◆ TPAmplitude4
 - ◆ TPAmplitude5
- Raw Data

Operation Mode:

- 0 Minimum Th
- 1 MeanTH
- 2 Generic DAC Scan
- 3 Uniformity Scan
- 4 Noise Scan

DAC Identifier:

- 0 .. 44 pixel chip DACs
- 100 .. 108 API DACs

Command Agent

By Cesar - 31 Mar 2006

Data Point Structure

- Currid (int)
- Received
 - ◆ Data (dyn_uint)
 - ◆ ID (dyn_uint)
 - ◆ Errors (dyn_string)
- Pending
 - ◆ ID (dyn_uint)
 - ◆ Commands (not used yet but soon)

Send Command structure

0	Size
1	ID
2	Channel
3	Offset
4-24	Command
25-end	DATA

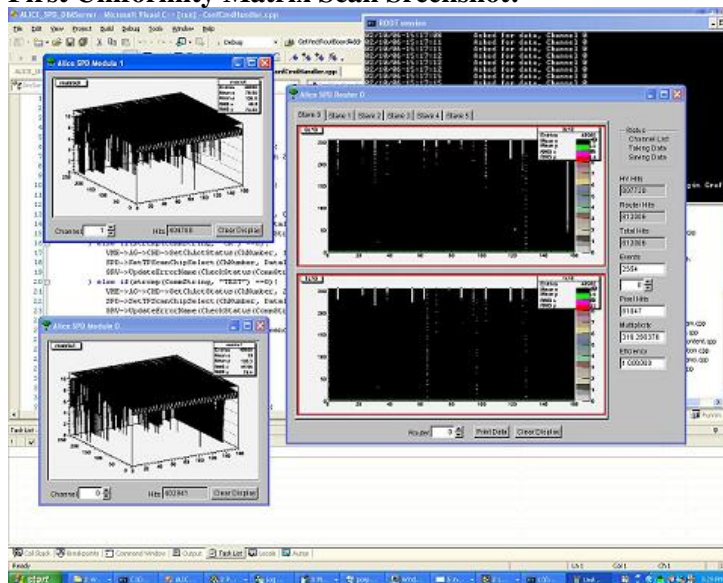
Answer from the FED Structure

0	Size
1	ID
2	Status
3	Channel
4	Offset
5-25	Command
26- end	Data

In the begining there is a dpconnect to automatically take data out from the dim datapoint and to update the pending and received data points Each time there is an error (status = 0) just appends one string like this : "**id: command : error_code**" in the error list data point. There are functions to send the command and to get the data parsing all the fields so things should be easy to use. At the moment there is no automatic time-out for demands, but I suppose that that's the next step. This thing now needs to be integrated in the fed Server to have the full structure integrated.

First Uniformity Matrix Scan

First Uniformity Matrix Scan Screenshot:



Uniformity matrix scan Header

By Ivan -06 Feb 2006 void StartScan(UInt8 ChN, UInt32 trigger, UInt32 * CHSelect, UInt8 rowSt, UInt8 rowEnd, bool MSKNoAct, bool Tp);

Instructions:SCN_UNIFORMITY_ START, STOP, RESTART

I need that PVSS sends to FED together with the start command (UInt32 stream)

- 0 total stram lenght

Command Agent

- 1 Channel Number (> 119 broadcast)
- 2 trigger number (max 27 bit)
- 3 row start Scan
- 4 rowEnds Scan
- 5 Mask no active row
- 6..125 120 ChSelect (bit 0 = chip 0 active and so on)

pixelPresent and pixelStatus Data Point Structure

- spd_fe_dcs:HSCh.pixelPresent (32bit DataPoint): (Ch=000,001,...119)
 - ◆ 0 Pixel0
 - ◆ 1 Pixel1
 - ◆ ...
 - ◆ 9 Pixel9
 - ◆ *bit = 0 pixel not present*
 - ◆ *bit = 1 pixel present*
- spd_fe_dcs:HSCh.pixelStatus (32bit DataPoint): (Ch=000,001,...119)
 - ◆ 0,1 Pixel0
 - ◆ 2,3 Pixel1
 - ◆ ...
 - ◆ 18,19 Pixel9
 - ◆ *bits 00 "Not Present" color Dark Gray*
 - ◆ *bits 01 "OFF" color _3DFace*
 - ◆ *bits 10 "ON" color Green*
 - ◆ *bits 11 "TEST" color Blue*

Mean Threshold scan

By Cesar - 10 Feb 2006

Data General Data Header

- 0 Size
- 1 Channel
- 2 Type
- 4 Pixel Select {HS 0 - 2}
- 5 Pixel Select {HS 3 - 6}

By Cesar - 10 Feb 2006

Important In Order to make all scan work, so the FED server can know to update the type of data, **the system has to be set in buffered mode**

By Cesar -10 Feb 2006 Panel already implemented by Simone. Change on the data format in the PVSS-> Analysis Tool

- Commands PVSS-> AnalysisTool:
 - ◆ ROOTC_START_MEANTH:
 - ◇ DACStart,
 - ◇ DACEnd,
 - ◇ Step,
 - ◇ Trigger Number
 - ◇ Pixel selected {0 - 2}
 - ◇ Pixel selected {3 - 5}

- ◆ With the Dim command ROOTC_STOP_MEANTH:

By Ivan -09 Feb 2006

- Commands PVSS-> AnalysisTool:
 - ◆ ROOTC_START_MEANTH:
 - ◇ DACStart,
 - ◇ DACEnd,
 - ◇ Step,
 - ◇ (UInt32)HS[i + ChNumb].GetChipSelected() << (i%3 * 10); i = 0..2 ,
 - ◇ (UInt32)HS[i + ChNumb].GetChipSelected() << (i%3 * 10); i = 3..5,
 - ◆ ROOTC_STOP_MEANTH:
- FED-> Analysis tool : with the data
 - ◆ General Data header
 - ◆ Header[0] = DACTPlow + DACTPHigh << 8 + DACIndex <<16;
 - ◆ Header[1] = (UInt32)(TPAmplitude * 100);
 - ◆ Raw data

By Simone -10 Feb 2006

- Commands PVSS-> FED:
 - ◆ SCN_MEANTH_START with this data:
 - ◇ 0 total stream lenght
 - ◇ 1 Channel Number (> 119 broadcast)
 - ◇ 2 trigger number (max 27 bit)
 - ◇ 3 row start Scan
 - ◇ 4 row end Scan
 - ◇ 5 DAC Start Value
 - ◇ 6 DAC Stop Value
 - ◇ 7 DAC Step Value
 - ◇ 8 Mask no active row
 - ◇ 9 DCS Active
- ◆ SCN_MEANTH_STOP
- ◆ SCN_MEANTH_RESTART

This topic: AliceSPD > DcsForum

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