

DAQNI Driver

Loading

Load Bin “DAQNI;ISC #DEV *dev*”

Registers

1800 — Board Specific

30 Parameter 1 for register 35 — Analog Trigger on/off

0 = Analog Trigger Off

1 = Analog Trigger ON

31 Parameter 2 for register 35 — trigger low value

Specify a value between 0 and 255 (4095 for 16 bit cards). The minimum is equivalent to -10V and the maximum is equivalent to +10V.

32 Parameter 3 for register 35 — trigger high value

Specify a value between 0 and 255 (4095 for 16 bit cards). The minimum is equivalent to -10V and the maximum is equivalent to +10V.

33 Parameter 4 for register 35 — Mode

see NI-DAQ function reference for definitions.

0 = ND_BELOW_LOW_LEVEL

1 = ND_ABOVE_HIGH_LEVEL

2 = ND_INSIDE_REGION

3 = ND_HIGH_HYSTERESIS

4 = ND_LOW_HYSTERESIS

34 Parameter 5 for register 35 — Trigger Source

see NI-DAQ function reference for definitions.

0 = ND_PFI_0

1 = ND_THE_AI_CHANNEL

35 Configure trigger function (Configure_HW_Analog_Trigger)

set registers 30-34 then to call this function write a non-zero value to this register.

You must also use select signal in conjunction with this function.

40 Parameter 1 for register 43 — signal

see NI-DAQ function reference for definitions.

0 = ND_IN_START_TRIGGER

1 = ND_IN_STOP_TRIGGER

2 = ND_IN_SCAN_CLOCK_TIMEBASE

3 = ND_IN_CHANNEL_CLOCK_TIMEBASE

4 = ND_IN_CONVERT

5 = ND_IN_SCAN_START

6 = ND_IN_EXTERNAL_GATE

7 = ND_OUT_START_TRIGGER

8 = ND_OUT_UPDATE
9 = ND_OUT_UPDATE_CLOCK_TIMEBASE

10 - 19 = ND_PFI_0 - ND_PFI_9

20 = ND_GPCTR0_OUTPUT
21 = ND_GPCTR1_OUTPUT
22 = ND_FREQ_OUT

23 - 29 = ND_RTSI_0 - ND_RTSI_6

30 = ND_RTSI_CLOCK
31 = ND_BOARD_CLOCK

41 Parameter 2 for register 43 — source

See NI-DAQ function reference for definitions.

0 - 9 = ND_PFI_0 - ND_PFI_9

10 - 16 = ND_RTSI_0 - ND_RTSI_6

17 = ND_RTSI_CLOCK
18 = ND_GPCTR0_OUTPUT
19 = ND_GPCTR0_SOURCE
20 = ND_GPCTR0_GATE
21 = ND_GPCTR1_OUTPUT
22 = ND_GPCTR1_SOURCE
23 = ND_GPCTR1_GATE
24 = ND_NONE
25 = ND_INTERNAL_TIMER
26 = ND_INTERNAL_10_MHZ
27 = ND_INTERNAL_20_MHZ
28 = ND_INTERNAL_100_KHZ
29 = ND_IN_START_TRIGGER
30 = ND_OUT_START_TRIGGER
31 = ND_IN_STOP_TRIGGER
32 = ND_IO_CONNECTOR
33 = ND_AUTOMATIC
34 = ND_IN_CONVERT
35 = ND_OUT_UPDATE
36 = ND_IN_SCAN_START
37 = ND_IN_SCAN_IN_PROG
38 = ND_RESERVED
39 = ND_MARKER
40 = ND_SYNC_OUT
41 = ND_BOARD_CLOCK

42 Parameter 3 for register 43 — source spec

See NI-DAQ function reference for definitions.

0 = ND_DONT_CARE

1-16 = value 1-16

17 = ND_HIGH_TO_LOW

18 = ND_LOW_TO_HIGH

19 = ND_PAUSE_ON_HIGH

20 = ND_PAUSE_ON_LOW

21 = ND_POSITIVE

43 Select signal function (Select_Signal)

set registers 40-42 then, to call this function write a non-zero value to this register.

1801 — Analog Input

0 Reset Registers

Writing a 0 here will should reset all registers, but at this point it will only reset registers 0-24.

Writing a 1 here will reset all Analog Input registers.

1 Scan Rate

Scan rate is measured in scans per second. The allowed range is 0 to 500,000 scans/s. A value of 0 means no delay between scans and results in approximately 0.00153 scans/s. This value is affected by the number of channels in your scan.

2 Start Channel

Start channel and channel list flag register. Specifies either the first channel to be scanned in the A/D scan sequence, or if a value of -1 is applied, Directs the driver to use the channel list specified.

3 Stop Channel

Stop channel and number in channel list register. Specifies either the last channel to be scanned in the A/D scan sequence, or if a value of -1 was applied to register 2, should be the number of channels in the channel list.

4 Gain Value

Value of gain to be applied with start and stop channel scan.

10 Scale Value

Measured voltage is multiplied by this value.

11 Offset Value

This value is added to measured voltage after it is multiplied by scale value.

17 Sample Rate

Sample rate measured in pts/s. Allowed range is approximately 0.00153 to 500,000. The maximum rate depends on the device used. This is the rate at which channels are sampled in a scan sequence.

19 Channel List

An integer list of channels in the order that you want them scanned. (Max 5000)

20 Gain List

An integer list of gains to use with the channel list. The gain at position 3 corresponds to

the channel at position 3 of the channel list. (Max 5000)

21 Gain Correct

During the voltage calculation Gain is multiplied by this number.

22 Voltage Correct

Amount needed to subtract from sample for voltage calculation.

23 Number of Samples

Number of samples to take. (Max 5000)

24 Timeout Ticks (Timeout_Config)

Number of ticks before timeout. There are about 18 ticks per second. Timeout will occur only during a scan. A timeout will return a timeout event which can be trapped with ON TIMEOUT. The value specified in ON TIMEOUT is ignored.

1802 — Analog Output

0 Reset Registers

Writing a 0 here will reset all currently functioning registers

Writing a 1 here will reset all Analog Output registers.

2 Start Channel

Start channel and channel list flag register. Specifies either the first channel to be used in the A/O sequence, or if a value of -1 is applied, Directs the driver to use the channel list specified.

3 Stop Channel

Stop channel and number in channel list register. Specifies either the last channel to be used in the A/O sequence, or if a value of -1 was applied to register 2, should be the number of channels in the channel list.

4 Gain Value

Value of gain to be applied with start and stop channel output.

5 Iterations

The number of times to output the output buffer. A zero will continue indefinitely.

17 Output Rate

The output rate for the sequence in points per second.

19 Channel List

An integer list of channels in the order that you want them sent. (Max 5000)

20 Output Buffer

A list of floating point values representing voltages in the order you want them sent. (Max 5000)

21 Buffer Count

The number of floating point values that are in the Output Buffer

30 Wave Generator (WFM_Scale, WFM_Op)

Writing a 1 here starts wave generation. During Wave generation all access to the card will result in a “target device busy” error. The Wave generated is determined by the

information provided in the previous registers.

Writing a 0 here stops wave generation.

1803 — Digital Input/Output

0 **Reset Registers**

Writing a 0 here will reset all currently functioning registers Writing a 1 here will reset all Digital Input/Output registers.

10 **Line**

Param for reg 14. Line number to configure

11 **Port**

Param for reg 14. Port number to configure

12 **handshake**

param for reg 14. Handshake on/off

13 **Direction**

Param for reg 14. Input/Output selection

0 **Configure (DIG_Line_Config or DIG_Prt_Config)**

Write 1 to call line config or 2 to call port config.

20 **Group**

Param for reg 24. Group to be configured.

21 **Group size**

param for reg 24. Group size.

22 **Group port**

Param for reg 24. Array to assign for group param for group config.call.

23 **group direction**

param for reg 24. Input or output (direction) for group param

24 **group configure (DIG_Grp_Config, DIG_SCAN_Setup)**

non-zero to call.

30 **number of samples**

number of digital samples to take (group I/O only)

31 **use 16 bits**

card uses all 16 bits of buffer elements.

32 **split bytes**

separate upper and lower bytes and return seperately

33 **use hand shake**

driver should use handshaking.

34 **output buffer**

buffer to hold output

40 **pattern group**

param for reg 46. Group param.

41 **Config flag**

param for reg 46. Config flag for pattern generation.

42 **request source**

param for reg 46.

- 43 timebase**
param for reg 46.
- 44 request interval**
param for reg 46. Request interval pattern.
- 45 external gate.**
Param for reg 46. External gate param.
- 46 pattern generation (DIG_Block_PG_Config)**
non-zero to setup pattern generation
- 50 group trigger**
param for reg 58. Group number to configure
- 51 start trigger**
param for reg 58. Start trigger source
- 52 start polarity**
param for reg 58. Polarity of the start trigger.
- 53 Stop trigger**
Param for reg 58. Stop trigger source
- 54 stop polarity**
param for reg 58. Polarity of the stop trigger.
- 55 points after stop trigger**
param for reg 58. Number of points to acquire after the stop trigger.
- 56 pattern**
param for reg 58. Digital pattern to use if requested.
- 57 pattern mask**
param for reg 58. Pattern mask for digital trigger.
- 58 trigger config (DIG_Trigger_Config)**
non-zero to call

1804 -- Counter/Timer I/O registers

0 reset

Writing a 0 here will reset all currently functioning registers

Writing a 1 here will reset all Digital Input/Output registers.

CTR_Config (register 15)

Parameter registers

- 10 counter
- 11 edge mode
- 12 gate mode
- 13 out type
- 14 out polarity

CTR_EvCount (register 23)

Parameter registers

- 20 counter

21	timebase
22	continue

CTR_Period (register 32)

Parameter registers

30	counter
31	timebase

CTR_Pulse (register 44)

Parameter registers

40	counter
41	timebase
42	delay
43	pulse width

CTR_Rate (register 52)

Parameter registers

50	frequency
51	duty

Output registers

53	timebase
54	period 1
55	period 2

CTR_Reset (register 62)

Parameter registers

60	counter
61	output

CTR_Restart (register 71)

Parameter registers

70	counter
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CTR_Simul_Op (register 83)

Parameter registers

80	number of counters
81	counters (array)
82	mode

CTR_Square (register 94)

Parameter registers

90	counter
91	timebase
92	period 1
93	period 2

CTR_State (register 101)

Parameter registers

100 counter

Output registers

102 out state

CTR_Stop (register 111)

Parameter registers

110 counter