1 Reference "The Sofie Electrical and Software Interface Control Document
2 SDL/04-040 rev B" for additional information
3
4 **Detector Samples:**
5

DB Field	Units	Description	Related Equations
SAMPLE_ID	bigint(20)	pk	
PACKET_ID	bigint(20)	Identifier to relate science data	
SAMPLE_NUMBER	tinyint(4)	1 of 7 samples. (7 samples of info per packet)	
REPROCESSING_COUNT	int(11)	Indicates the number of times the data has been processed	
VERSION_ID	varchar(8)	Version of Level0 Software used to process data	
DETECTOR_TIME_STAMP	datetime	Packet time value in "2007-02-05 05:10:13" format	
SAMPLE_MICROSECONDS	int(11)	Packet time value in microseconds	
DETECTOR_1	int(11)	Counts for detector channel 1 O3 (s)	$(\#THIS\# / 32767) * 3$
DETECTOR_2	int(11)	C Counts for detector channel 2 O3 (w)	
DETECTOR_3	int(11)	Counts for detector channel 3 PMC	
DETECTOR_4	int(11)	Counts for detector channel 4 PMC	
DETECTOR_5	int(11)	Counts for detector channel 5 H2O (w)	
DETECTOR_6	int(11)	Counts for detector channel 6 H2O (s)	
DETECTOR_7	int(11)	Counts for detector channel 7 CO2 (s)	
DETECTOR_8	int(11)	Counts for detector channel 8 CO2 (w)	
DETECTOR_9	int(11)	Counts for detector channel 9 PMC	
DETECTOR_10	int(11)	Counts for detector channel 10 PMC	
DETECTOR_11	int(11)	Counts for detector channel 11 CH4 (s)	
DETECTOR_12	int(11)	Counts for detector channel 12 CH4 (w)	
DETECTOR_13	int(11)	Counts for detector channel 13 CO2 (s)	
DETECTOR_14	int(11)	Counts for detector channel 14 CO2 (w)	
DETECTOR_15	int(11)	Counts for detector channel 15 NO (w)	
DETECTOR_16	int(11)	Counts for detector channel 16 NO (s	
DIFFERENCE_1_2	int(11)	Difference between detector signals 2-1	
DIFFERENCE_3_4	int(11)	Difference between detector signals 4-3	
DIFFERENCE_5_6	int(11)	Difference between detector signals 6-5	
DIFFERENCE_7_8	int(11)	Difference between detector signals 8-7	
DIFFERENCE_9_10	int(11)	Difference between detector signals 10-9	
DIFFERENCE_11_12	int(11)	Difference between detector signals 12-11	
DIFFERENCE_13_14	int(11)	Difference between detector signals 14-13	
DIFFERENCE_15_16	int(11)	Difference between detector signals 16-15	

6
7 **Diagnostic_Packets**
8

DB Field	Units	Description
PACKET_ID	bigint(20)	pk
PACKET_DATETIME	datetime	Packet time value in "2007-02-05 05:10:13" format
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header
PACKET_APID	smallint(6)	APID of packet being currently processed (0x185)

PACKET_CRC	int(11)	Packet CRC32 checksum
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"
PACKET_SOURCE_SEQUENCE_COUNT	smallint(5)	CCSDS Packet Source Sequence Count
PACKET_LENGTH	smallint(5)	CCSDS Packet Length
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data
DIAGNOSTIC_PACKET_IDENTIFIER	int(10)	Specifies the type of diagnostic packet (EEPROM, SRAM, instruction SRAM, etc.)
DIAGNOSTIC_PACKET_BUFFER	blob	Contains the binary information from the data section of the packet.
DIAGNOSTIC_PACKET_BUFFER_LENGTH	int(10)	Length of the binary Diagnostic Packet Buffer.
PACKET_SOURCE_SEQUENCE_FLAGS	int(11)	CCSDS flags generated from the instrument about the source sequence counter.

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11 **Event_Ancillary:**

DB Field	Units	Description
EVENT_ID	bigint(20)	Pk
EVENT_TYPE	varchar(32)	Sunrise or sunset event
ORBIT_NUMBER	int(11)	orbit number that corresponds to the event start time, defined in the orbit_numbers.txt file for level0b code
BEGIN_TIME	datetime	Start time for the event
END_TIME	datetime	Ending time of the event
TABLE_NUMBER	int(11)	Which event table is in use
EVENT_NUMBER	int(5)	Current CommandHistory.txt table event number
30_KM_AVERAGE_LAT	int(11)	Currently, both values are NULL
30_KM_AVERAGE_LON	int(11)	
CAL_START_TIME	datetime	Beginning time for calibration
CAL_END_TIME	datetime	Ending time for calibration
CAL_TYPE	varchar(32)	Curent event calibration type (the current event table number)
OCC_START_TIME	datetime	Beginning time for occultation
OCC_END_TIME	datetime	Ending time for occultation
AVERAGE_BETA	double	Currently, this value is always NULL
SPACECRAFT_LAT	int(11)	Latitude of the spacecraft
SPACECRAFT_LON	int(11)	Longitude of the spacecraft
SPACECRAFT_ALT	int(11)	Altitude of the spacecraft
IS_PREDICTED_EVENT	tinyint(4)	Currently, this value is always "0"
DROPPED_PACKETS	int(11)	Total number of dropped packets
HK_DATA_QUALITY	int(5)	Number of dropped packets in housekeeping packet
DIAG_DATA_QUALITY	int(5)	Number of dropped packets in diagnostic packet
DC_DATA_QUALITY	int(5)	Number of dropped packets in dc packet
SYS_DATA_QUALITY	int(5)	Number of dropped packets in system packet
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed

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13 **EVENT_TAGS:**

DB Field	Units	Description
EVT_TAG_ID	Int(10)	pk
TIME	datetime	Event Time
TAG_TYPE	Varchar(15)	1 of 4 values: OCC, CAL, EVENT, or BALANCE
PARAM1	Varchar(5)	For OCC, CAL, EVENT tags, this value will be either BEGIN or

		END. For the BALANCE tag, this value will be the Detector Number
PARAM2	Varchar(5)	Only applicable for the BALANCE tag. Value will be the ATTENUATOR SETTING in percentage of full signal. (0 – 1 Where 0 is full attenuation with no signal and 1 is no attenuation with full signal.
VERSION_ID	Varchar(8)	Level0b Software version used to process data
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed

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15 **Housekeeping _Packets:**

DB Field	Units	Description	Related Equations
PACKET_ID	bigint(20)	Pk	
PACKET_DATETIME	datetime	Packet time value in "2007-02-05 05:10:13" format	
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header	
PACKET_APID	smallint(6)	APID of packet being currently processed (0x180)	
PACKET_CRC	int(11)	Packet CRC32 checksum	
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"	
PACKET_SOURCE_SEQUENCE_COUNT	smallint(5)	CCSDS Packet Source Sequence Count	
PACKET_LENGTH	smallint(5)	CCSDS Packet Length	
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed	
VERSION_ID	varchar(8)	Version of Level0 Software used to process data	
APERTURE_HOUSING_TEMPERATURE	int(11)	(ext) temperature sensor, Aperture housing	0.01171824341 * #THIS# - 256.0333
CHANNEL_1_REFERENCE_RESISTOR_1380	int(11)	(int) Reference resistor, 1.38 KOhms = 373 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_1_REFERENCE_RESISTOR_200	int(11)	(int) Reference resistor, 200 Ohms = 77 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_2_REFERENCE_RESISTOR_1380	int(11)	(int) Reference resistor, 1.38 KOhms = 373 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_2_REFERENCE_RESISTOR_200	int(11)	(int) Reference resistor, 200 Ohms = 77 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_3_REFERENCE_RESISTOR_1380	int(11)	(int) Reference resistor, 1.38 KOhms = 373 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_3_REFERENCE_RESISTOR_200	int(11)	(int) Reference resistor, 200 Ohms = 77 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_4_REFERENCE_RESISTOR_1380	int(11)	(int) Reference resistor, 1.38 KOhms = 373 Kelvin	0.01171824341 * #THIS# - 256.0333
CHANNEL_4_REFERENCE_RESISTOR_200	int(11)	(int) Reference resistor, 200 Ohms = 77 Kelvin	0.01171824341 * #THIS# - 256.0333
CHOPPER_HEALTH_LEFT_CHANNEL_TEMPERATURE	int(11)	Chopper health left channel	0.00004577637 * #THIS#

CHOPPER_HEALTH_RIGHT_CHANNEL_TEMPERATURE	int(11)	Chopper health right channel	
CHOPPER_PCB_TEMPERATURE	int(11)	(int) temperature sensor, Chopper PCB	0.01171824341 * #THIS# - 256.0333
COMMAND_AND_DATA_HANDLING_PCB_TEMPERATURE	int(11)	(int) temperature sensor, C&DH PCB	0.01171824341 * #THIS# - 256.0333
CSM_NEAR/FAR_FILTER_RETAINER_TEMPERATURE	int(11)	(ext) temperature sensor, CSM near/far filter retainer	0.01171824341 * #THIS# - 256.0333
CSM_NEAR_OPTICS_HOUSING_TEMPERATURE	int(11)	(ext) temperature sensor, CSM near optics housing #1	
DETECTOR_10_TEMPERATURE	int(11)	Detector 10 Temperature	(-5.58394e-34 * (#THIS# ^ 7)) + (5.1701e-28 * (#THIS# ^ 6)) + (-1.91918e-22 * (#THIS# ^ 5)) + (3.65373e-17 * (#THIS# ^ 4)) + (-3.79526e-12 * (#THIS# ^ 3)) + (2.13015e-7 * (#THIS# ^ 2)) + (-0.00627892803 * #THIS#) + 30.8576
DETECTOR_11_TEMPERATURE	int(11)	Detector 11 Temperature	
DETECTOR_12_TEMPERATURE	int(11)	Detector 12 Temperature	
DETECTOR_13_TEMPERATURE	int(11)	Detector 13 Temperature	
DETECTOR_14_TEMPERATURE	int(11)	Detector 14 Temperature	
DETECTOR_15_TEMPERATURE	int(11)	Detector 15 Temperature	
DETECTOR_16_TEMPERATURE	int(11)	Detector 16 Temperature	
DETECTOR_1_TEMPERATURE	int(11)	Detector 1 Temperature	
DETECTOR_2_TEMPERATURE	int(11)	Detector 2 Temperature	
DETECTOR_3_TEMPERATURE	int(11)	Detector 3 Temperature	
DETECTOR_4_TEMPERATURE	int(11)	Detector 4 Temperature	
DETECTOR_5_TEMPERATURE	int(11)	Detector 5 Temperature	
DETECTOR_6_TEMPERATURE	int(11)	Detector 6 Temperature	
DETECTOR_7_TEMPERATURE	int(11)	Detector 7 Temperature	
DETECTOR_8_TEMPERATURE	int(11)	Detector 8 Temperature	
DETECTOR_9_TEMPERATURE	int(11)	Detector 9 Temperature	
DUST_COVER_HINGE_TEMPERATURE	int(11)	(ext) temperature sensor, Dust cover hinge	0.01171824341 * #THIS# - 256.0333
MID_OPTICS_BRACKET_TEMPERATURE	int(11)	(ext) temperature sensor, Mid optics bracket	0.01171824341 * #THIS# - 256.0333
PIN_PULLER_TEMPERATURE	int(11)	(ext) temperature sensor, Pin puller	0.01171824341 * #THIS# - 256.0333
PRT_VOLTAGE_REFERENCE_CHANNEL_1	int(11)	PRT voltage reference channel 1	0.00011444092 * #THIS#
PRT_VOLTAGE_REFERENCE_CHANNEL_2	int(11)	PRT voltage reference channel 2	
PRT_VOLTAGE_REFERENCE_CHANNEL_3	int(11)	PRT voltage reference channel 3	
PRT_VOLTAGE_REFERENCE_CHANNEL_4	int(11)	PRT voltage reference channel 4	
PS_CURRENT_MONITOR_+12V_I	int(11)	PS Current Monitor +12V_I	0.00008764885 * #THIS# + 0.0547
PS_CURRENT_MONITOR_+12V_SM	int(11)	PS Current Monitor +12V_SM	0.00008719308 * #THIS# - 0.035
PS_CURRENT_MONITOR_+2.5V_FPGA	int(11)	PS Current Monitor +2.5V FPGA	0.00001116497 * #THIS# - 0.0029
PS_CURRENT_MONITOR_+2.5V_TEC	int(11)	PS Current Monitor +2.5V TEC	
PS_CURRENT_MONITOR_+3.3V_TEC	int(11)	PS Current Monitor +3.3V TEC	0.00021978283 * #THIS# - 0.0202
PS_CURRENT_MONITOR_+5V	int(11)	PS Current Monitor +5V	0.00022043371 * #THIS# + 0.0567
PS_CURRENT_MONITOR_-12V_I	int(11)	PS Current Monitor -12V_I	0.00008756084 *

			#THIS# - 0.0202
PS_CURRENT_MONITOR_-12V_SM	int(11)	PS Current Monitor -12V_SM	0.00008719308 * #THIS# - 0.0197
PS_VOLTAGE_MONITOR_+12V_I	int(11)	PS Voltage Monitor +12V_I	0.00045959473 * #THIS#
PS_VOLTAGE_MONITOR_+12V_SM	int(11)	PS Voltage Monitor +12V_SM	0.00045959473 * #THIS#
PS_VOLTAGE_MONITOR_+2.5V_FPGA	int(11)	PS Voltage Monitor +2.5V FPGA	0.00018310547 * #THIS#
PS_VOLTAGE_MONITOR_+2.5V_TEC	int(11)	PS Voltage Monitor +2.5V TEC	0.00018310547 * #THIS#
PS_VOLTAGE_MONITOR_+3.3V_TEC	int(11)	PS Voltage Monitor +3.3V TEC	0.00018310547 * #THIS#
PS_VOLTAGE_MONITOR_+5V	int(11)	PS Voltage Monitor +5V	0.00018310547 * #THIS#
PS_VOLTAGE_MONITOR_-12V_I	int(11)	PS Voltage Monitor -12V_I	0.00045959473 * #THIS#
PS_VOLTAGE_MONITOR_-12V_SM	int(11)	PS Voltage Monitor -12V_SM	0.00045959473 * #THIS#
SSG_MIRROR_AMPLIFIER_PCB_TEMPERATURE	int(11)	(int) temperature sensor, SSG Mirror amplifier PCB	0.01171824341 * #THIS# - 256.0333
SSG_SERVO_I/O_PCB_TEMPERATURE	int(11)	(int) temperature sensor, SSG Servo I/O PCB	
STEERING_MIRROR_BASEPLATE_TEMPERATURE	int(11)	(ext) temperature sensor, Steering mirror baseplate	0.01171824341 * #THIS# - 256.0333
FORE_OPTICS_BENCH_3_TEMPERATURE	int(11)	(ext) temperature sensor, Fore optics bracket	0.01171824341 * #THIS# - 256.0333
STEERING_MIRROR_TEMPERATURE	int(11)	(ext) temperature sensor, Steering mirror	0.01171824341 * #THIS# - 256.0333
SUN_SENSOR_HOUSING_TEMPERATURE	int(11)	(ext) temperature sensor, Sun sensor housing	0.01171824341 * #THIS# - 256.0333
SUN_SENSOR_PCB_TEMPERATURE	int(11)	(ext) temperature sensor, Sun sensor PCB	
TEC_VOLTAGE_REFERENCE_CHANNEL_1	int(11)	TEC voltage reference channel 1	0.00011444092 * #THIS#
TEC_VOLTAGE_REFERENCE_CHANNEL_2	int(11)	TEC voltage reference channel 2	
TEC_VOLTAGE_REFERENCE_CHANNEL_3	int(11)	TEC voltage reference channel 3	
TEC_VOLTAGE_REFERENCE_CHANNEL_4	int(11)	TEC voltage reference channel 4	
TEC_VOLTAGE_REFERENCE_CHANNEL_5	int(11)	TEC voltage reference channel 5	
TEC_VOLTAGE_REFERENCE_CHANNEL_6	int(11)	TEC voltage reference channel 6	
TEC_VOLTAGE_REFERENCE_CHANNEL_7	int(11)	TEC voltage reference channel 7	
TEC_VOLTAGE_REFERENCE_CHANNEL_8	int(11)	TEC voltage reference channel 8	
BASE_DECK_TEMPERATURE	int(11)	(ext) temperature sensor, Base deck of SOFIE	0.01171824341 * #THIS# - 256.0333
CABLE_BULKHEAD_TEMPERATURE	int(11)	(ext) temperature sensor, Cable bulkhead	0.01171824341 * #THIS# - 256.0333
CHOPPER_HEALTH_LEFT_CHANNEL_VOLTAGE	int(11)	Voltage indicator for left side of chopper	0.00004577637 * #THIS#

CHOPPER_HEALTH_RIGHT_CHANNEL_VOLTAGE	int(11)	Voltage indicator for right side of chopper	
16_CHECKSUM	int(11)	CRC16 checksum	
CSM_BEAMSPLITTER_TEMPERATURE	int(11)		0.01171824341 * #THIS# - 256.0333
PS_CURRENT_MONITOR_+3.3V_TEC2	int(11)	PS Current Monitor +3.3V_TEC2	0.00022043371 * #THIS# + 0.1241
PS_VOLTAGE_MONITOR_+2.5V_TEC2	int(11)	PS Voltage Monitor +2.5V_TEC2	0.00018310547 * #THIS#
SOFIE_RADIATOR_CENTER_TEMPERATURE	int(11)	(ext) temperature sensor, Center of radiator	0.01171824341 * #THIS# - 256.0333
SOFIE_RADIATOR_TOP_TEMPERATURE	int(11)	(ext) temperature sensor, Top of Radiator	
AFT_OPTICS_BENCH_1_TEMPERATURE	int(11)	(ext) temperature sensor, Aft optics bench #1	0.01171824341 * #THIS# - 256.0333
AFT_OPTICS_BENCH_2_TEMPERATURE	int(11)	(ext) temperature sensor, Aft optics bench #2	
AFT_OPTICS_BENCH_3_TEMPERATURE	int(11)	(ext) temperature sensor, Aft optics bench #3	
CSM_FAR_OPTICS_HOUSING_1_TEMPERATURE	int(11)	(ext) temperature sensor, CSM far optics housing #1	0.01171824341 * #THIS# - 256.0333
CSM_FILTER_RETAINER_1_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #1	0.01171824341 * #THIS# - 256.0333
CSM_FILTER_RETAINER_2_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #2	
CSM_FILTER_RETAINER_3_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #3	
CSM_FILTER_RETAINER_4_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #4	
CSM_FILTER_RETAINER_5_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #5	
CSM_FILTER_RETAINER_6_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #6	
CSM_FILTER_RETAINER_7_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #7	
CSM_FILTER_RETAINER_8_TEMPERATURE	int(11)	(ext) temperature sensor, CSM filter retainer #8	
DATA_ACQUISITION_PCB_1_TEMPERATURE	int(11)	(int) temperature sensor, Data acquisition PCB #1	0.01171824341 * #THIS# - 256.0333
DATA_ACQUISITION_PCB_2_TEMPERATURE	int(11)	(int) temperature sensor, Data acquisition PCB #2	
ELECTRONICS_BOX_BASEPLATE_1_TEMPERATURE	int(11)	(int) temperature sensor, Electronics box baseplate #1	0.01171824341 * #THIS# - 256.0333
ELECTRONICS_BOX_BASEPLATE_2_TEMPERATURE	int(11)	(int) temperature sensor, Electronics box baseplate #2	
FORE_OPTICS_BENCH_1_TEMPERATURE	int(11)	(ext) temperature sensor, Fore optics bench #1	0.01171824341 * #THIS# - 256.0333
FORE_OPTICS_BENCH_2_TEMPERATURE	int(11)	(ext) temperature sensor, Fore optics bench #2	
SIGNAL_CONDITIONING_/_TEC_PCB_1_TEMPERATURE	int(11)	(int) temperature sensor, Signal Conditioning / TEC PCB #1	0.01171824341 * #THIS# - 256.0333
SIGNAL_CONDITIONING_/_TEC_PCB_2_TEMPERATURE	int(11)	(int) temperature sensor, Signal Conditioning / TEC PCB #2	

DB Field	Units	Description	
SIGNAL_CONDITIONING_/_TEC_PCB_3_TEMPERATURE	int(11)	(int) temperature sensor, Signal Conditioning / TEC PCB #3	
SIGNAL_CONDITIONING_/_TEC_PCB_4_TEMPERATURE	int(11)	(int) temperature sensor, Signal Conditioning / TEC PCB #4	

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17 **Pixel_Samples:**

DB Field	Units	Description
SAMPLE_ID	bigint(20)	pk
PACKET_ID	bigint(20)	Identifier to relate science data
SAMPLE_NUMBER	tinyint(4)	1 of 7 samples. (7 samples of info per packet)
REPROCESSING_COUNT	int(11)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data
PIXEL_TIME_STAMP	datetime	Packet time value in "2007-02-05 05:10:13" format
SAMPLE_MICROSECONDS	int(11)	Packet time value in microseconds
LOW_X_SUM_1	int(11)	row 5 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_2	int(11)	row 6 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_3	int(11)	row 7 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_4	int(11)	row 8 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_5	int(11)	row 9 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_6	int(11)	row 10 pixel sum (21 elements) in the low X ROI
LOW_X_SUM_7	int(11)	row 11 pixel sum (21 elements) in the low X ROI
HIGH_X_SUM_1	int(11)	row 5 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_2	int(11)	row 6 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_3	int(11)	row 7 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_4	int(11)	row 8 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_5	int(11)	row 9 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_6	int(11)	row 10 pixel sum (21 elements) in the high X ROI
HIGH_X_SUM_7	int(11)	row 11 pixel sum (21 elements) in the high X ROI
LOW_Y_SUM_1	int(11)	Column 6 pixel sum (51 elements) in the low Y ROI
LOW_Y_SUM_2	int(11)	Column 7 pixel sum (51 elements) in the low Y ROI
LOW_Y_SUM_3	int(11)	Column 8 pixel sum (51 elements) in the low Y ROI
LOW_Y_SUM_4	int(11)	Column 9 pixel sum (51 elements) in the low Y ROI
LOW_Y_SUM_5	int(11)	Column 10 pixel sum (51 elements) in the low Y ROI
HIGH_Y_SUM_1	int(11)	Column 6 pixel sum (51 elements) in the high Y ROI
HIGH_Y_SUM_2	int(11)	Column 7 pixel sum (51 elements) in the high Y ROI
HIGH_Y_SUM_3	int(11)	Column 8 pixel sum (51 elements) in the high Y ROI
HIGH_Y_SUM_4	int(11)	Column 9 pixel sum (51 elements) in the high Y ROI
HIGH_Y_SUM_5	int(11)	Column 10 pixel sum (51 elements) in the high Y ROI
CENTER_SUM_1	int(11)	row 1 pixel sum (31 elements) in the center ROI
CENTER_SUM_2	int(11)	row 2 pixel sum (31 elements) in the center ROI
CENTER_SUM_3	int(11)	row 3 pixel sum (31 elements) in the center ROI
CENTER_SUM_4	int(11)	row 4 pixel sum (31 elements) in the center ROI
CENTER_SUM_5	int(11)	row 5 pixel sum (31 elements) in the center ROI
CENTER_SUM_6	int(11)	row 6 pixel sum (31 elements) in the center ROI
CENTER_SUM_7	int(11)	row 7 pixel sum (31 elements) in the center ROI

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20 **Science_Packets:**

DB Field	Units	Description
PACKET_ID	bigint(20)	pk

PACKET_DATETIME	datetime	The time value in seconds since the Unix Epoch, extracted from the packet header
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header
PACKET_APID	smallint(6)	APID of packet being currently processed (0x181)
PACKET_CRC	int(11)	Packet CRC32 checksum
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"
PACKET_SOURCE_SEQUENCE_ COUNT	smallint(5)	CCSDS Packet Source Sequence Count
PACKET_LENGTH	smallint(5)	CCSDS Packet Length
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data

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23 **SC_Fast_Sensor_Packets:**

DB Field	Units	Description
PACKET_DATETIME	datetime	Packet time value in "2007-02-05 05:10:13" format
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header
PACKET_APID	smallint(6)	APID of packet being currently processed ()
PACKET_CRC	int(11)	Packet CRC32 checksum
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"
PACKET_SOURCE_SEQUENCE_ COUNT	smallint(5)	CCSDS Packet Source Sequence Count
PACKET_LENGTH	smallint(5)	CCSDS Packet Length
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data
STAR_TRACKER_00_QUAT	float	Quaternion data from the observatory star tracker
STAR_TRACKER_01_QUAT	float	Quaternion data from the observatory star tracker
STAR_TRACKER_02_QUAT	float	Quaternion data from the observatory star tracker
STAR_TRACKER_03_QUAT	float	Quaternion data from the observatory star tracker

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26 **System_Packets: look in users guide**

DB Field	Units	Description
PACKET_ID	bigint(20)	pk
PACKET_DATETIME	Datetime	Packet time value in "2007-02-05 05:10:13" format
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header
PACKET_APID	smallint(6)	APID of packet being currently processed (0x182)
PACKET_CRC	int(11)	Packet CRC32 checksum
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"
PACKET_SOURCE_SEQUENCE_COUNT	smallint(5)	CCSDS Packet Source Sequence Count
PACKET_LENGTH	smallint(5)	CCSDS Packet Length
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data
1553_COMMAND_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
1553_DATA_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
AUTOMATION_PROCESSOR_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_BOARD_COMM_HANDLER_ERRO	int(11)	View the table for a complete description of the

RS		error codes and associated values
C&DH_COMMANDS_ACCEPTED	int(11)	C&DH Commands accepted
C&DH_COMMANDS_REJECTED	int(11)	C&DH Commands rejected
C&DH_COMMAND_EXECUTOR_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_CRITICAL_ERRORS	Int(11)	C&DH Critical error: a value of 1 indicates a X40_DUST_COVER_TIMEOUT
C&DH_DATA_ACQUISITION_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_ERROR_HANDLER_&_FAULT_RESPONSE_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_INIT_AND_TASK_MANAGER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_QUEUE_FUNCTION_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_SELF-TEST_&_DIAGNOSTIC_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
C&DH_TASK_MANAGER_STATUS	int(11)	C&DH task manager status
CHOPPER_CONTROL_ERRORS	int(11)	There are no errors associated with this field
CODE_UPDATER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
COMMAND_PRE-PROCESSOR_ERRORS	int(11)	There are no errors associated with this field
COMMAND_RESPONSE_OPCODE	int(11)	Command response value
COMMAND_RESPONSE_VALUE	int(11)	Command response opcode
DETECTOR_CHANNEL_CONTROL_ERRORS	int(11)	There are no errors associated with this field
ENGINEERING_DATA_HANDLER_ERRORS	int(11)	There are no errors associated with this field
NUMBER_OF_LOST_MESSAGES	int(11)	Number of lost free format messages
POINTING_AND_STABILIZATION_ERRORS	int(11)	*The master copy of Ptg & Stabilization errors is kept in the flight software code: ss\utils\SSQuecwp.*
SCIENCE_DATA_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SSB_STATE_&_EVENT_TABLE_MODE_WORD_3	int(11)	SSB State & Event table word 3 (modes)
SSB_STATE_&_EVENT_TABLE_SS_ALG_STATE_WORD_4	int(11)	SSB State & Event table word 4 (SS algorithm state)
SSB_STATE_&_EVENT_TABLE_WORD_	int(11)	SSB State & Event table word 0 (processing rate, etc.)
SSB_STATE_&_EVENT_TABLE_WORD_1	int(11)	SSB State & Event table word 1 (subslice #)
SSB_STATE_&_EVENT_TABLE_WORD_2	int(11)	SSB State & Event table word 2 (20 Hz Interrupt counter)
SSB_TASK_MANAGER_STATUS	int(11)	SSB task manager status
STEERING_MIRROR_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_SENSOR_BOARD_COMM_HANDLER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_SENSOR_COMMAND_EXECUTOR_ERRORS	int(11)	There are no errors associated with this field
SUN_SENSOR_CRITICAL_ERRORS	int(11)	There are no errors associated with this field
SUN_SENSOR_DATA_ACQUISITION_HANDLER_ERRORS	int(11)	There are no errors associated with this field

SUN_SENSOR_ERROR_HANDLING_&_FAULT_RESPONSE_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_SENSOR_INIT_&_TASK_MANAGER_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_SENSOR_QUE_FUNCTION_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_SENSOR_SELF-TEST_AND_DIAGNOSTICS_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SUN_TRACKING_ALGORITHM_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
SYNC_CONTROL_REGISTER	int(11)	Sync Control Register
SYNC_RECTIFIER_PULSE_WIDTH	us	Sync Rectifier Pulse Width
SYSTEM_CRITICAL_ERRORS	int(11)	System Critical Code. The only value associated with this field is a NULL_CODE
THERMO-ELECTRIC_COOLERS_CONTROL_ERRORS	int(11)	There are no errors associated with this field
TIMED_COMMAND_PROCESSOR_ERRORS	int(11)	View the table for a complete description of the error codes and associated values
1553_BAD_CHECKSUM_OR_ILL-FORMED_COMMAND	tinyint(1)	Error Map value 200 in the M1553_CMND_ERR error message
1553_COMMS_FAILED	tinyint(1)	Error Map value 200 in the CDH_I_T_ERR error message
1553_ENGINEERING_BUFFER_NOT_SERVICED	tinyint(1)	Error Map value 8 in the SCI_DATA_ERR error message
BACKUP_EVENT_COMMAND_TABLE_CHECKSUM_ERROR	tinyint(1)	Error Map value 4 in the AUTOMAT_PROC_ERR error message
BAD_IMAGE_CHECKSUM	tinyint(1)	Error Map value 2 in the CDH_I_T_ERR error message
BUFFER_NOT_AVAILABLE_FOR_DETECTOR_DATA	tinyint(1)	Error Map value 2 in the SCI_DATA_ERR error message
BUFFER_NOT_AVAILABLE_FOR_TRACKING_AND_POINTING_DATA	tinyint(1)	Error Map value 4 in the SCI_DATA_ERR error message
C&DH_BAD_IMAGE_CHECKSUM	tinyint(1)	Error Map value 2 in the CDH_I_T_ERR error message
C&DH_CODE_DUMP_REQUEST_SIZE_TRUNCATED	tinyint(1)	Error Map value 400 in the CDH_ST_DIAG_ERR error message
C&DH_COULD_NOT_SEND_HIGH_ORITY_REPLY	tinyint(1)	Error Map value 2 in the CDH_COMM_ERR error message
C&DH_COULD_NOT_SEND_SSB_DATA_MESSAGE	tinyint(1)	Error Map value 4000 in the CDH_COMM_ERR error message
C&DH_COULD_NOT_SEND_SSG_REPLY	tinyint(1)	Error Map value 10000 in the CDH_COMM_ERR error message
C&DH_COULD_NOT_SEND_STATE_&_EVENT_CHANGE_NOTICE	tinyint(1)	Error Map value 8000 in the CDH_COMM_ERR error message
C&DH_COULD_NOT_SEND_TRACKING_AND_POINTING_INFO	tinyint(1)	Error Map value 2000 in the CDH_COMM_ERR error message
C&DH_COULD_SEND_SSB_ERROR_MAP	tinyint(1)	Error Map value 20000 in the CDH_COMM_ERR error message
C&DH_DATA_DUMP_REQUEST_SIZE_TRUNCATED	tinyint(1)	Error Map value 800 in the CDH_ST_DIAG_ERR error message
C&DH_INIT_ERROR	tinyint(1)	Error Map value 800 in the CDH_COMM_ERR error message
C&DH_INVALID_COMMAND_CODE	tinyint(1)	Error Map value 4000 in the CDH_ST_DIAG_ERR error message

C&DH_INVALID_SUBPACKET_ORDER	tinyint(1)	Error Map value 100 in the CDH_COMM_ERR error message
C&DH_INVALID_TIME_SLOT	tinyint(1)	Error Map value 1000 in the CDH_COMM_ERR error message
C&DH_QUEUE_MISSING_START_SYNC	tinyint(1)	Error Map value 4 in the CDH_Queue_ERR error message
C&DH_QUEUE_OVERFLOW_ERROR	tinyint(1)	Error Map value 2 in the CDH_QUEUE_ERR error message
C&DH_QUEUE_POST_INVALID_LENGTH	tinyint(1)	Error Map value 8 in the CDH_Queue_ERR error message
C&DH_QUEUE_REQUEST_INVALID_LENGTH	tinyint(1)	Error Map value 10 in the CDH_Queue_ERR error message
C&DH_UART_FRAMING_ERROR	tinyint(1)	Error Map value 40000 in the CDH_COMM_ERR error message
C&DH_UART_PARITY_ERROR	tinyint(1)	Error Map value 80000 in the CDH_COMM_ERR error message
C&DH_UNEXPECTED_SUBPACKET_OPCODE	tinyint(1)	Error Map value 200 in the CDH_COMM_ERR error message
C&DH_UNKNOWN_RECEIVE_ERROR	tinyint(1)	Error Map value 10 in the CDH_COMM_ERR error message
CALCULATED_ATTENUATOR_SETTING_TOO_LARGE	tinyint(1)	Error Map value 1000 in the CDH_CMNDEXEC_ERR error message
CALCULATED_ATTENUATOR_SETTING_TOO_SMALL	tinyint(1)	Error Map value 2000 in the CDH_CMNDEXEC_ERR error message
CANNOT_POST_FREE_FORM_MESSAGE	tinyint(1)	Error Map value 2 in the CDH_DATA_ACQ_ERR error message
CODE_UPDATE_ERROR_CHECKSUM	tinyint(1)	Error Map value 40 in the CODEUPDATE_ERR error message
CODE_UPDATE_NEGATIVE_REQUESTED_LENGTH	tinyint(1)	Error Map value 20 in the CODEUPDATE_ERR error message
CODE_UPDATE_OD_ADDRESS_GREATER_THAN_MAXIMUM	tinyint(1)	Error Map value 8 in the CODEUPDATE_ERR error message
CODE_UPDATE_OD_ADDRESS_LESS_THAN_MINIMUM	tinyint(1)	Error Map value 8 in the CODEUPDATE_ERR error message
CODE_UPDATE_REQUESTED_LENGTH_TOO_LARGE	tinyint(1)	Error Map value 10 in the CODEUPDATE_ERR error message
COMMAND_REQUESTED_FOR_DELETION_NOT_FOUND	tinyint(1)	Error Map value 2 in the TIMED_CMND_ERR error message
COMMAND_TOO_LARGE	tinyint(1)	Error Map value 4 in the TIMED_CMND_ERR error message
COULD_NOT_SEND_COMMAND_ERROR	tinyint(1)	Error Map value 20 in the SSB_COMM_ERR error message
COULD_NOT_SEND_COMMAND_WARNING	tinyint(1)	Error Map value 10 in the SSB_COMM_ERR error message
COULD_NOT_SEND_DESIRED_AZIMUTH_AND_ELEVATION	tinyint(1)	Error Map value 2 in the STEERMIRROR_ERR error message
COULD_NOT_SEND_HIGH_ORITY_COMMAND_ERROR	tinyint(1)	Error Map value 8 in the SSB_COMM_ERR error message
COULD_NOT_SEND_HIGH_ORITY_COMMAND_WARNING	tinyint(1)	Error Map value 4 in the SSB_COMM_ERR error message
COULD_NOT_SEND_STEERING_MIRROR_COMMAND	tinyint(1)	Error Map value 4 in the STEERMIRROR_ERR error message
CRC16_CHECKSUM	int(11)	CRC16 checksum
DELETED_OLD_TIMED_COMMAND	tinyint(1)	Error Map value 8 in the TIMED_CMND_ERR error message

DIVIDE_BY_ZERO_ON_DETECTOR_COU NTS	tinyint(1)	Error Map value 200 in the CDH_CMNDEXEC_ERR error message
DUST_COVER_NOT_ARMED	tinyint(1)	Error Map value 800 in the CDH_CMNDEXEC_ERR error message
DUST_COVER_TIMEOUT	tinyint(1)	Error Map value 1 in the CDH_CRITICAL_ERR error message
EEPROM_CONTROL_BIT_NOT_SET_DURI NG_READ	tinyint(1)	Error Map value 8000 in the CODEUPDATE_ERR error message
EEPROM_CONTROL_BIT_NOT_SET_DURI NG_WRITE	tinyint(1)	Error Map value 1000 in the CODEUPDATE_ERR error message
EEPROM_DUMP_REQUEST_SIZE_TRUNC ATED	tinyint(1)	Error Map value 100 in the CDH_ST_DIAG_ERR error message
EEPROM_DUMP_UNABLE_TO_COPY_DA TA	tinyint(1)	Error Map value 200 in the CDH_ST_DIAG_ERR error message
EEPROM_CHKSUM_ERROR_READING_E EPROM	tinyint(1)	Error Map value 40000 in the CDH_ST_DIAG_ERR error message
EEPROM_WRITE_WOULD_CROSS_PAGE _BOUNDARIES	tinyint(1)	Error Map value 200 in the CODEUPDATE_ERR error message
EVENT_COMMAND_TABLE_EMPTY	tinyint(1)	Error Map value 1000000 in the AUTOMAT_PROC_ERR error message
EVENT_NUMBER_OUTSIDE_CURRENT_R ANGE_(HIGH)	tinyint(1)	Error Map value 8000 in the AUTOMAT_PROC_ERR error message
EVENT_NUMBER_OUTSIDE_CURRENT_R ANGE_(LOW)	tinyint(1)	Error Map value 4000 in the AUTOMAT_PROC_ERR error message
EVENT_SKIPPED_DUE_TO_PAST_START _TIME	tinyint(1)	Error Map value 8000000 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NOT_PREVIOUSLY_SET_ WARNING	tinyint(1)	Error Map value 2000 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NOT_SET_UP	tinyint(1)	Error Map value 40000 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NUMBER_OUTSIDE_RAN GE_(HIGH)	tinyint(1)	Error Map value 20000 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NUMBER_OUTSIDE_RAN GE_(LOW)	tinyint(1)	Error Map value 10000 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NUMBER_OUTSIDE_RAN GE_(STATE_1)	tinyint(1)	Error Map value 8 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NUMBER_OUTSIDE_RAN GE_(STATE_2)	tinyint(1)	Error Map value 80 in the AUTOMAT_PROC_ERR error message
EVENT_TABLE_NUMBER_OUTSIDE_RAN GE_(STATE_3)	tinyint(1)	Error Map value 800 in the AUTOMAT_PROC_ERR error message
INCORRECT_COMMAND_SIZE_ON_CODE _UPDATE	tinyint(1)	Error Map value 2 in the CODEUPDATE_ERR error message
INVALID_1553_COMMAND_PARAMETER	tinyint(1)	Error Map value 10 in the CDH_CMNDEXEC_ERR error message
INVALID_1553_MESSAGE_LENGTH	tinyint(1)	Error Map value 1 in the M1553_CMND_ERR error message
INVALID_ATTENUATOR_NUMBER	tinyint(1)	Error Map value 80 in the CDH_CMNDEXEC_ERR error message
INVALID_ATTENUATOR_PARAMETER	tinyint(1)	Error Map value 100 in the CDH_CMNDEXEC _ERR error message
INVALID_ATTENUATOR_TABLE_TYPE	tinyint(1)	Error Map value 4000 in the CDH_CMNDEXEC_ERR error message
INVALID_COMMAND_CODE	tinyint(1)	Error Map value 2 in the CDH_CMNDEXEC_ERR error message
INVALID_COMMAND_STREAM_ID_RECEI	tinyint(1)	Error Map value 4 in the M1553_CMND_ERR

VED		error message
INVALID_FAULT_RESPONSE_PARAMETER	tinyint(1)	Error Map value 40 in the CDH_CMNDEXEC_ERR error message
INVALID_FAULT_RESPONSE_PARAMETER_-_SSB	tinyint(1)	Error Map value 20 in the SS_CMNDEXEC_ERR error message
INVALID_FPGA_BANK	tinyint(1)	Error Map value 8000 in the CDH_ST_DIAG_ERR error message
INVALID_FPGA_BANK_-_SSB	tinyint(1)	Error Map value 8 in the SS_CMNDEXEC_ERR error message
INVALID_MEM_DUMP_OPCODE	tinyint(1)	Error Map value 2 in the CDH_I_T_ERR error message
INVALID_MODE_FOR_COMMAND	tinyint(1)	Error Map value 400 in the CDH_CMNDEXEC_ERR error message
INVALID_OPCODE_FOR_UPDATE	tinyint(1)	Error Map value 80 in the CODEUPDATE_ERR error message
INVALID_POINT_PARAMETER_-_SSB	tinyint(1)	Error Map value 40 in the SS_CMNDEXEC_ERR error message
INVALID_SCIENCE_EVENT_PROCESSOR_STATE	tinyint(1)	Error Map value 100000 in the AUTOMAT_PROC_ERR error message
INVALID_SET_EVENT_PREDICTED_COMMAND_PARAMETER	tinyint(1)	Error Map value 20 in the CDH_CMNDEXEC_ERR error message
INVALID_SSB_COMMAND_CODE	tinyint(1)	Error Map value 2 in the SS_CMNDEXEC_ERR error message
INVALID_TRACK_PARAMETER_-_SSB	tinyint(1)	Error Map value 10 in the SS_CMNDEXEC_ERR error message
LSB_EEPROM_BUSY_DURING_EEPROM_READ	tinyint(1)	Error Map value 2000 in the CODEUPDATE_ERR error message
LSB_EEPROM_BUSY_DURING_EEPROM_WRITE	tinyint(1)	Error Map value 400 in the CODEUPDATE_ERR error message
MSB_EEPROM_BUSY_DURING_EEPROM_READ	tinyint(1)	Error Map value 4000 in the CODEUPDATE_ERR error message
MSB_EEPROM_BUSY_DURING_EEPROM_WRITE	tinyint(1)	Error Map value 800 in the CDH_I_T_ERR error message
NO_CHOPPER_ENABLED	tinyint(1)	Error Map value 1 in the CDH_I_T_ERR error message
NO_MESSAGES_FROM_C&DH_-_CHANNEL_SWITCHED	tinyint(1)	Error Map value 20000 in the CDH_QUEUE_ERR error message
NO_MESSAGES_FROM_SSB_-_CHANNEL_SWITCHED	tinyint(1)	Error Map value 20000 in the SSB_COMM_ERR error message
NO_MESSAGES_FROM_SSG_-_CHANNEL_SWITCHED	tinyint(1)	Error Map value 80 in the STEERMIRROR_ERR error message
NO_TABLE_AVAILABLE_(STATE_1)	tinyint(1)	Error Map value 10 in the AUTOMAT_PROC_ERR error message
NO_TABLE_AVAILABLE_(STATE_2)	tinyint(1)	Error Map value 100 in the AUTOMAT_PROC_ERR error message
NO_TABLE_AVAILABLE_(STATE_3)	tinyint(1)	Error Map value 1000 in the AUTOMAT_PROC_ERR error message
MARY_EVENT_COMMAND_TABLE_CHECKSUM_ERROR	tinyint(1)	Error Map value 2 in the AUTOMAT_PROC_ERR error message
MARY_SSA_INIT_TABLE_EMPTY	tinyint(1)	Error Map value 20 in the CDH_I_T_ERR error message
MARY_SSA_TABLE_BAD_CHECKSUM	tinyint(1)	Error Map value 8 in the CDH_I_T_ERR error message
RESET_COMMAND_RECEIVED_IN_NON-POLLING_MODE	tinyint(1)	Error Map value 4 in the CDH_CMNDEXEC_ERR error message

SCIENCE_BUFFER_NOT_SERVICED	tinyint(1)	Error Map value 8 in the SCI_DATA_ERR error message
SECONDARY_SSA_INIT_TABLE_EMPTY	tinyint(1)	Error Map value 100 in the CDH_I_T_ERR error message
SECONDARY_SSA_TABLE_BAD_CHECKSUM	tinyint(1)	Error Map value 40 in the CDH_I_T_ERR error message
SPACECRAFT_NOT_READY_FOR_1553_ENGINEERING_DATA	tinyint(1)	Error Map value 2 in the M1553_DATA_ERR error message
SRAM_ERROR	tinyint(1)	Error Map value 4 in the CDH_I_T_ERR error message
SSB_BAD_CHECKSUM	tinyint(1)	Error Map value 2000 in the SSB_COMM_ERR error message
SSB_BAD_IMAGE_CHECKSUM	tinyint(1)	Error Map value 200 in the SS_ST_DIAG_ERR error message
SSB_CODE_DUMP_REQUEST_SIZE_GREATER_THAN_256	tinyint(1)	Error Map value 100 in the SS_ST_DIAG_ERR error message
SSB_CODE_DUMP_TOO_FEW_PARAMETERS	tinyint(1)	Error Map value 10 in the SS_ST_DIAG_ERR error message
SSB_CODE_DUMP_TOO_MANY_PARAMETERS	tinyint(1)	Error Map value 20 in the SS_ST_DIAG_ERR error message
SSB_DATA_DUMP_REQUEST_SIZE_GREATER_THAN_256	tinyint(1)	Error Map value 8 in the SS_ST_DIAG_ERR error message
SSB_DATA_DUMP_TOO_FEW_PARAMETERS	tinyint(1)	Error Map value 40 in the SS_ST_DIAG_ERR error message
SSB_DATA_DUMP_TOO_MANY_PARAMETERS	tinyint(1)	Error Map value 80 in the SS_ST_DIAG_ERR error message
SSB_INIT_ERROR	tinyint(1)	Error Map value 4000 in the SSB_COMM_ERR error message
SSB_INVALID_COMMAND_CODE	tinyint(1)	Error Map value 2 in the SS_ST_DIAG_ERR error message
SSB_INVALID_FPGA_BANK	tinyint(1)	Error Map value 4 in the SS_ST_DIAG_ERR error message
SSB_INVALID_SUBPACKET_ORDER	tinyint(1)	Error Map value 800 in the SSB_COMM_ERR error message
SSB_SRAM_BAD_IMAGE_CHECKSUM	tinyint(1)	Error Map value 1 in the SS_I_T_ERR error message
SSB_SRAM_ERROR	tinyint(1)	Error Map value 2 in the SS_I_T_ERR error message
SSB_UART_FRAMING_ERROR	tinyint(1)	Error Map value 8000 in the SSB_COMM_ERR error message
SSB_UART_PARITY_ERROR	tinyint(1)	Error Map value 10000 in the SSB_COMM_ERR error message
SSB_UNEXPECTED_SUBPACKET_OPCODE	tinyint(1)	Error Map value 1000 in the SSB_COMM_ERR error message
SSB_UNKNOWN_RECEIVE_ERROR	tinyint(1)	Error Map value 40 in the SSB_COMM_ERR error message
SSB_UNKNOWN_TRANSMIT_ERROR	tinyint(1)	Error Map value 80 in the SSB_COMM_ERR error message
STEERING_MIRROR_BAD_SUBPACKET_CHECKSUM	tinyint(1)	Error Map value 10 in the STEERMIRROR_ERR error message
STEERING_MIRROR_UART_FRAMING_ERROR	tinyint(1)	Error Map value 40 in the STEERMIRROR_ERR error message
STEERING_MIRROR_UART_PARITY_ERROR	tinyint(1)	Error Map value 20 in the STEERMIRROR_ERR error message
STEERING_MIRROR_UNKNOWN_RECEIV	tinyint(1)	Error Map value 8 in the STEERMIRROR_ERR

E_ERROR		error message
SUN_SENSOR_INIT_TABLE_CHECKSUM_ERROR	tinyint(1)	Error Map value 1 in the SUNTRACK_ERR error message
SUN_SENSOR_NOISE_FLOOR_THRESHOLD_ERROR	tinyint(1)	Error Map value 2 in the SUNTRACK_ERR error message
SUN_SENSOR_QUEUE_MISSING_START_SYNC	tinyint(1)	Error Map value 4 in the SSB_COMM_ERR error message
SUN_SENSOR_QUEUE_OVERFLOW_ERROR	tinyint(1)	Error Map value 2 in the SSB_COMM_ERR error message
SUN_SENSOR_QUEUE_POST_INVALID_LENGTH	tinyint(1)	Error Map value 10 in the SSB_COMM_ERR error message
SUN_SENSOR_QUEUE_REQUEST_INVALID_LENGTH	tinyint(1)	Error Map value 8 in the SSB_COMM_ERR error message
TABLE_ID_DOES_NOT_MATCH_WARNING	tinyint(1)	Error Map value 800000 in the AUTOMAT_PROC_ERR error message
TIMED_COMMAND_MISSING_ABSOLUTE_TIME	tinyint(1)	Error Map value 40 in the TIMED_CMND_ERR error message
TIMED_COMMAND_OLDER_THAN_CURRENT_TIME	tinyint(1)	Error Map value 10 in the TIMED_CMND_ERR error message
TIMED_COMMAND_TABLE_FULL	tinyint(1)	Error Map value 20 in the TIMED_CMND_ERR error message
TOO_FEW_PARAMETERS_ON_C&DH_CODE_DUMP	tinyint(1)	Error Map value 40 in the CDH_ST_DIAG_ERR error message
TOO_FEW_PARAMETERS_ON_C&DH_DATA_DUMP	tinyint(1)	Error Map value 10 in the CDH_ST_DIAG_ERR error message
TOO_FEW_PARAMETERS_ON_EEPROM_DUMP	tinyint(1)	Error Map value 4 in the CDH_ST_DIAG_ERR error message
TOO_MANY_PARAMETERS_ON_C&DH_CODE_DUMP	tinyint(1)	Error Map value 80 in the CDH_ST_DIAG_ERR error message
TOO_MANY_PARAMETERS_ON_C&DH_DATA_DUMP	tinyint(1)	Error Map value 20 in the CDH_ST_DIAG_ERR error message
TOO_MANY_PARAMETERS_ON_EEPROM_DUMP	tinyint(1)	Error Map value 8 in the CDH_ST_DIAG_ERR error message
UNABLE_TO_READ_EVENT_AZIMUTH_ENTRIES	tinyint(1)	Error Map value 200000 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_READ_EVENT_COMMAND_TABLE	tinyint(1)	Error Map value 80000 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_READ_EVENT_ELEVATION_ENTRIES	tinyint(1)	Error Map value 400000 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_READ_MARY_SSA_INIT_TABLE	tinyint(1)	Error Map value 10 in the CDH_I_T_ERR error message
UNABLE_TO_READ_SECONDARY_SSA_INIT_TABLE	tinyint(1)	Error Map value 80 in the CDH_I_T_ERR error message
UNABLE_TO_SEND_AZIMUTH_TABLE	tinyint(1)	Error Map value 20 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_SEND_AZIMUTH_TABLE_QUEUE_FULL	tinyint(1)	Error Map value 40 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_SEND_ELEVATION_TABLE	tinyint(1)	Error Map value 200 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_SEND_ELEVATION_TABLE_QUEUE_FULL	tinyint(1)	Error Map value 400 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_SEND_EVENT_COMMAND	tinyint(1)	Error Map value 2000000 in the AUTOMAT_PROC_ERR error message
UNABLE_TO_SEND_EVENT_COMMAND_QUEUE_FULL	tinyint(1)	Error Map value 4000000 in the AUTOMAT_PROC_ERR error message

VALID_FPGA_BANK_NOT_SELECTED	tinyint(1)	Error Map value 8000 in the CDH_ST_DIAG_ERR error message	
WRITE_LENGTH_GREATER_THAN_3	tinyint(1)	Error Map value 20000 in the CDH_ST_DIAG_ERR error message	
EEPROM_ERROR_CODE_OUT_OF_RANGE	tinyint(1)	Error Map value 2 in the CDH_CMDEXEC_ERR error message	
SSB_ERROR_CODE_OUT_OF_RANGE	tinyint(1)	Error Map value 2 in the SS_EH_FR_ERR error message	
C&DH_BAD_IMAGE_CHECKSUM	tinyint(1)	Error Map value 1000 in the CDH_ST_DIAG_ERR error message	
ATTENUATOR_SETTING_1	int(11)	Attenuator setting #1	#THIS# / 4095
ATTENUATOR_SETTING_10	int(11)	Attenuator setting #10	
ATTENUATOR_SETTING_11	int(11)	Attenuator setting #11	
ATTENUATOR_SETTING_12	int(11)	Attenuator setting #12	
ATTENUATOR_SETTING_13	int(11)	Attenuator setting #13	
ATTENUATOR_SETTING_14	int(11)	Attenuator setting #14	
ATTENUATOR_SETTING_15	int(11)	Attenuator setting #15	
ATTENUATOR_SETTING_16	int(11)	Attenuator setting #16	
ATTENUATOR_SETTING_2	int(11)	Attenuator setting #2	
ATTENUATOR_SETTING_3	int(11)	Attenuator setting #3	
ATTENUATOR_SETTING_4	int(11)	Attenuator setting #4	
ATTENUATOR_SETTING_5	int(11)	Attenuator setting #5	
ATTENUATOR_SETTING_6	int(11)	Attenuator setting #6	
ATTENUATOR_SETTING_7	int(11)	Attenuator setting #7	
ATTENUATOR_SETTING_8	int(11)	Attenuator setting #8	
ATTENUATOR_SETTING_9	int(11)	Attenuator setting #9	
SYNC_RECTIFIER_10_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #10 Falling Edge Phase Shift	
SYNC_RECTIFIER_10_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #10 Rising Edge Phase Shift	
SYNC_RECTIFIER_11_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #11 Falling Edge Phase Shift	
SYNC_RECTIFIER_11_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #11 Rising Edge Phase Shift	
SYNC_RECTIFIER_12_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #12 Falling Edge Phase Shift	
SYNC_RECTIFIER_12_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #12 Rising Edge Phase Shift	
SYNC_RECTIFIER_13_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #13 Falling Edge Phase Shift	
SYNC_RECTIFIER_13_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #13 Rising Edge Phase Shift	
SYNC_RECTIFIER_14_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #14 Falling Edge Phase Shift	
SYNC_RECTIFIER_14_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #14 Rising Edge Phase Shift	
SYNC_RECTIFIER_15_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #10 Falling Edge Phase Shift	
SYNC_RECTIFIER_15_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #2 Rising Edge Phase Shift	
SYNC_RECTIFIER_16_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #16 Falling Edge Phase Shift	
SYNC_RECTIFIER_16_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #16 Rising Edge Phase Shift	

SYNC_RECTIFIER_1_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #1 Falling Edge Phase Shift
SYNC_RECTIFIER_1_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #1 Rising Edge Phase Shift
SYNC_RECTIFIER_2_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #2 Falling Edge Phase Shift
SYNC_RECTIFIER_2_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #2 Rising Edge Phase Shift
SYNC_RECTIFIER_3_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #3 Falling Edge Phase Shift
SYNC_RECTIFIER_3_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #3 Rising Edge Phase Shift
SYNC_RECTIFIER_4_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #4 Falling Edge Phase Shift
SYNC_RECTIFIER_4_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #4 Rising Edge Phase Shift
SYNC_RECTIFIER_5_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #5 Falling Edge Phase Shift
SYNC_RECTIFIER_5_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #5 Rising Edge Phase Shift
SYNC_RECTIFIER_6_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #6 Falling Edge Phase Shift
SYNC_RECTIFIER_6_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #6 Rising Edge Phase Shift
SYNC_RECTIFIER_7_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #7 Falling Edge Phase Shift
SYNC_RECTIFIER_7_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #7 Rising Edge Phase Shift
SYNC_RECTIFIER_8_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #8 Falling Edge Phase Shift
SYNC_RECTIFIER_8_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #8 Rising Edge Phase Shift
SYNC_RECTIFIER_9_FALLING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #9 Falling Edge Phase Shift
SYNC_RECTIFIER_9_RISING_EDGE_PHASE_SHIFT	int(11)	Sync Rectifier #9 Rising Edge Phase Shift

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29 **Template_Packet_Table:**

DB Field	Units	Description
PACKET_ID	bigint(20)	pk
PACKET_DATETIME	datetime	Packet time value in "2007-02-05 05:10:13" format
PACKET_MILLISECONDS	smallint(6)	Milliseconds value extracted from the packet header
PACKET_APID	smallint(6)	APID of packet being currently processed (N/A)
PACKET_CRC	int(11)	Packet CRC32 checksum
PACKET_IS_CLEAN	tinyint(4)	Currently, this value is always "1"
PACKET_SOURCE_SEQUENCE_COUNT	smallint(5)	CCSDS Packet Source Sequence Count
PACKET_LENGTH	smallint(5)	CCSDS Packet Length
REPROCESSING_COUNT	int(10)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data

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32 **Tracking_Samples:**

DB Field	Units	Description
SAMPLE_ID		pk
PACKET_ID	bigint(20)	Identifier to relate science data
SAMPLE_NUMBER	tinyint(4)	1 of 7 samples. (7 samples of info per packet)
REPROCESSING_COUNT	int(11)	Indicates the number of times data has been processed
VERSION_ID	varchar(8)	Version of Level0 Software used to process data
TRACKING_TIME_STAMP	datetime	Packet time value in "2007-02-05 05:10:13" format
SAMPLE_MICROSECONDS	int(11)	Packet time value in microseconds
LOW_X_FPA_COORDINATES	int(11)	Highest elevation edge of the solar image in pixels
HIGH_X_FPA_COORDINATES	int(11)	Lowest elevation edge of the solar image in pixels
LOW_Y_FPA_COORDINATES	int(11)	Left-most azimuth edge of the solar image in pixels
HIGH_Y_FPA_COORDINATES	int(11)	Right-most azimuth edge of the solar image in pixels
CONTROL_MIRROR_ELEVATION	int(11)	No longer used
CONTROL_MIRROR_AZIMUTH	int(11)	No longer used
TRACKING_RETURN_VALUE	int(11)	Return value from the on-board tracking software
ACTUAL_MIRROR_ELEVATION	int(11)	No longer used
ACTUAL_MIRROR_AZIMUTH	int(11)	No longer used

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C&DH Init and Task Manager (CDH_I_T_ERR)	
X41_NO_CHOPPER_ENABLED	1
X41_BAD_IMAGE_CHECKSUM	2
X41_SRAM_ERROR	4

Code Updater (CODEUPDATE_ERR)

1553 Command Handler (M_1553_CMND_ERR)

X42_INVALID_LENGTH / X41_UNABLE_TO_READ_PRI_SSA_INIT_TABLE	1 / 10
X42_BAD_CHECKSUM / PRI_SSA_INIT_TABLE_EMPTY	2 / 20
X42_RECALLED / SEC_SSA_INIT_TABLE_BAD_CHECKSUM	4 / 40
X41_UNABLE_TO_READ_SEC_SSA_INIT_TABLE	80
X41_SEC_SSA_INIT_TABLE_EMPTY	100
X41_1553_COMMS_FAILED	200

C&DH Self-Test & Diagnostics (CDH_ST_DIAG_ERR)	
X44_MEM_DUMP_HANDLER_INVALID_OPCODE	2
X44_EEPROM_DUMP_TOO_FEW_PARAMETERS	4
X44_EEPROM_DUMP_TOO_MANY_PARAMETERS	8
X44_CDH_DATA_DUMP_TOO_FEW_PARAMETERS	10
X44_CDH_DATA_DUMP_TOO_MANY_PARAMETERS	20
X44_CDH_CODE_DUMP_TOO_FEW_PARAMETERS	40
X44_CDH_CODE_DUMP_TOO_MANY_PARAMETERS	80
X44_EEPROM_DUMP_REQUEST_SIZE_TRUNCATED	100
X44_EEPROM_DUMP_UNABLE_TO_COPY_DATA	200
X44_CDH_DATA_DUMP_REQUEST_SIZE_TRUNCATED	400
X44_CDH_CODE_DUMP_REQUEST_SIZE_TRUNCATED	800
none	1000
none	2000
X44_INVALID_CMD_CODE	4000
X44_INVALID_FPGA_BANK	8000
X44_BAD_IMAGE_CHECKSUM	10000
X44_WRITE_LEN_GT_3	20000
X44_TEST_EE_CHKSUM_ERROR_READING_EEPROM	40000

C&DH Error Handler & Fault Response (CDH_EH_FR_ERR)	
X46_INVALID_ERROR_CODE	2
X46_ERROR_CODE_OUT_OF_RANGE	4

CODEUPD_ERR_OK	1
X45_CODEUPD_INCORRECT_COMMAND_SIZE	2
CODEUPD_ERR_ODMIN	4
CODEUPD_ERR_ODMAX	8
CODEUPD_ERR_LENGMIN	10
CODEUPD_ERR_LENGMAX	20
CODEUPD_ERR_CKSUM	40
CODEUPD_ERR_OPCODE	80
CODEUPD_ERR_IMPLEMENT	100
CODEUPD_ERR_PAGE	200
X45_E2WRITE_ERR_LSB_EEPROM_BUSY	400
X45_E2WRITE_ERR_MSB_EEPROM_BUSY	800
X45_E2WRITE_ERR_CTRL_EEPROM_DISABLED	1000
X45_E2READ_ERR_LSB_EEPROM_BUSY	2000
X45_E2READ_ERR_MSB_EEPROM_BUSY	4000
X45_E2READ_ERR_CTRL_EEPROM_DISABLED	8000

C&DH Data Acquisition Handler (CDH_DATA_ACQ_ERR)	
X4E_SYSTEM_DATA_HANDLER_GENERAL_ERROR	1
X4E_CANNOT_POST_FREE_FORM_MESSAGE	2

Sun Sensor Board Comm Handler (SSB_COMM_ERR)	
X51_SS_COMM_HANDLER_GENERAL_ERROR	1
X51_DETECTED_UART_RESET	2
X51_COULD_NOT_POST_HP_COMMAND_WARN	4
X51_COULD_NOT_POST_HP_COMMAND_ERROR	8
X51_COULD_NOT_POST_COMMAND_WARN	10
X51_COULD_NOT_POST_COMMAND_ERROR	20
X51_UNKNOWN_TRANSMIT_ERROR	40
X51_UNKNOWN_RECEIVE_ERROR	80
X51_ILL_FORMED_COMMAND	100
X51_ILL_FORMED_COMMAND_NO_START	200
X51_ILL_FORMED_COMMAND_NO_END_SYNC	400
X51_INVALID_SUBPACKET_ORDER	800
X51_UNEXPECTED_SUBPACKET_OPCODE	1000
X51_BAD_CHECKSUM	2000
X51_INIT_ERROR	4000
X51_UART_PARITY_ERROR	8000
X51_UART_FRAMING_ERROR	10000
X51_NO_MSGS_FROM_SSB_RECV_CHANNEL_SWITCHED	20000

C&*DH* Queue Function (CDH_QUEUE_ERR)		128
		~~129~~
X52_QUEUE_GENERAL_ERROR	1	130
		~~131~~
X52_QUEUE_OVERFLOW_ERROR	2	132
X52_QUEUE_MISSING_START_SYNC	4	133
X52_QUEUE_QGET_INVALID_LENGTH	8	134
		~~135~~
X52_QUEUE_QPUT_INVALID_LENGTH	10	136
X52_QUEUE_QLOOK_INVALID_LENGTH	20	137

C&DH Board Comm Handler (CDH_COMM_ERR)	
X82_CNDH_COMM_HANDLER_GENERAL_ERROR	1
X82_COULD_NOT_POST_HP_REPLY	2
X82_COULD_NOT_POST_COMMAND_ERROR	4
X82_UNKNOWN_TRANSMIT_ERROR	8
X82_UNKNOWN_RECEIVE_ERROR	10
X82_ILL_FORMED_COMMAND	20
X82_ILL_FORMED_COMMAND_NO_START	40
X82_ILL_FORMED_COMMAND_NO_END_SYNC	80
X82_INVALID_SUBPACKET_ORDER	100
X82_UNEXPECTED_SUBPACKET_OPCODE	200
X82_BAD_CHECKSUM	400
X82_INIT_ERROR	800
X82_INVALID_TIME_SLOT	1000
X82_COULD_NOT_POST_TRACKING_AND_POINTING	2000
X82_COULD_NOT_POST_DATA_MESSAGE	4000
X82_COULD_NOT_POST_STATE_AND_EVENT	8000
X82_COULD_NOT_POST_SSG_REPLY	10000
X82_COULD_NOT_POST_SSB_ERROR_MAP	20000
X82_UART_PARITY_ERROR	40000
X82_UART_FRAMING_ERROR	80000
X82_NO_MSGS_FROM_CDH_RECV_CHANNEL_SWITCHED	100000

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Sun Sensor Self-Test and Diagnostics (SS_ST_DIAG_ERR)	
X84_INVALID_CMD_CODE	2
X84_INVALID_FPGA_BANK	4
X84_SSB_DATA_DUMP_REQUEST_SIZE_TRUNCATED	8
X84_SSB_DATA_DUMP_TOO_FEW_PARAMETERS	10
X84_SSB_DATA_DUMP_TOO_MANY_PARAMETERS	20
X84_SSB_CODE_DUMP_TOO_FEW_PARAMETERS	40
X84_SSB_CODE_DUMP_TOO_MANY_PARAMETERS	80
X84_SSB_CODE_DUMP_REQUEST_SIZE_TRUNCATED	100
X84_BAD_IMAGE_CHECKSUM	200

139 **Sun Sensor Error Handlin**

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Sun Sensor Command Executor (SS_CMNDEXEC_ERR)	
X86_INVALID_CMD_CODE	2
X86_INVALID_SEQ	4
X86_INVALID_FPGA_BANK	8
X86_INVALID_TRACK_PARAM	10
X86_INVALID_FAULTRESPON_PARAM	20
X86_INVALID_POINT_PARAM	40

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Steering Mirror Handler (STEERMIRROR_ERR)	
X88_COULD_NOT_POST_DESIRED_AZ_EL	2
X88_COULD_NOT_POST_STEERING_MIRROR_CMD	4
X88_UNKNOWN_RECEIVE_ERROR	8
X88_BAD_SUBPACKET_CHECKSUM	10
X88_UART_PARITY_ERROR	20
X88_UART_FRAMING_ERROR	40
X88_NO_MSGS_FROM_SSG_RECV_CHANNEL_SWITCHED	80

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Sun Sensor Error Handling & Fault Response (SS_EH_FR_ERR)	
X85_ERROR_CODE_OUT_OF_RANGE	2

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Sun Sensor Init & Task Manager (SS_I_T_ERR)	
X81_BAD_IMAGE_CHECKSUM	1
X81_SRAM_ERROR	2

Sun Tracking Algorithm (SUNTRACK_ERR)	
X89_SS_INIT_TABLE_CHECKSUM_ERROR	1
X89_SS_NOISE_FLOOR_THRESHOLD_ERROR	2

C&DH Command Executor (CDH_CMNDEXEC_ERR)	

X48_INVALID_CMD_CODE	2		
Sun Sensor Queue Function (SS_QUEUE_ERR) / X48_INVALID_CMD_SEQ	4		
X48_INVALID_FPGA_BANK	8		1
X8A_QUEUE_GENERAL_ERROR **SS_3 Data Handler (M1553_DATA_ERR)**	10		2
X8A_QUEUE_OVERFLOW_ERROR / X8A_ENSDAF_SC_NOT_READY	1		
X48_INVALID_MISSING_PREV_PARAM / X8A_QUEUE_MISSING_LAST_SERVICED	20		4
X8A_QUEUE_BAD_THREAD_ID_PARAM	40		8
X8A_QUEUE_APTER_INVALID_LENGTH	80		10
X48_INVALID_ATTENUATOR_PARAM	100 147		
X48_DIV_BY_ZERO_DETECTOR_CNT	200		
X48_INVALID_MODE	400		
X48_DST_CVR_NOT_ARMED	800		
X48_CAL_VAL_TO_LARGE	1000		
X48_CAL_VAL_TO_SMALL	2000		
X48_INVALID_ATTEN_EVENT_TYPE	4000		

Automation Processor (AUTOMAT_PROC_ERR)			
X4D_PRIMARY_EVENT_COMMAND_TABLE_CHECKSUM_ERROR	2		
X4D_BACKUP_EVENT_COMMAND_TABLE_CHECKSUM_ERROR	4		
X4D_STATE_1_EVENT_TABLE_NUMBER_OUTSIDE_RANGE	8		
X4D_STATE_1_INTERNAL_ERROR_NO_TABLE_AVAILABLE	10		
X4D_UNABLE_TO_SEND_AZ_TABLE	20		
X4D_UNABLE_TO_SEND_AZ_TABLE_Q_FULL	40		
X4D_STATE_2_EVENT_TABLE_NUMBER_OUTSIDE_RANGE	80		
Science Data Handler (SCI_DATA_ERR) / ..._AVAILABLE	100		
X4D_UNABLE_TO_SEND_EL_TABLE	200	1	
X50_SCIENCE_DATA_HANDLER_GENERAL_ERROR / X4D_UNABLE_TO_SEND_EL_TABLE_Q_FULL	400		
X50_BUFFER_NOT_AVAIL_FOR_DETECTOR_DATA		2	
X4D_STATE_3_EVENT_TABLE_NUMBER_OUTSIDE_RAN / X50_BUFFER_NOT_AVAIL_FOR_TRACKING_AND_PTG_DATA	800	4	
X4D_STATE_3_INTERNAL_ERROR_NO_TABLE_AVAILABLE / X50_1553_SCIENCE_BUF_NOT_SERVICED	1000	8	
X4D_WARNING_EVENT_TABLE_NOT_PREVIOUSLY_SET	2000		
X4D_EVENT_NUMBER_OUTSIDE_CURRENT_RANGE_LOW	4000		
X4D_EVENT_NUMBER_OUTSIDE_CURRENT_RANGE_HIGH	8000		
X4D_EVENT_TABLE_NUMBER_OUTSIDE_RANGE_LOW	10000		
X4D_EVENT_TABLE_NUMBER_OUTSIDE_RANGE_HIGH	20000		
X4D_ERROR_EVENT_TABLE_NOT_SET_UP	40000		
X4D_UNABLE_TO_READ_EVT_COMMAND_TABLE	80000		
X4D_INTERNAL_ERROR_INVALID_SEP_STATE	100000		
X4D_UNABLE_TO_READ_EVT_AZ_ENTRIES	200000		
X4D_UNABLE_TO_READ_EVT_EL_ENTRIES	400000		
X4D_WARNING_TABLE_ID_DOESNT_MATCH	800000		
X4D_SCI_EVT_CMD_TABLE_EMPTY	1000000		

X4D_UNABLE_TO_SEND_EVENT_COMMAND	2000000
X4D_UNABLE_TO_SEND_EVENT_COMMAND	4000000
X4D_EVENT_TIME_IS_PAST_EVENT_SKIPPED	8000000

Timed Command Processor (TIMED_CMND_ERR)

X4C_COMMAND_REQUESTED_FOR_DELETION_NOT_FOUND	1
X4C_COMMAND_TOO_LARGE	2
X4C_ERROR_DELETED_OLD_TIMED_COMMAND	4
X4C_WARNING_TIMED_COMMAND_OLDER_THAN_CURRENT_TIME	8
X4C_TIMED_COMMAND_TABLE_FULL	10
X4C_TIMED_COMMAND_MISSING_ABSOLUTE_TIME	20
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X4C_TIMED_COMMAND_MISSING_ABSOLUTE_TIME	

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