MicroDXP Vega Handel API

XIA Software Engineering

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Contents

This document describes Handel API changes introduced for the MicroDXP Vega. For a full list of MicroDXP features please refer to handel-microdxp (Handel Programmer's Guide - microDXP) and handel-api (Handel API Manual) in the docs folder.

MicroDXP and Vega related constants are defined in psl_udxp.h.

A compatible MicroDXP Vega must be connected to call the vega specific API items, otherwise Handel will return error `XIA_NOSUPPORT_VALUE`.

Acquisition Values

high_voltage (*double*) The DAC control voltage defined in Volts, range from 0 to 2.5 (`UDXP_HV_MAX`). This value reverts to 0 after a power cycle and needs to be reset.

Run Data

The default list of run data now represent data from when GATE = 0 (Ungated), while several new run data types are added, with suffix "_gated" to return data collected when GATE = 1 (Gated).

mca_length (*unsigned long*) The current size of the MCA data buffer for the specified channel. For Vega the maximum mca data buffer is 4096 (`VEGA_MAX_NUM_BINS`)

mca (*unsigned long **) **mca_gated** (*unsigned long **) : The MCA data array for the specified channel. The caller is expected to allocate an array of length "mca_length" and pass that in as the `value` parameter when retrieving the MCA data.

module_statistics_2 (*double **) **module_statistics_gated** (*double **) : Returns an array containing statistics for the module. The caller is responsible for allocating enough memory for at least 9 elements and passing it in as the `value` parameter. The returned data is stored in the array as follows: [runtime, trigger_livetime, energy_livetime, triggers, events, icr, ocr, underflows, overflows]

livetime (*double*) **livetime_gated** (*double*) : The calculated energy filter livetime, reported in seconds.

realtime (*double*) **realtime_gated** (*double*) : The runtime, reported in seconds.

input_count_rate (*double*) **input_count_rate_gated** (*double*) : The measured input count rate, reported as counts / second.

output_count_rate (*double*) **output_count_rate_gated** (*double*) : The output count rate, reported as counts / second.

events_in_run (*unsigned long*) **events_in_run_gated** (*unsigned long*) : The total number of events in the current run, implemented as the sum of the MCA bins.

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Handel

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