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T2 Software at IP5 that I've worked with

(Situation as of April 2010)

Software

vfat_controller (no comments)

Latest monitor `/data/T2/Monitor_developT2` (at `vmepcS2B19-07`) and also `~nturini/Software/Monitor`

Xml input files

monitor xml files in `/data/T2/XML_ConfigMonitor_IP5`

vfat_controller xml files in `~nturini/T2/config`

Vfat_controller xml schema at

http://cmsdoc.cern.ch/cms/cmt/System_aspects/FecControl/binaries/misc/schema.xsd

Contains among other things VFAT lines

- preamp/shaper settings, same for all
- Control0,1,2,3 (control registers)
- Chanreg1-128 (mask/calpulse/trimDAQ channel by channel)
- Lat (latency)
- Vthreshold1,2 (vt1=threshold, vt2=0)
- chipid0,1=vfatID-16bit : low 8bits + high 8 bits

Xml file contains up to 688 VFATs, and in **vfat_controller** one can make changes to all the VFATs or to one at a time

- automate to
 - ◆ speed up initial value setting
 - ◆ cut down error rate

I modified some of MirkoBerretti's scripts, producing methods to change

- vthreshold1 = read from file: (VFAT ID,threshold)
- chanregNNN= (chanregNNN OR 64) if Read from file: (VFAT ID,channel=NNN)
 - ◆ OR 64 is calpulse bit
- easily modified too (not implemented now) :
 - ◆ OR 32 is maskChannel bit
 - ◆ AND 31=last 5 bits are trimDAQ value (look up vfat IID value in fileMonitor, set high trimDAQ for larger outer pads, pad IID=2...14)
 - ◆ For reference: If you set nonzero trimDAQ value, check that control3 AND 7=7 (or at least nonzero)

Scripts available here (see attachment) and on lxplus:

- `oljemark@lxplus:~/public/newestScript9thMay2010.tgz` (newest)

Scriptfile `foThresholdsWrite-smallChanges.C` contains three functions

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- WriteThreshold1Txt(fileVFATController,fileMonitor,fileOutTxt)
 - ◆ reads vt1 values & calculates vfat hex id
 - ◆ writes to fileOutTxt "0xHexId,Threshold" - one line per vfat
 - ◆ fileMonitor not used for output, doesn't affect fileOutTxt
- WriteThresholdsXml(fileVFATController,fileMonitor,fileTxtThresholds,fileXmlOut,options)
 - ◆ reads vfatController file line by line, changes only vfat lines
 - ◆ if matching vfat id found in fileTxtThresholds, change vt1 to the threshold found on that line
 - ◆ options="" or "dropTheRest", the latter means drop any vfat not found in the text file
 - ◆ fileMonitor not used for output, doesn't affect fileOutTxt
- WriteChanregsXml(fileVFATController,fileMonitor,fileTxtChannels,fileXmlOut,options)
 - ◆ reads vfatController file line by line, changes only vfat lines
 - ◆ options
 - ◇ ="dropTheRest", means drop any vfat not found in the text file
 - ◇ ="zeroCal", means to set in all chanregs of all vfats the calpulse bit off (test chanreg&64)
 - ◇ ="setCal", means set the calpulse bit to 1 for any (vfat,channel) found in the text file AND set to 0 for all other channels
 - ◇ if both zeroCal and setCal given, zeroCal takes precedence
 - ◇ if both zeroCal and dropTheRest given, the latter has no effect since the text file is not read
 - ◆ fileMonitor not used for output, doesn't affect fileOutTxt

Call functions like this:

- start root: [bash%] root
 - ◆ tested with root v5.18 at vmepcS2B19-*
- [0] .L scriptfile.C+
 - ◆ loads & compiles scriptfile.C
- Function1(param1,param2,""=default param3)
- Output text or xml file overwritten without warning

-- FredrikOljemark - 10-May-2010

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