libcin

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2 **Module Index**

Class Index

2.1 Class List

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File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

src/cin.h																					
src/cin_register_map.h																					
src/cinregisters.h					 																??
src/common.h					 																??
src/config.h					 																??
src/control.h																					
src/data.h					 																??
src/descramble.h																					
src/descramble_map.h																					
src/fclk_program.h																					
src/fifo.h																					
src/report.h					 																??
src/version.h					 																??

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Module Documentation

4.1 Cin Control Routines

Functions

```
int cin_ctl_init (cin_ctl_t *cin, const char *ipaddr, uint16_t oport, uint16_t iport, uint16_t siport)
int cin_ctl_destroy (cin_ctl_t *cin)
int cin_ctl_read (cin_ctl_t *cin, uint16_t reg, uint16_t *val)
int cin_ctl_write (cin_ctl_t *cin, uint16_t reg, uint16_t val, int wait)
int cin_ctl_stream_write (cin_ctl_t *cin, char *val, int size)
int cin_ctl_write_with_readback (cin_ctl_t *cin, uint16_t reg, uint16_t val)
```

- int cin_ctl_pwr (cin_ctl_t *cin, int pwr)
- int cin_ctl_fp_pwr (cin_ctl_t *cin, int pwr)
- int cin ctl fo test pattern (cin ctl t *cin, int on off)
- int cin_ctl_load_config (cin_ctl_t *cin, char *filename)
- int cin ctl load firmware (cin ctl t *cin, char *filename)
- int cin_ctl_set_fclk (cin_ctl_t *cin, int clkfreq)
- int cin_ctl_get_fclk (cin_ctl_t *cin, int *clkfreq)
- int cin ctl freeze dco (cin ctl t *cin, int freeze)
- int cin_ctl_get_cfg_fpga_status (cin_ctl_t *cin, uint16_t *_val)
- int cin_ctl_get_id (cin_ctl_t *cin, cin_ctl_id_t *_val)
- void cin_ctl_display_id (FILE *out, cin_ctl_id_t val)
- void cin_ctl_display_fpga_status (FILE *out, uint16_t val)
- int cin_ctl_get_dcm_status (cin_ctl_t *cin, uint16_t *_val)
- void cin_ctl_display_dcm_status (FILE *out, uint16_t *_val)
- double cin ctl current calc (uint16 t val)
- int cin_ctl_get_power_status (cin_ctl_t *cin, int full, int *pwr, cin_ctl_pwr_mon_t *values)
- void cin_ctl_display_pwr (FILE *out, cin_ctl_pwr_mon_t *values)
- void cin_ctl_display_pwr_line (FILE *out, const char *msg, cin_ctl_pwr_val_t val)
- int cin_ctl_calc_vi_status (cin_ctl_t *cin, uint16_t vreg, uint16_t ireg, double vfact, cin_ctl_pwr_val_t *vi)
- int cin ctl get camera pwr (cin ctl t *cin, int *val)
- int cin_ctl_set_camera_pwr (cin_ctl_t *cin, int val)
- int cin ctl set bias (cin ctl t *cin, int val)
- int cin_ctl_get_bias (cin_ctl_t *cin, int *val)
- int cin_ctl_set_clocks (cin_ctl_t *cin, int val)
- int cin ctl get clocks (cin ctl t *cin, int *val)
- int cin_ctl_set_trigger (cin_ctl_t *cin, int val)
- int cin_ctl_get_trigger (cin_ctl_t *cin, int *val)
- int cin_ctl_set_focus (cin_ctl_t *cin, int val)

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- int cin_ctl_get_focus (cin_ctl_t *cin, int *val)
- int cin_ctl_get_triggering (cin_ctl_t *cin, int *trigger)
- int cin_ctl_int_trigger_start (cin_ctl_t *cin, int nimages)
- int cin_ctl_int_trigger_stop (cin_ctl_t *cin)
- int cin_ctl_ext_trigger_start (cin_ctl_t *cin, int trigger_mode)
- int cin ctl ext trigger stop (cin ctl t *cin)
- int cin_ctl_set_exposure_time (cin_ctl_t *cin, float e_time)
- int cin_ctl_set_trigger_delay (cin_ctl_t *cin, float t_time)
- int cin ctl set cycle time (cin ctl t *cin, float ftime)
- int cin_ctl_frame_count_reset (cin_ctl_t *cin)
- int cin_ctl_set_mux (cin_ctl_t *cin, int setting)
- int cin_ctl_get_mux (cin_ctl_t *cin, int *setting)
- int cin_ctl_set_fcric_gain (cin_ctl_t *cin, int gain)
- int cin ctl set fabric address (cin ctl t *cin, char *ip)
- int cin_ctl_reg_dump (cin_ctl_t *cin, FILE *fp)
- int cin_ctl_get_bias_voltages (cin_ctl_t *cin, float *voltage)
- int cin_ctl_set_bias_voltages (cin_ctl_t *cin, float *voltage)
- int cin_ctl_set_fcric_clamp (cin_ctl_t *cin, int clamp)

4.1.1 Detailed Description

4.1.2 Function Documentation

4.1.2.1 int cin_ctl_destroy (cin_ctl_t * cin)

Destroy (close) the cin control library

Close connections, free memory and exit library

Parameters

cin	handle to cin library

Returns

Returns 0 on sucsess non-zero if error

4.1.2.2 int cin ctl init (cin ctl t * cin, const char * ipaddr, uint16 t oport, uint16 t iport, uint16 t soport, uint16 t so

Initialize the cin control library

Initialize the control structures and communications with the CIN via the control interface. This function opens the UDP ports and starts a listening thread to recieve packets from the CIN.

Parameters

cin	handle to cin library
ipaddr	ip address of CIN base address
oport	output udp port of cin
iport	input udp port of cin
soport	stream output udp port of cin
siport	stream input udp port of cin

Returns

Returns 0 on sucsess non-zero if error

4.1 Cin Control Routines 9

4.1.2.3 int cin_ctl_read (cin_ctl_t * cin, uint16_t reg, uint16_t * val)

Read register from CIN

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Parameters

cin	handle to cin library
reg	register to read
val	variable to read value of register to

Returns

Returns 0 on sucsess non-zero if error

4.1.2.4 int cin_ctl_stream_write (cin_ctl_t * cin, char * val, int size)

Write stream data to CIN

Parameters

cin	handle to cin library
val	array of values to write
size	size of array pointed to by val

Write stream data to cin in form of 16 bit array.

Returns

Returns 0 on sucsess non-zero if error

4.1.2.5 int cin_ctl_write (cin_ctl_t * cin, uint16_t reg, uint16_t val, int wait)

Write register to CIN

Parameters

cin	handle to cin library
reg	register to write to
val	value to write to register
wait	if non-zero

Write register value to CIN. If wait is non-zero then wait a sleep time of i CIN_CTL_WRITE_SLEEP before releasing the mutex to add flow control to the cin.

Returns

Returns 0 on sucsess non-zero if error

4.1.2.6 int cin_ctl_write_with_readback (cin_ctl_t * cin, uint16_t reg, uint16_t val)

Write register to CIN with readback verification

Parameters

cin	handle to cin library
reg	register to write to
val	value to write to register

Write register value to CIN. Follow write with read of register and compare value. CIN_CTL_WRITE_SLEEP before releasing the mutex to add flow control to the cin.

Returns

Returns 0 on sucsess non-zero if error

4.2 CIN Data Framestore Functions

Data group

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Class Documentation

5.1 cin_ctl Struct Reference

Public Attributes

- cin_port_t ctl_port
- cin_port_t stream_port
- cin_ctl_config_t config
- cin_ctl_listener_t * listener
- pthread_mutex_t access
- pthread_mutexattr_t access_attr

The documentation for this struct was generated from the following file:

• src/cin.h

5.2 cin_ctl_config Struct Reference

Public Attributes

- char name [CIN_CONFIG_MAX_STRING]
- char firmware_filename [CIN_CONFIG_MAX_STRING]
- int overscan
- int columns
- · int fclk
- uint16_t timing [CIN_CONFIG_MAX_DATA][2]
- int timing_len
- uint16_t fcric [CIN_CONFIG_MAX_DATA][2]
- int fcric_len
- uint16_t bias [CIN_CONFIG_MAX_DATA][2]
- int bias_len

The documentation for this struct was generated from the following file:

• src/cin.h

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5.3 cin_ctl_id Struct Reference

Public Attributes

- uint16_t board_id
- uint16_t serial_no
- uint16_t fpga_ver

The documentation for this struct was generated from the following file:

· src/cin.h

5.4 cin_ctl_listener Struct Reference

Public Attributes

- struct cin_port * cp
- · fifo ctl fifo
- · pthread_t thread_id

The documentation for this struct was generated from the following file:

· src/cin.h

5.5 cin_ctl_pwr_mon_t Struct Reference

Public Attributes

- cin_ctl_pwr_val_t bus_12v0
- · cin ctl pwr val t mgmt 3v3
- cin_ctl_pwr_val_t mgmt_2v5
- cin_ctl_pwr_val_t mgmt_1v2
- cin_ctl_pwr_val_t enet_1v0
- cin_ctl_pwr_val_t s3e_3v3
- cin_ctl_pwr_val_t gen_3v3
- cin_ctl_pwr_val_t gen_2v5
- cin_ctl_pwr_val_t v6_0v9
- cin_ctl_pwr_val_t v6_1v0
- cin_ctl_pwr_val_t v6_2v5
- cin_ctl_pwr_val_t fp

The documentation for this struct was generated from the following file:

• src/cin.h

5.6 cin_ctl_pwr_val Struct Reference

Public Attributes

• double i

double v

The documentation for this struct was generated from the following file:

• src/cin.h

5.7 cin_data Struct Reference

Public Attributes

- fifo * packet_fifo
- fifo * frame_fifo
- fifo * image_fifo
- cin_data_threads_t listen_thread
- · cin_data_threads_t assembler_thread
- cin_data_threads_t descramble_thread
- pthread_mutex_t listen_mutex
- pthread_mutex_t assembler_mutex
- pthread_mutex_t descramble_mutex
- pthread_mutex_t stats_mutex
- pthread_mutex_t framestore_mutex
- cin_data_callbacks_t callbacks
- cin_port_t dp
- struct timespec framerate
- · unsigned long int dropped_packets
- unsigned long int mallformed_packets
- uint16_t last_frame
- descramble_map_t map
- int framestore_mode
- · struct timespec framestore_trigger
- int framestore_counter

The documentation for this struct was generated from the following file:

• src/cin.h

5.8 cin_data_callbacks Struct Reference

Public Attributes

- void *(* push)(cin_data_frame_t *)
- void *(* pop)(cin_data_frame_t *)
- cin_data_frame_t * frame

The documentation for this struct was generated from the following file:

• src/cin.h

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5.9 cin_data_frame Struct Reference

Public Attributes

- uint16_t * data
- uint16_t number
- struct timespec timestamp
- int size x
- int size_y
- void * usr_ptr

The documentation for this struct was generated from the following file:

· src/cin.h

5.10 cin_data_packet Struct Reference

Public Attributes

- unsigned char * data
- int size
- struct timespec timestamp

The documentation for this struct was generated from the following file:

• src/data.h

5.11 cin_data_proc Struct Reference

Public Attributes

- void *(* input_get)(void *, int)
- void *(* input_put)(void *, int)
- void * input_args
- · int reader
- void *(* output_put)(void *)
- void *(* output_get)(void *)
- void * output_args
- cin_data_t * parent

The documentation for this struct was generated from the following file:

• src/data.h

5.12 cin_data_stats Struct Reference

Public Attributes

- · int last frame
- · double framerate

- · double datarate
- double packet_percent_full
- double frame_percent_full
- · double image_percent_full
- · long int packet overruns
- long int frame_overruns
- · long int image_overruns
- long int packet_used
- · long int frame_used
- · long int image used
- · long int dropped_packets
- long int mallformed_packets

The documentation for this struct was generated from the following file:

• src/cin.h

5.13 cin_data_threads Struct Reference

Public Attributes

- · pthread_t thread_id
- · int started

The documentation for this struct was generated from the following file:

• src/cin.h

5.14 cin_map_t Struct Reference

Public Attributes

- char * name
- uint16_t reg

The documentation for this struct was generated from the following file:

· src/cinregisters.h

5.15 cin_port Struct Reference

Public Attributes

- char * srvaddr
- · char * cliaddr
- uint16_t srvport
- uint16_t cliport
- int sockfd
- struct timeval tv
- struct sockaddr_in sin_srv
- struct sockaddr_in sin_cli

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- socklen_t slen
- · int rcvbuf
- · int rcvbuf_rb

The documentation for this struct was generated from the following file:

• src/cin.h

5.16 descramble_map_t Struct Reference

Public Attributes

- uint32_t * map
- int size_x
- int size_y
- · int overscan
- int rows

The documentation for this struct was generated from the following file:

• src/cin.h

5.17 fifo Struct Reference

Public Attributes

- void * data
- void * head
- void * tail [FIFO_MAX_READERS]
- void * end
- · int readers
- · long int size
- int elem_size
- int full
- · long int overruns
- pthread_mutex_t mutex
- pthread_cond_t signal

The documentation for this struct was generated from the following file:

• src/cin.h

File Documentation

6.1 src/cin.h File Reference

```
#include <stdint.h>
#include <stdio.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <netinet/ip.h>
#include <sys/time.h>
#include <pthread.h>
```

Classes

- struct cin_ctl_config
- struct fifo
- struct cin_ctl_listener
- struct cin_port
- struct cin_ctl
- · struct cin data frame
- struct cin_data_stats
- struct cin_data_threads
- · struct cin_data_callbacks
- struct descramble_map_t
- struct cin_data
- struct cin_ctl_id
- struct cin_ctl_pwr_val
- struct cin_ctl_pwr_mon_t

Macros

- #define CIN_CTL_IP "192.168.1.207"
- #define CIN_CTL_SVR_PORT 49200
- #define CIN_CTL_CLI_PORT 50200
- #define CIN_CTL_SVR_FRMW_PORT 49202
- #define CIN_CTL_CLI_FRMW_PORT 50202
- #define CIN_CTL_MAX_READ_TRIES 10
- #define CIN_CTL_MAX_WRITE_TRIES 5
- #define CIN_CTL_WRITE_SLEEP 2000

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- #define CIN CTL POWER ENABLE 0x001F
- #define CIN CTL POWER DISABLE 0x0000
- #define CIN_CTL_FP_POWER_ENABLE 0x0020
- #define CIN CTL DCM LOCKED 0x0001
- #define CIN CTL DCM PSDONE 0x0002
- #define CIN_CTL_DCM_STATUS0 0x0004
- #define CIN CTL DCM STATUS1 0x0008
- #define CIN_CTL_DCM_STATUS2 0x0010
- #define CIN_CTL_DCM_TX1_READY 0x0020
- #define CIN CTL DCM TX2 READY 0x0040
- #define CIN CTL DCM ATCA ALARM 0x0080
- #define CIN CTL TRIG INTERNAL 0x0000
- #define CIN_CTL_TRIG_EXTERNAL_1 0x0001
- #define CIN CTL TRIG EXTERNAL 2 0x0002
- #define CIN_CTL_TRIG_EXTERNAL_BOTH 0x0003
- #define CIN CTL FOCUS BIT 0x0002
- #define CIN CTL FCLK 125 0x0000
- #define CIN CTL FCLK 200 0x0001
- #define CIN CTL FCLK 250 0x0002
- #define CIN_CTL_FCLK_125_C 0x0003
- #define CIN_CTL_FCLK_200_C 0x0004
- #define CIN CTL FCLK 250 C 0x0005
- #define CIN CTL FCLK 156 C 0x0006
- #define CIN_CTL_FPGA_STS_CFG 0x8000
- #define CIN_CTL_FPGA_STS_FP_PWR 0x0008
- #define CIN_CTL_DCM_STS_ATCA 0x0080
- #define CIN_CTL_DCM_STS_LOCKED 0x0001
- #define CIN_CTL_DCM_STS_OVERIDE 0x0800
- #define CIN CTL MUX1 VCLK1 0x0001
- #define CIN_CTL_MUX1_VCLK2 0x0002
- #define CIN_CTL_MUX1_VCLK3 0x0003
- #define CIN_CTL_MUX1_ATG 0x0004
- #define CIN_CTL_MUX1_VFSCLK1 0x0005
- #define CIN_CTL_MUX1_VFSCLK2 0x0006
- #define CIN_CTL_MUX1_VFSCLK3 0x0007
- #define CIN_CTL_MUX1_HCLK1 0x0008
- #define CIN_CTL_MUX1_HCLK2 0x0009
- #define CIN_CTL_MUX1_OSW 0x000A
- #define CIN CTL MUX1 RST 0x000B
- #define CIN CTL MUX1 CONVERT 0x000C
- #define CIN CTL MUX1 SHUTTER 0x000D
- #define CIN_CTL_MUX1_SWTRIGGER 0x000E
- #define CIN_CTL_MUX1_TRIGMON 0x000F
- #define CIN_CTL_MUX1_EXPOSE 0x0000
- #define CIN_CTL_MUX2_VCLK1 0x0010
- #define CIN_CTL_MUX2_VCLK2 0x0020
- #define CIN_CTL_MUX2_VCLK3 0x0030
- #define CIN CTL MUX2 ATG 0x0040
- #define CIN_CTL_MUX2_VFSCLK1 0x0050
- #define CIN_CTL_MUX2_VFSCLK2 0x0060
- #define CIN CTL MUX2 VFSCLK3 0x0070
- #define CIN_CTL_MUX2_HCLK1 0x0080
- #define CIN_CTL_MUX2_HCLK2 0x0090
- #define CIN_CTL_MUX2_HCLK3 0x00A0
- #define CIN CTL MUX2 OSW 0x00B0

- #define CIN_CTL_MUX2_RST 0x00C0
- #define CIN_CTL_MUX2_CONVERT 0x00D0
- #define CIN_CTL_MUX2_SAVE 0x00E0
- #define CIN CTL MUX2 HWTRIG 0x00F0
- #define CIN CTL MUX2 EXPOSE 0x0000
- #define CIN_CTL_FO_REG1 0x821D
- #define CIN CTL FO REG2 0x821E
- #define CIN_CTL_FO_REG3 0x821F
- #define CIN_CTL_FO_REG4 0x8001
- #define CIN_CTL_FO_REG5 0x8211
- #define CIN_CTL_FO_REG6 0x8212
- #define CIN_CTL_FO_REG7 0x8213
- #define CIN_DATA_IP "10.0.5.207"
- #define CIN DATA PORT 49201
- #define CIN_DATA_CTL_PORT 49203
- #define CIN DATA MAX MTU 9000
- #define CIN DATA UDP HEADER 8
- #define CIN DATA MAGIC PACKET UINT64 C(0x0000F4F3F2F1F000)
- #define CIN_DATA_MAGIC_PACKET_MASK UINT64_C(0x0000FFFFFFFFF00)
- #define CIN_DATA_TAIL_MAGIC_PACKET UINT64_C(0x010DF0ADDEF2F1F0)
- #define CIN_DATA_DROPPED_PACKET_VAL 0x2000
- #define CIN DATA DATA MASK 0x1FFF
- #define CIN_DATA_CTRL_MASK 0xE000
- #define CIN DATA SIGN MASK 0x1000
- #define CIN_DATA_GAIN_8 0xC000
- #define CIN_DATA_GAIN_4 0x4000
- #define CIN DATA PACKET LEN 8184
- #define CIN DATA MAX PACKETS 542
- #define CIN_DATA_RCVBUF 100
- #define CIN_DATA_MAX_FRAME_X 1152
- #define CIN_DATA_MAX_FRAME_Y 2050
- #define CIN_DATA_MAX_STREAM 2400000
- #define CIN_DATA_CCD_COLS 96
- #define CIN_DATA_CCD_COLS_PER_CHAN 10
- #define CIN_DATA_PIPELINE_FLUSH 1344
- #define CIN_DATA_MODE_CALLBACK 0x01
- #define NUM_BIAS_VOLTAGE 20
- #define pt_posH 0
- #define pt_negH 1
- #define pt posRG 2
- #define pt_negRG 3
- #define pt_posSW 4
- #define pt_negSW 5
- #define pt_posV 6
- #define pt_negV 7
- #define pt_posTG 8
- #define pt_negTG 9
- #define pt_posVF 10
- #define pt_negVF 11#define pt_NEDGE 12
- #define pt OTG 13
- #define pt_VDDR 14
- #define pt VDD OUT 15
- #define pt_BUF_Base 16

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- #define pt BUF Delta 17
- #define pt_Spare1 18
- #define pt_Spare2 19
- #define DEBUG_PRINT(fmt,...) if(_debug_print_flag) { fprintf(stderr, "%s:%d:%s(): " fmt, __FILE__, __LINE-__, __func__, __VA_ARGS__); }
- #define DEBUG_COMMENT(fmt) if(_debug_print_flag) { fprintf(stderr, "%s:%d:%s(): " fmt, __FILE__, __LI-NE__, __func__); }
- #define ERROR_COMMENT(fmt) if(_error_print_flag) { fprintf(stderr, "%s:%d:%s(): " fmt, __FILE__, __LIN-E__, __func__); }
- #define ERROR_PRINT(fmt,...) if(_error_print_flag) { fprintf(stderr, "%s:%d:%s(): " fmt, __FILE__, __LINE__, __func__, __VA_ARGS__); }
- #define CIN CONFIG MAX STRING 256
- #define CIN CONFIG MAX DATA 5000
- #define FIFO MAX READERS 10

Typedefs

- typedef struct cin_ctl_config cin_ctl_config_t
- typedef struct cin_ctl_listener cin_ctl_listener_t
- typedef struct cin_port cin_port_t
- typedef struct cin ctl cin ctl t
- typedef struct cin_data_frame cin_data_frame_t
- typedef struct cin_data_stats cin_data_stats_t
- typedef struct cin_data_threads cin_data_threads_t
- typedef struct cin_data_callbacks cin_data_callbacks_t
- typedef struct cin_data cin_data_t
- typedef void(* cin_data_callback)(cin_data_frame_t *)
- typedef struct cin_ctl_id cin_ctl_id_t
- typedef struct cin_ctl_pwr_val cin_ctl_pwr_val_t

Functions

- void cin set debug print (int debug)
- void cin set error print (int error)
- void cin_report (FILE *fp, int details)
- int cin_ctl_init (cin_ctl_t *cin, const char *ipaddr, uint16_t oport, uint16_t iport, uint16_t siport)
- int cin_ctl_destroy (cin_ctl_t *cin)
- int cin_ctl_read (cin_ctl_t *cin, uint16_t reg, uint16_t *val)
- int cin_ctl_write (cin_ctl_t *cin, uint16_t reg, uint16_t val, int wait)
- int cin ctl stream write (cin ctl t *cin, char *val, int size)
- int cin_ctl_write_with_readback (cin_ctl_t *cin, uint16_t reg, uint16_t val)
- int cin_ctl_pwr (cin_ctl_t *cin, int pwr)
- int cin_ctl_fp_pwr (cin_ctl_t *cin, int pwr)
- int cin_ctl_fo_test_pattern (cin_ctl_t *cin, int on_off)
- int cin ctl load config (cin ctl t *cin, char *filename)
- int cin_ctl_load_firmware (cin_ctl_t *cin, char *filename)
- int cin ctl set fclk (cin ctl t *cin, int clkfreq)
- int cin_ctl_get_fclk (cin_ctl_t *cin, int *clkfreq)
- int cin_ctl_freeze_dco (cin_ctl_t *cin, int freeze)
- int cin ctl get cfg fpga status (cin ctl t *cin, uint16 t * val)
- int cin_ctl_get_id (cin_ctl_t *cin, cin_ctl_id_t *_val)
- void cin_ctl_display_id (FILE *out, cin_ctl_id_t val)
- void cin_ctl_display_fpga_status (FILE *out, uint16_t val)

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```
• int cin_ctl_get_dcm_status (cin_ctl_t *cin, uint16_t *_val)

    void cin_ctl_display_dcm_status (FILE *out, uint16_t *_val)

· double cin ctl current calc (uint16 t val)
• int cin ctl get power status (cin ctl t *cin, int full, int *pwr, cin ctl pwr mon t *values)

    void cin_ctl_display_pwr (FILE *out, cin_ctl_pwr_mon_t *values)

    void cin_ctl_display_pwr_line (FILE *out, const char *msg, cin_ctl_pwr_val_t val)

    int cin_ctl_calc_vi_status (cin_ctl_t *cin, uint16_t vreg, uint16_t ireg, double vfact, cin_ctl_pwr_val_t *vi)

• int cin_ctl_get_camera_pwr (cin_ctl_t *cin, int *val)
• int cin ctl set camera pwr (cin ctl t *cin, int val)
• int cin_ctl_set_bias (cin_ctl_t *cin, int val)

    int cin ctl get bias (cin ctl t *cin, int *val)

    int cin_ctl_set_clocks (cin_ctl_t *cin, int val)

• int cin_ctl_get_clocks (cin_ctl_t *cin, int *val)

    int cin ctl set trigger (cin ctl t *cin, int val)

    int cin_ctl_get_trigger (cin_ctl_t *cin, int *val)

• int cin ctl set focus (cin ctl t *cin, int val)

    int cin ctl get focus (cin ctl t *cin, int *val)

    int cin_ctl_get_triggering (cin_ctl_t *cin, int *trigger)

• int cin_ctl_int_trigger_start (cin_ctl_t *cin, int nimages)
• int cin ctl int trigger stop (cin ctl t *cin)
• int cin ctl ext trigger start (cin ctl t *cin, int trigger mode)

    int cin_ctl_ext_trigger_stop (cin_ctl_t *cin)

• int cin_ctl_set_exposure_time (cin_ctl_t *cin, float e_time)
• int cin_ctl_set_trigger_delay (cin_ctl_t *cin, float t_time)
• int cin ctl set cycle time (cin ctl t *cin, float ftime)

    int cin_ctl_frame_count_reset (cin_ctl_t *cin)

int cin_ctl_set_mux (cin_ctl_t *cin, int setting)

    int cin ctl get mux (cin ctl t *cin, int *setting)

• int cin_ctl_set_fcric_gain (cin_ctl_t *cin, int gain)
• int cin ctl set fabric address (cin ctl t *cin, char *ip)
• int cin ctl reg dump (cin ctl t *cin, FILE *fp)

    int cin_ctl_get_bias_voltages (cin_ctl_t *cin, float *voltage)

    int cin_ctl_set_bias_voltages (cin_ctl_t *cin, float *voltage)

• int cin_ctl_set_fcric_clamp (cin_ctl_t *cin, int clamp)
• int cin config read file (cin ctl t *cin, const char *file)
• int cin data init (cin data t *cin, int mode, int packet buffer len, int frame buffer len, char *ipaddr, uint16-
  _t port, char *cin_ipaddr, uint16_t cin_port, int rcvbuf, cin_data_callback push_callback, cin_data_callback
  pop_callback, void *usr_ptr)

    void cin_data_wait_for_threads (cin_data_t *cin)

    void cin_data_stop_threads (cin_data_t *cin)

    void cin_data_framestore_trigger (cin_data_t *cin, int count)

• void cin data framestore skip (cin data t *cin, int count)

    int cin data get framestore counter (cin data t *cin)

    void cin_data_framestore_disable (cin_data_t *cin)

    void cin_data_framestore_trigger_enable (cin_data_t *cin)

    struct cin_data_frame * cin_data_get_next_frame (cin_data_t *cin)

    void cin_data_release_frame (cin_data_t *cin, int free_mem)

    struct cin data frame * cin data get buffered frame (void)

    void cin_data_release_buffered_frame (void)

    void cin_data_compute_stats (cin_data_t *cin, cin_data_stats_t *stats)

    void cin data show stats (FILE *fp, cin data stats t stats)

    void cin data reset stats (cin data t *cin)

• int cin data set descramble params (cin data t *cin, int rows, int overscan)
```

• void cin data get descramble params (cin data t *cin, int *rows, int *overscan, int *xsize, int *ysize)

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Variables

- const char * cin build git time
- const char * cin_build_git_sha
- const char * cin_build_version
- int debug print flag
- int _error_print_flag

6.1.1 Detailed Description

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6.1.2 LICENSE

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6.1.3 DESCRIPTION

header file for CIN communications

6.1.4 Function Documentation

6.1.4.1 void cin_data_framestore_disable (cin_data_t * cin)

Disable the framestore modes

This function disables the framestore modes (software trigger and skip). If the camera is hardware triggering then the images will start to be processed.

Parameters

cin	Handle to the cin library
-----	---------------------------

6.1.4.2 void cin_data_framestore_skip (cin_data_t * cin, int count)

Enable framestore skip mode

Enable the framestore skip mode. This function should be called before hardware triggering the camera. This causes the data processing to skip

Parameters

count	frames from the first images to be read. This is usually done to stop the first few frames from
	being over exposed.
cin	handle to the cin_data library

6.1.4.3 void cin_data_framestore_trigger (cin_data_t * cin, int count)

Send a framestore (software) trigger

Send a software trigger to the CIN by timestamping the request time and allow images to be processed when recieved after this time. The function is enabled by setting the framestore mode to CIN_DATA_FRAMESTORE_T-RIGGER. The count option sets the number of frames to trigger. A value of -1 indicated that the trigger should not count images but run indefinately after the trigger has occured.

Parameters

cin	handle to the cin_data library
count	number of frames to trigger

6.1.4.4 void cin_data_framestore_trigger_enable (cin_data_t * cin)

Enable the framestore trigger mode

This function enables the framestore trigger mode. It cases the images to not be processed pending a call to the function to (software) trigger the camera.

Parameters

cin	Handle to the cin library

6.1.4.5 int cin_data_get_framestore_counter (cin_data_t * cin)

Get the value of the framestore counter

Return the number of frames in the framestore counter. In trigger mode, this returns the number of frames to go. In skip mode, this returns the number of frames that have to be skipped.

Parameters

cin handle to the cin_data library

Returns

Number of frames to go in trigger

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6.1.4.6 int cin_data_init (cin_data_t * cin, int mode, int packet_buffer_len, int frame_buffer_len, char * ipaddr, uint16_t port, char * cin_ipaddr, uint16_t cin_port, int rcvbuf, cin_data_callback push_callback, cin_data_callback pop_callback, void * usr_ptr)

Initialize the cin data library

Initialize the data handeling routines and start the threads for listening. mode should be set for the desired output. The packet_buffer_len in the length of the packet FIFO in number of packets. The frame_buffer_len is the number of data frames to buffer.

Parameters

cin	Handle to cin data library	

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