User Guide for ACQ2xx Embedded Web Pages

System Page: shows firmware versions and environment

home	sysmon	system	signals	events	phases	burst	vin	dio	cal	AO	DIO32
acq	acq-timing	acq-histo	ints	tblocks	regs	fpga	tweaks	dmac	ppmu	mu	AZ

Capture Buffer Length:	402653184 0x18000000 384M
Linux Version:	Linux version 2.6.11.11-acqX00 (pgm@islay) (gcc version 3.4.1) #75 Sun Sep 18 18:42:27 BST 2005
Initrd Version:	version 211 date:200512082214
Extra Version:	version 1317 date:200512091442
Driver Version:	$Id: acq200-fifo.c,v 1.14 2005/11/05 22:34:08 pgm Exp $ Build 1156 Dec 6 2005 22:39:10$Id: acq196-fifo.c,v 1.6 2005/10/03 15:01:35 pgm Exp $ $Id: acq200-fifo-procfs.c,v 1.11 2005/12/09 14:40:59 pgm Exp $ Build 1078 Dec 9 2005 14:41:07
Bootloader Environment:	serialnum=d30001 MODULES=/usr/local/lib/modules AICHAN=96 acq100=acq196 TERM=vt102 gEmac0=16:01 hostname=acq196_001 ip0=dhcp
eth0:	192.168.0.156

10411	acq196_001	Thu Dec 29 15:46:28 UTC 2005	http://acq196_001/cgi-bin/system.cgi

sysmon Page: temperature monitoring.

| home | sysmon | system | signals | events | phases | burst | vin | dio | cal | AO | DIO32 |
| acq | acq-timing | acq-histo | ints | tblocks | regs | fpga | tweaks | dmac | ppmu | mu | AZ |

```
Temp C:41.5 ( 166)   487     0     0   319   488   hex: 00a6 01e7 0000 0000 013f 01e8
Temp C:36.8 ( 147) -491    -5     0 -512  -490   hex: 0093 fe15 fffb 0000 fe00 fe16
```

AJAX enabled page
Polls at 1Hz
Highlights changes

| 10400 | acq196_001 | Thu Dec 29 15:46:17 UTC 2005 | http://acq196_001/cgi-bin/sysmon.cgi |

Signals Page: view and assign signals

Events Page: view and assign Events

home	sysmon	system	signals	events	phases	burst	vin	dio	cal	AO	DIO32
acq	acq-timing	acq-histo	ints	tblocks	regs	fpga	tweaks	dmac	ppmu	mu	AZ

Func	Actual
trig	trig DI3 falling inactive
event0	event0 DI3 falling inactive
event1	event1 DI3 rising inactive

Function	Line						
trig	d0	d1	d2	d3	d4	d5	none
rising	○	○	○	○	○	○	○
falling	○	○	○	○	○	○	
event0	d0	d1	d2	d3	d4	d5	none
rising	○	○	○	○	○	○	○
falling	○	○	○	○	○	○	
event1	d0	d1	d2	d3	d4	d5	none
rising	○	○	○	○	○	○	○
falling	○	○	○	○	○	○	
counter_update	smpl	e0	e1				
	●	○	○				

Trigger: Optional Signal starts the capture process
Event0: Optional signal causes phase transition from PRE- to POST-
Event1: Second, special purpose Event

10435	acq196_001	Thu Dec 29 15:46:52 UTC 2005	http://acq196_001/cgi-bin/events.cgi

Burst Page: controls multiframe streaming mode

Vin Page: view/control input voltage range selection

Personality Specific Page – displays M5 input offset

DIO Specific Page – monitor, set DIO, set DIO routings
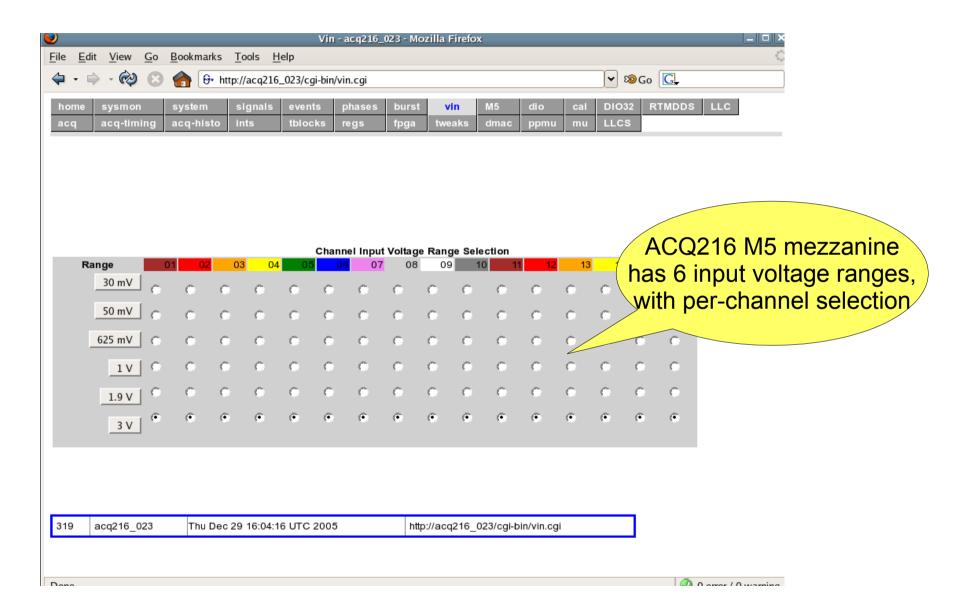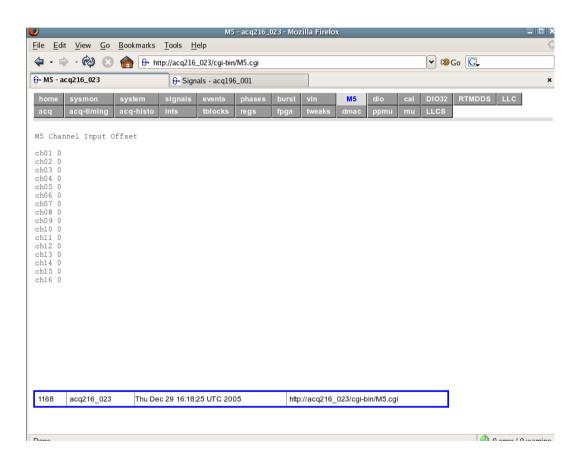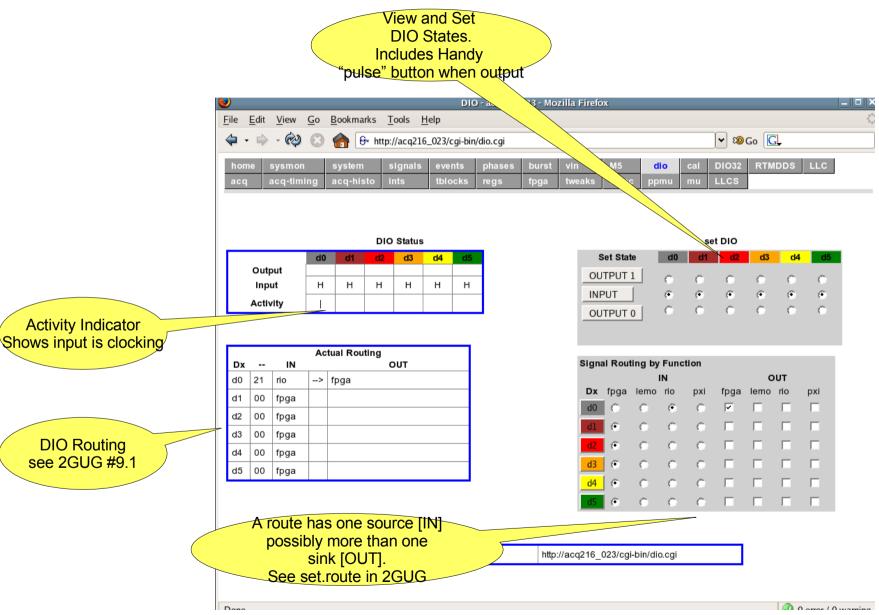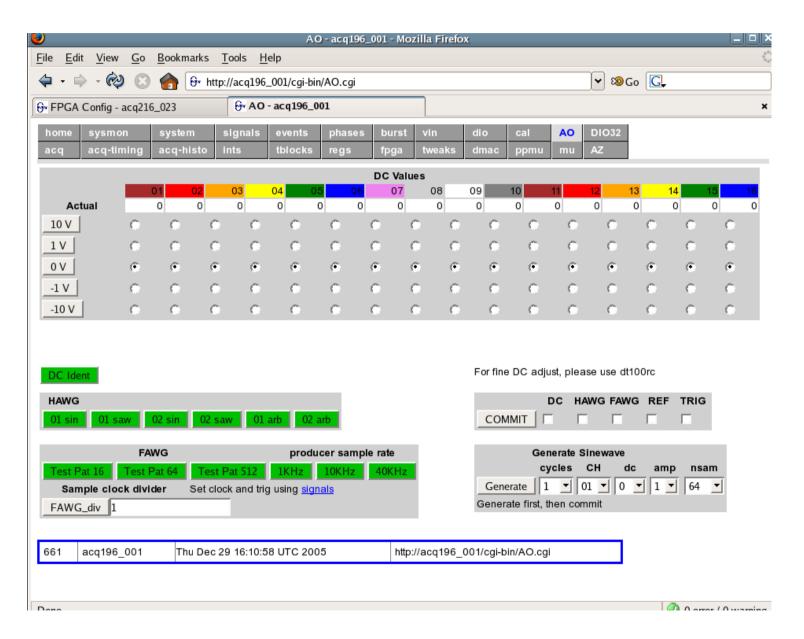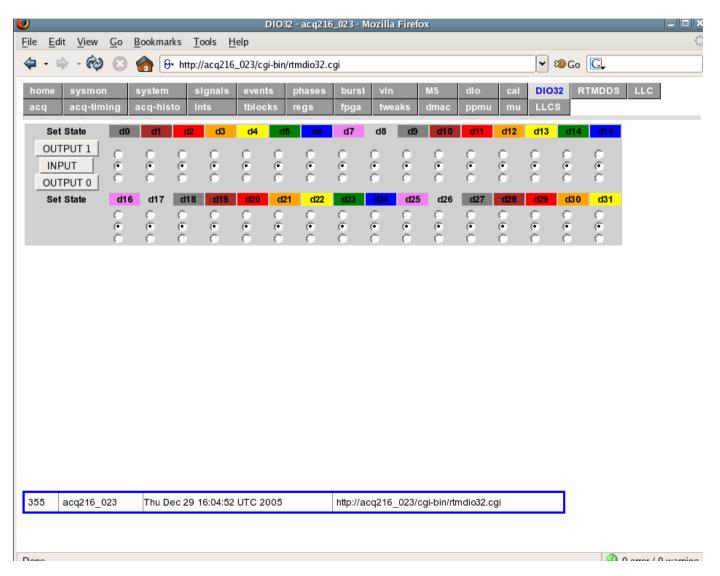
View and Set
DIO States.
Includes Handy
"pulse" button when output

Activity Indicator
Shows input is clocking

DIO Routing
see 2GUG #9.1

A route has one source [IN]
possibly more than one
sink [OUT].
See set.route in 2GUG

DIO - a... 3 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://acq216_023/cgi-bin/dio.cgi

| home | sysmon | system | signals | events | phases | burst | vin | M5 | dio | cal | DIO32 | RTMDDS | LLC |
| acq | acq-timing | acq-histo | ints | tblocks | regs | fpga | tweaks | | ppmu | mu | LLCS | | |

DIO Status

	d0	d1	d2	d3	d4	d5
Output						
Input	H	H	H	H	H	H
Activity	|					

set DIO

Set State	d0	d1	d2	d3	d4	d5
OUTPUT 1	○	○	○	○	○	○
INPUT	◉	◉	◉	◉	◉	◉
OUTPUT 0	○	○	○	○	○	○

Actual Routing

Dx	--	IN		OUT
d0	21	rio	-->	fpga
d1	00	fpga		
d2	00	fpga		
d3	00	fpga		
d4	00	fpga		
d5	00	fpga		

Signal Routing by Function

	IN				OUT			
Dx	fpga	lemo	rio	pxi	fpga	lemo	rio	pxi
d0	○	○	◉	○	☑	☐	☐	☐
d1	◉	○	○	○	☐	☐	☐	☐
d2	◉	○	○	○	☐	☐	☐	☐
d3	◉	○	○	○	☐	☐	☐	☐
d4	◉	○	○	○	☐	☐	☐	☐
d5	◉	○	○	○	☐	☐	☐	☐

http://acq216_023/cgi-bin/dio.cgi

Done

0 error / 0 warning

Calibration and board specific details held in XML file:

```
This XML file does not appear to have any style information associated with it. The document tree is shown below.

- <ACQ>
  - <!--
      m5-default.xml $Revision: 1.7 $
          this is the default m5 range config file
          add calibration data if available via <Calibrated> fields
     -->
  <!-- calibration data -->
  - <AcqCalibration>
    - <Info>
        <CalDate>20051221:18:02</CalDate>
        <Version>$RCSfile: calibrate.cpp,v $ $Revision: 1.9 $ B1016</Version>
        <Model>ACQ216-M5</Model>
        <Serialnum>d41023</Serialnum>
      </Info>
    - <!--
        on M5 switch assignment is adjacent AB values in register
          so logical range key by {ADC_RANGE,GAINA,GAINB} does not refer directly
          to a physical device for the latter two fields.
          mapping handled by M5 custom class in vin program,
            using SWPHYS attribute. Range selection is:
            ADC_RANGE 0=1V, 1=1.6V
            GAINA,GAINB 0,0:G1, 1,0:G2,  1,1:G4
       -->
    - <Data AICHAN="16" polarity="REVERSED" SW="ADC_RANGE,M5_GAINA,M5_GAINB"
        SWPHYS="ADC_RANGE,M5/GAIN.01-08,M5/GAIN.09-16">
      - <Range name="30" sw="0,1,1">
          <Nominal min="-0.031" max="0.031"/>
        </Range>
```
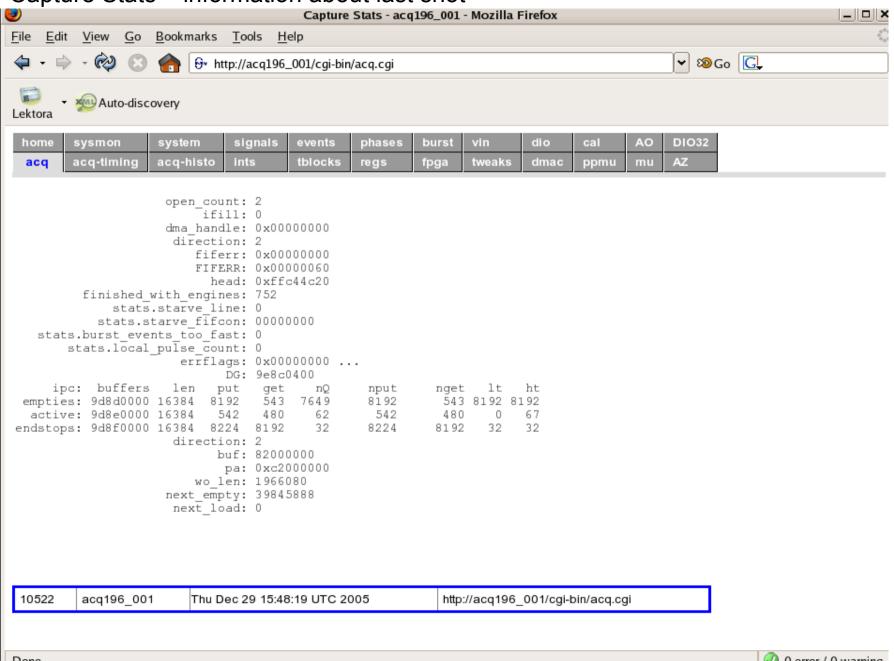
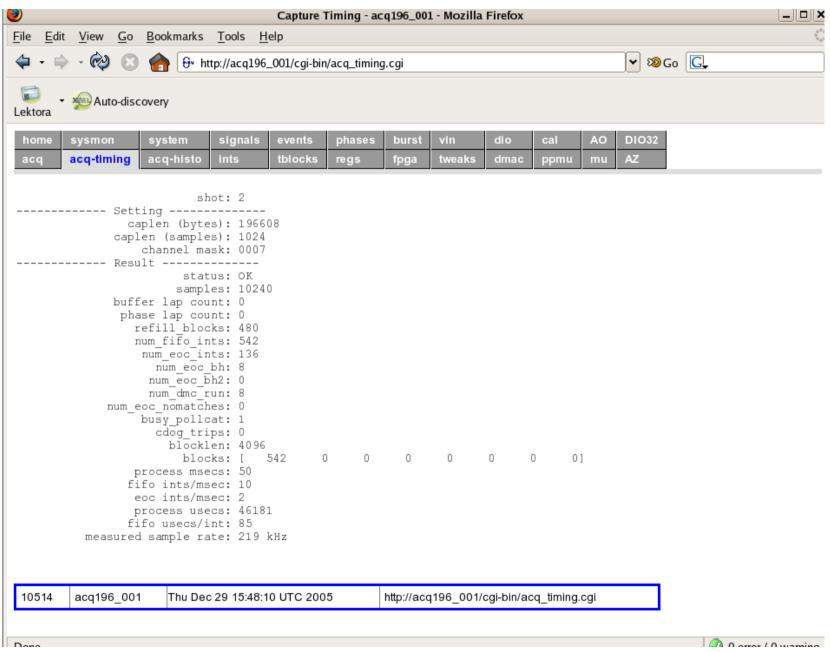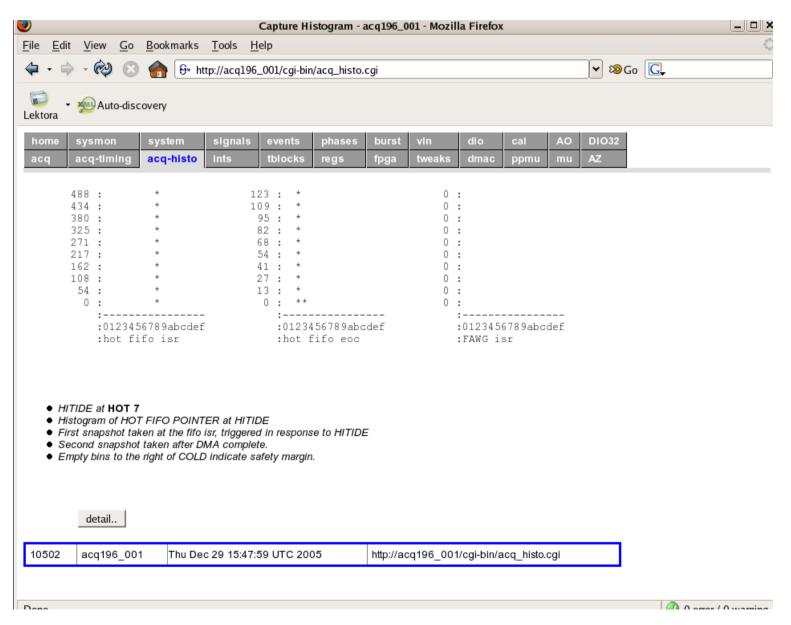# AO Page – ACQ196-RTMAO – DC settings, simple AWG functionality

DIO32 – set direction and value for 32bit DIO registers
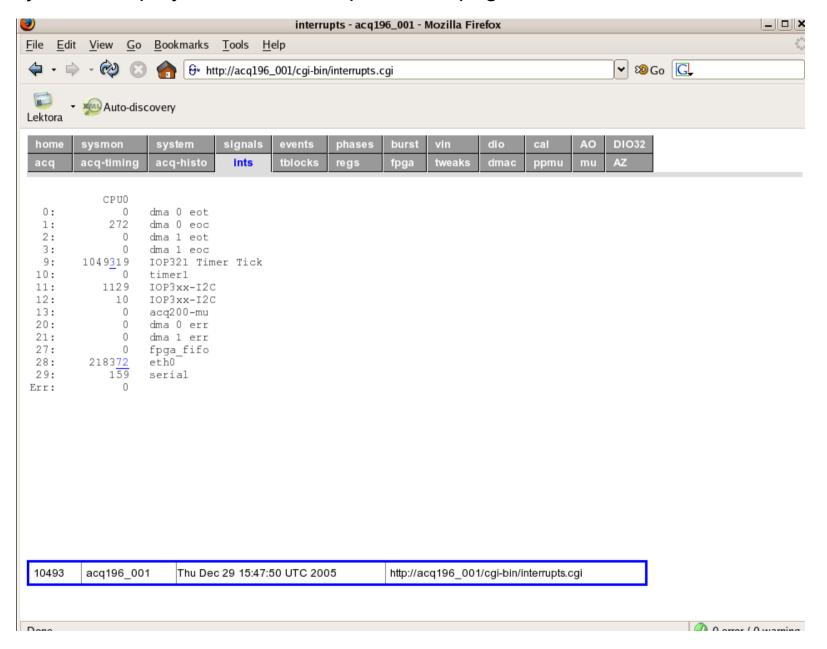
Capture Stats – information about last shot


```
                    open_count: 2
                         ifill: 0
                    dma_handle: 0x00000000
                     direction: 2
                        fiferr: 0x00000000
                        FIFERR: 0x00000060
                          head: 0xffc44c20
          finished_with_engines: 752
              stats.starve_line: 0
            stats.starve_fifcon: 00000000
    stats.burst_events_too_fast: 0
       stats.local_pulse_count: 0
                       errflags: 0x00000000 ...
                            DG: 9e8c0400
     ipc:  buffers   len   put    get    nQ     nput       nget    lt    ht
 empties: 9d8d0000 16384  8192    543  7649     8192        543  8192  8192
  active: 9d8e0000 16384   542    480    62      542        480     0    67
endstops: 9d8f0000 16384  8224   8192    32     8224       8192    32    32
                     direction: 2
                           buf: 82000000
                            pa: 0xc2000000
                        wo_len: 1966080
                    next_empty: 39845888
                     next_load: 0
```

| 10522 | acq196_001 | Thu Dec 29 15:48:19 UTC 2005 | http://acq196_001/cgi-bin/acq.cgi |

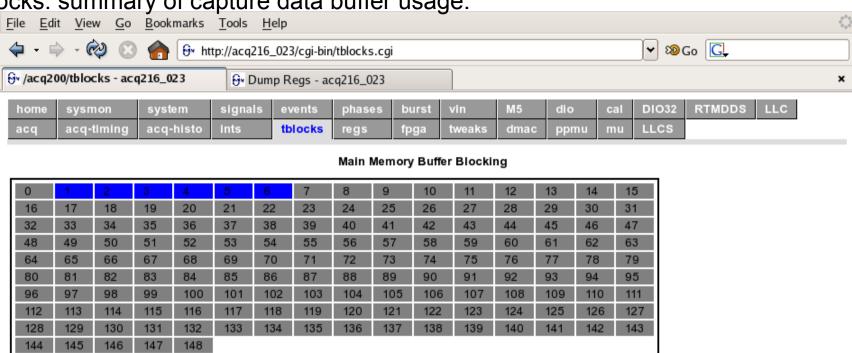# Capture Timing – information about last shot

Capture Histogram – a measure of system real time performance

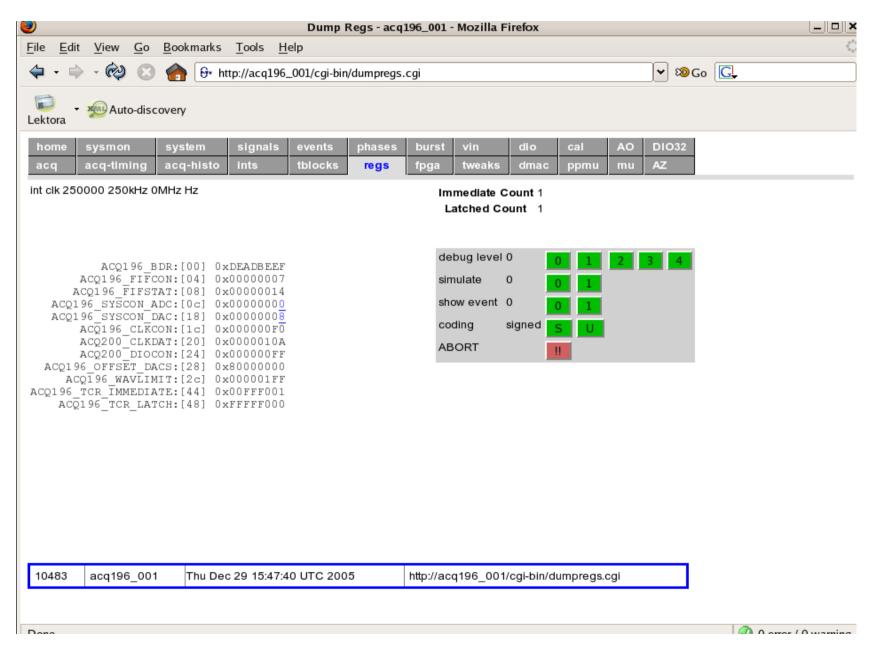# Ints : dynamic display of Linux interrupts status page
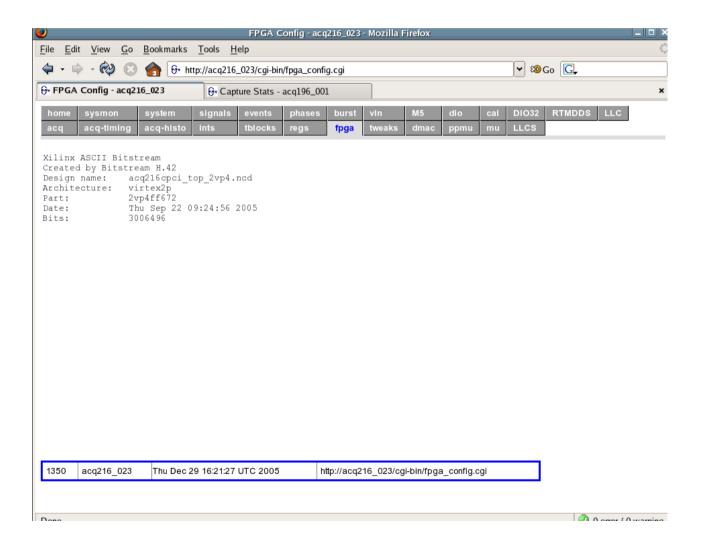
Tblocks: summary of capture data buffer usage.

Buffer memory is divided into 6MB "Tblocks" and acquisition proceeds cyclically round the buffer. During capture, the "RAW" blocks show the current data set with data in raw format. Post shot, data is transformed into "COOKED" format for fast data access. Data may also be reserved during the shot as part of a "PREP", this is indicated as a "SHARED" block"

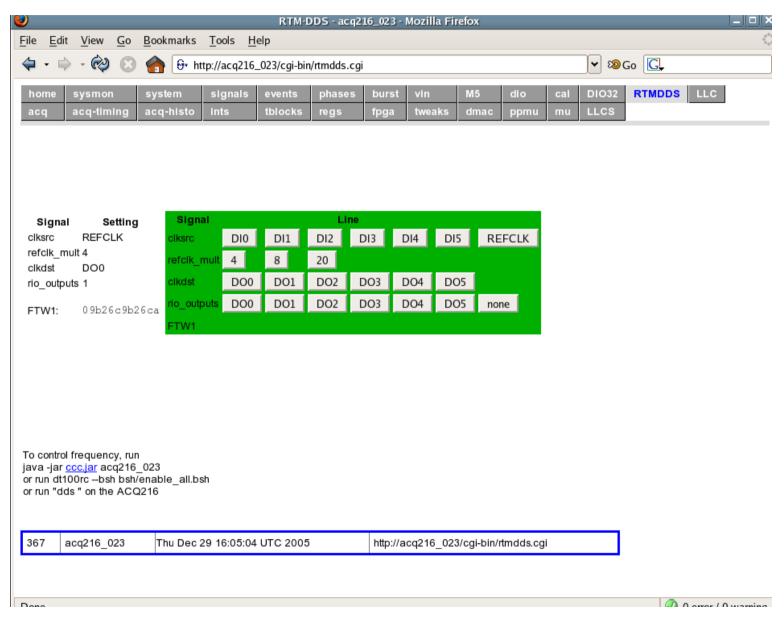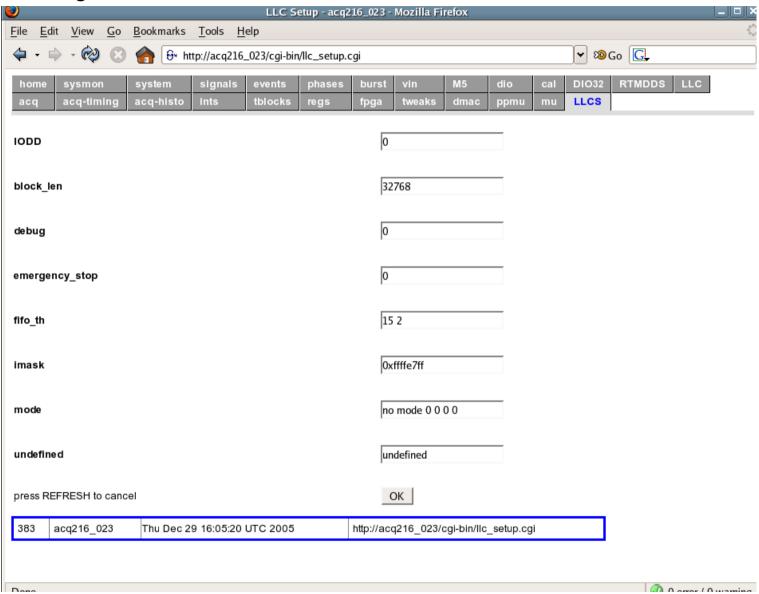| 588 | acq216_023 | Thu Dec 29 16:08:45 UTC 2005 | http://acq216_023/cgi-bin/tblocks.cgi |

Dumpregs : diagnostic dump of FPGA registers

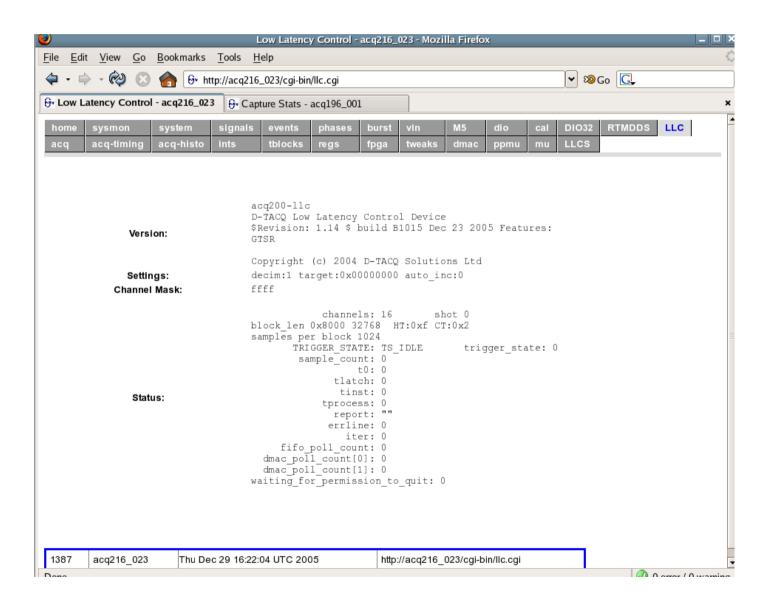# FPGA Config – information about fpga image

RTM_DDS – Custom RTM frequency and routing control

LLC Settings – controls for custom kernel module

LLC Status – status report for custom control module

Example CGI form for capture control, followed by ftp upload.