

BS_COMM_x	0	Interface OK
	1	Interface failure
SS_HTR_x	0	Unknown
	1	Green
	2	Yellow Low
	3	Yellow High
	4	Red Low
	5	Red High
CR_DEV_x	0	Disabled State
	1	Normal State
	2	Maintenance State
	3	Failed State
SS_DEV_x (except for covers)	0	Unknown Status
	1	Not Operational Status
	2	Operational Status
	3	Fault Status
SS_DEV_LATCHx	0	Unknown
	1	Latched
	2	Unlatched
BS_DEV_COVERS	0	Disarmed
	1	Armed
SS_DEV_COVERx	0	Unknown
	1	Closed
	2	Open
	3	Half way

6.1 TelemBlock1

Name	Word	Bit	Width	Description
SS_CRITICAL_1_0	0	0	16	critical telemetry, first word
SS_CRITICAL_1_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_1	2	0	8	Telemetry Block Number (1-8)
SS_MAJOR_CYCLE_1	2	8	8	C&T bus Major Cycle # (0-63)
BS_FDIR_ON	3	0	1	FDIR (0=off, 1=on)
BS_SAFE_ON	3	1	1	Auto safe mode entry (0=no, 1=yes)
BS_TMF_SELECT	3	2	1	TMF bus selection (0=A, 1=B)
BS_SCIENCE	3	3	1	LRS Science Data (1=yes)
BS_ENGINEERING	3	4	1	LRS Eng. Data (1=yes)
BS_HOUSEKEEPING	3	5	1	LRS H/K Telemetry (1=yes)

Name	Word	Bit	Width	Description
BS_ANCILLARY	3	6	1	LRS Ancillary Data (1=yes)
BS_TEST_PACKET	3	7	1	LRS Test Packet (1=yes)
BS_COOLER_ON	3	8	1	Cooler on during Safe Mode (1=yes)
spare_3	3	9	7	unused
BS_ICM_MLOAD_OK	4	0	1	Last Memory load status (1=successful)
BS_ICM_MDUMP	4	1	1	ICM Memory Dump (1=active)
BS_ICM_MLOAD	4	2	1	ICM Memory Load (1=active)
BS_GETDATA_VALID	4	3	1	NR_GETDATA valid (1=valid)
BS_MAINTENANCE	4	4	1	Special Maint. Cmds. Enabled (1=yes)
BS_EEBURN	4	5	1	EEBURN enable (0=no, 1=yes)
spare_4	4	6	10	not used
SS_LRS_FREE	5	0	4	# of LRS buffers free
SS_LRS_TOTAL	5	4	4	total number of LRS buffers allocated
SS_LRS_ERROR	5	8	4	LRS bus error code, 1-n
spare_5	5	12	4	not used
NR_GETDATA	6	0	16	Return word for last GET_DATA cmd
SS_BOOT_STATUS	7	0	16	ICM boot up error code 0x0001 Startup Stack 0x0002 DMA 0 Failure 0x0004 DMA 1 Failure 0x0008 Timer 0 Failure 0x0010 Timer 1 Failure 0x0020 Timer 2 Failure 0x0040 Interrupt Controller Failure 0x0080 Interrupts stuck on 0x0100 Boot EEPROM bank CRC error 0x0200 Spare EEPROM bank CRC error
BS_COMM_SPM1	8	0	1	SPM1 interface status (1=ok)
BS_COMM_SPM2	8	1	1	SPM2 interface status (1=ok)
BS_COMM_PCDM	8	2	1	PCDM interface status (1=ok)
BS_COMM_SCDM	8	3	1	SCDM interface status (1=ok)
BS_COMM_PLDM	8	4	1	PLDM interface status (1=ok)
BS_COMM_TCMM	8	5	1	TCMM interface status (1=ok)

Name	Word	Bit	Width	Description
BS_COMM_COOLER	8	6	1	Cooler interface status (1=ok)
spare_8	8	7	9	not used
BS_EEBURN_ON	9	0	1	EEPROM program (1=active)
BS_EEBURN_STATUS	9	1	1	EEPROM program status (1=pass)
BS_BURST_ON	9	2	1	Burst data collection (1=on)
BS_BURST	9	3	1	Burst status (1=pass)
SS_BURST_MODE	9	4	4	Internal burst mode (0=off, 1=init, 2=running, 3=done)
spare_9	9	8	8	spare
CS_ICM_RELEASE	10	0	8	ICM Firmware Release (0...)
CS_ICM_VERSION	10	8	8	ICM Firmware Version (0...)
SS_HTR0_DET1	11	0	3	detector 1 voltage status
SS_HTR0_DET2	11	3	3	detector 2 voltage status
SS_HTR0_DET3	11	6	3	detector 3 voltage status
SS_HTR0_DET4	11	9	3	detector 4 voltage status
SS_HTR1_DET5	11	12	3	detector 5 voltage status
spare_11	11	15	1	not used
SS_HTR1_DET6	12	0	3	detector 6 voltage status
SS_HTR1_DET7	12	3	3	detector 7 voltage status
SS_HTR1_DET8	12	6	3	detector 8 voltage status
spare_12	12	9	7	not used
SS_HTR2_EARTH1	13	0	3	PCA earth 1 voltage status
SS_HTR2_EARTH2	13	3	3	PCA earth 2 voltage status
SS_HTR3_SPACE1	13	6	3	PCA space 1 voltage status
spare_13	13	9	7	not used
SS_HTR3_SPACE2	14	0	3	PCA space 2 voltage status
SS_HTR4_EARTH	14	3	3	Earth cover latch voltage status
SS_HTR5_SPACE	14	6	3	Space cover latch voltage status
SS_HTR6_CAL1_1	14	9	3	Cal source 1, pt 1 voltage status
SS_HTR6_CAL1_2	14	12	3	Cal source 1, pt 2 voltage status
spare_14	14	15	1	not used
SS_HTR7_CAL2_1	15	0	3	Cal source 2, pt 1 voltage status

Name	Word	Bit	Width	Description
SS_HTR7_CAL2_2	15	3	3	Cal source 2, pt 2 voltage status
SS_HTR8_CAL3_1	15	6	3	Cal source 3, pt 1 voltage status
SS_HTR8_CAL3_2	15	9	3	Cal source 3, pt 2 voltage status
SS_HTR9_CAL4_1	15	12	3	Cal source 4, pt 1 voltage status
spare_15	15	15	1	not used
SS_HTR9_CAL4_2	16	0	3	Cal source 4, pt 2 voltage status
SS_HTR10_SIEVE1	16	3	3	Sieve 1 voltage status
SS_HTR11_SIEVE2	16	6	3	Sieve 2 voltage status
SS_HTR12_SIEVE3	16	9	3	Sieve 3 voltage status
SS_HTR13_SIEVE4	16	12	3	Sieve 4 voltage status
BS_LIMIT_AMP	16	15	1	PMC amplitude/temperature limit not in tolerance
SS_LIMIT_ZONE	17	0	8	limit trip value (green=1, yellowLo=2, yellowHi=3, redLo=4, redHi=5)
SS_LIMIT_DEVICE	17	8	8	limit trip device #
SS_SELECT_TABLE	18	0	16	select_table command status
SS_DEV_INIT	19	0	16	dev_init command status
SS_SET_DEVICE	20	0	16	set_device command status
SS_SET_HEATER	21	0	8	set_heater command status
SS_RESET_DEVICE	21	8	8	reset_device command status
SS_ENABLE_FUSE	22	0	8	enable_fuse command status
SS_DISABLE_FUSE	22	8	8	disable_fuse command status
SS_EN_DETECTOR	23	0	8	enable_detector command status
SS_DIS_DETECTOR	23	8	8	disable_detector command status
SS_ON_DEVICE	24	0	8	turn_on_device command status
SS_OFF_DEVICE	24	8	8	turn_off_device status
software_spare1	25	0	16	Reserved
software_spare2	26	0	16	Reserved
software_spare3	27	0	16	Reserved
BS_COOLER_TEMP	28	0	1	set_cooler_temp command status toggle
BS_COOLER_DIODE	28	1	1	set_cooler_diode command status toggle

Name	Word	Bit	Width	Description
BS_MOVE_MIRROR	28	2	1	move_mirror command status toggle
BS_PASS_CMD	28	3	1	pass_command command status toggle
BS_PASS_DATA	28	4	1	pass_data command status toggle
BS_PASS_MSL	28	5	1	pass_msl command status toggle
toggle_spare4	28	6	1	Reserved
BS_SET_TELEM	28	7	1	set_telem command status toggle
toggle_spare0	28	8	8	Reserved
BS_FREQSCAN_OK	29	0	1	Frequence scan is ok
toggle_spare5	29	1	15	(null)
toggle_spare2	30	0	16	Reserved
toggle_spare3	31	0	16	Reserved

6.2 TelemBlock2

Name	Word	Bit	Width	Description
SS_CRITICAL_2_0	0	0	16	critical telemetry, first word
SS_CRITICAL_2_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_2	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_2	2	8	8	MIL-STD-1553B Major Cycle
SS_DEV_LATCH1	3	0	2	Earth port latch position status
SS_DEV_LATCH2	3	2	2	Space latch position status
BS_DEV_COVERS	3	4	1	Port covers armed status
SS_DEV_COVER1	3	5	2	Earth cover position status
SS_DEV_COVER2	3	7	2	Space cover position status
spare_3	3	9	7	unused
CR_DEV_MIRROR1	4	0	2	Mirror 1 state
SS_DEV_MIRROR1	4	2	2	Mirror 1 Status
CR_DEV_MIRROR2	4	4	2	Mirror 2 state
SS_DEV_MIRROR2	4	6	2	Mirror 2 Status
CR_DEV_MIRROR3	4	8	2	Mirror 3 state
SS_DEV_MIRROR3	4	10	2	Mirror 3 Status
CR_DEV_MIRROR4	4	12	2	Mirror 4 state

Name	Word	Bit	Width	Description
SS_DEV_MIRROR4	4	14	2	Mirror 4 Status
CR_DEV_CHOP1	5	0	2	Chopper 1 state
SS_DEV_CHOP1	5	2	2	Chopper 1 Status
CR_DEV_CHOP2	5	4	2	Chopper 2 state
SS_DEV_CHOP2	5	6	2	Chopper 2 Status
CR_DEV_CHOP3	5	8	2	Chopper 3 state
SS_DEV_CHOP3	5	10	2	Chopper 3 Status
CR_DEV_CHOP4	5	12	2	Chopper 4 state
SS_DEV_CHOP4	5	14	2	Chopper 4 Status
CR_DEV_LMC1	6	0	2	LMC 1 State
SS_DEV_LMC1	6	2	2	LMC 1 Status
CR_DEV_LMC2	6	4	2	LMC 2 State
SS_DEV_LMC2	6	6	2	LMC 2 Status
CR_DEV_LMC3	6	8	2	LMC 3 State
SS_DEV_LMC3	6	10	2	LMC 3 Status
CR_DEV_LMC4	6	12	2	LMC 4 State
SS_DEV_LMC4	6	14	2	LMC 4 Status
CR_DEV_PMC1	7	0	2	PMC 1 State
SS_DEV_PMC1	7	2	2	PMC 1 Status
CR_DEV_PMC2	7	4	2	PMC 2 State
SS_DEV_PMC2	7	6	2	PMC 2 Status
CR_DEV_SPM1	7	8	2	SPM 1 State
SS_DEV_SPM1	7	10	2	Signal Processing 1 Status
CR_DEV_SPM2	7	12	2	SPM 2 State
SS_DEV_SPM2	7	14	2	Signal Processing 2 Status
spare_8	8	0	2	not used
SS_DEV_TCMM	8	2	2	TCMM status (only 0, 2, and 3 valid)
spare_8a	8	4	2	not used
SS_DEV_PCDM	8	6	2	PCDM status (only, 0, 2, and 3 valid)
CR_HTR_NEST1	8	8	2	Detector heater 1 State
SS_HTR_NEST1	8	10	2	Status of detector heater, table 1

Name	Word	Bit	Width	Description
CR_HTR_NEST2	8	12	2	Detector heater 2 State
SS_HTR_NEST2	8	14	2	Status of detector heater, table 2
CR_HTR_CAL1	9	0	2	Calibration source 1 State
SS_HTR_CAL1	9	2	2	Status of calibration source 1
CR_HTR_CAL2	9	4	2	Calibration source 2 State
SS_HTR_CAL2	9	6	2	Status of calibration source 2
CR_HTR_CAL3	9	8	2	Calibration source 3 State
SS_HTR_CAL3	9	10	2	Status of calibration source 3
CR_HTR_CAL4	9	12	2	Calibration source 4 State
SS_HTR_CAL4	9	14	2	Status of calibration source 4
CR_HTR_SIEVE1	10	0	2	sieve 1 heater State
SS_HTR_SIEVE1	10	2	2	sieve 1 heater status
CR_HTR_SIEVE2	10	4	2	sieve 2 heater State
SS_HTR_SIEVE2	10	6	2	sieve 2 heater status
CR_HTR_SIEVE3	10	8	2	sieve 3 heater State
SS_HTR_SIEVE3	10	10	2	sieve 3 heater status
CR_HTR_SIEVE4	10	12	2	sieve 4 heater State
SS_HTR_SIEVE4	10	14	2	sieve 4 heater status
CR_DEV_COOLER	11	0	2	Cooler State
SS_DEV_COOLER	11	2	2	Cooler Status
SS_DEV_COOLMODE	11	4	2	cooler mode (0=off, 1=Temperature mode, 2=Manual mode, 3=not used)
SS_DEV_COOLVMODE	11	6	2	cooler vibration mode (0=DECS off, 1=Position DECS, 2=Acceleration DECS, 3=not used)
spare_11	11	8	8	not used
SS_FREQSCAN_STEP	12	0	8	PMC Frequency scan step
SS_FREQSCAN_PMC	12	8	8	PMC Frequency scan PMC#
SS_FREQSCAN_FREQ	13	0	16	PMC Frequency scan frequency
SS_FREQSCAN_AMP	14	0	16	PMC Frequency scan amplitude
SR_DEV_MIRROR1	15	0	8	scan mirror 1 raw status
SR_DEV_MIRROR2	15	8	8	scan mirror 2 raw status

Name	Word	Bit	Width	Description
SR_DEV_MIRROR3	16	0	8	scan mirror 3 raw status
SR_DEV_MIRROR4	16	8	8	scan mirror 4 raw status
SR_DEV_CHOP1	17	0	8	chopper 1 raw status
SR_DEV_CHOP2	17	8	8	chopper 2 raw status
SR_DEV_CHOP3	18	0	8	chopper 3 raw status
SR_DEV_CHOP4	18	8	8	chopper 4 raw status
SR_DEV_LMC1	19	0	8	LMC 1 raw status
SR_DEV_LMC2	19	8	8	LMC 2 raw status
SR_DEV_LMC3	20	0	8	LMC 3 raw status
SR_DEV_LMC4	20	8	8	LMC 4 raw status
SR_DEV_PMC1	21	0	8	PMC 1 raw status
SR_DEV_PMC2	21	8	8	PMC 2 raw status
SR_DEV_SPM1	22	0	16	SPM 1 raw status
SR_DEV_SPM2	23	0	16	SPM 2 raw status
SR_DEV_TCMM	24	0	16	TCMM raw status
SR_MIRROR1_POS	25	0	16	mirror 1 raw status, bit 15: 0=valid
SR_MIRROR2_POS	26	0	16	mirror 2 raw status, bit 15: 0=valid
SR_MIRROR3_POS	27	0	16	mirror 3 raw status, bit 15: 0=valid
SR_MIRROR4_POS	28	0	16	mirror 4 raw status, bit 15: 0=valid
SR_DMA_0	29	0	16	# of DMA words channel 0
SR_DMA_1	30	0	16	# of DMA words - channel 1
spare_31	31	0	16	(null)

6.3 TelemBlock3

Block 3 is used for cooler telemetry.

Name	Word	Bit	Width	Description
SS_CRITICAL_3_0	0	0	16	critical telemetry, first word
SS_CRITICAL_3_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_3	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_3	2	8	8	C&T Major Cycle number
TR_COOLER_ATEM	3	0	16	atem command temperature value

Name	Word	Bit	Width	Description
SR_COMP_X_VIB	4	0	16	compressor X vibration (rms)
SR_COMP_Y_VIB	5	0	16	compressor Y vibration (rms)
SR_DISP_X_VIB	6	0	16	displacer X vibration (rms)
SR_DISP_Y_VIB	7	0	16	displacer Y vibration (rms)
SR_COMP_Z_VIB	8	0	16	compressor Z vibration (rms)
SR_DISP_Z_VIB	9	0	16	displacer Z vibration (rms)
SR_COMP_A_POS	10	0	16	compressor A position (rms)
SR_DISP_A_POS	11	0	16	displacer A position (rms)
SR_COMP_B_POS	12	0	16	compressor B position (rms)
SR_DISP_B_POS	13	0	16	displacer B position (rms)
IR_COMP_A_MOTOR	14	0	16	compressor A motor current (rms)
IR_COMP_B_MOTOR	15	0	16	compressor B motor current (rms)
IR_DISP_A_MOTOR	16	0	16	displacer A motor current (rms)
IR_DISP_B_MOTOR	17	0	16	displacer B motor current (rms)
VR_M12VDC	18	0	16	-12VDC monitor
VR_M15VDC	19	0	16	-15VDC monitor
TR_COOL_CDE_1	20	0	16	electronics temperature 1
TR_COOL_CDE_2	21	0	16	electronics temperature 2
TR_COOL_CDE_3	22	0	16	electronics temperature 3
TR_COOL_DISP1	23	0	16	displacer 1 temperature
TR_COOL_DISP2	24	0	16	displacer 2 temperature
VR_P15VDC	25	0	16	+15VDC monitor
VR_P12VDC	26	0	16	+12VDC monitor
VR_P5VDC	27	0	16	+5VDC monitor
TR_COLD_TIP1_W	28	0	16	temp diode 1 wide (50K to 300K)
TR_COLD_TIP2_W	29	0	16	temp diode 2 wide (50K to 300K)
TR_TEMP_DIODE_RN	30	0	16	temp diode reference narrow (offset)
TR_COLD_TIP1_N	31	0	16	temp diode 1 narrow (50K to 100K)

6.4 TelemBlock4

Name	Word	Bit	Width	Description
SS_CRITICAL_4_0	0	0	16	critical telemetry, first word
SS_CRITICAL_4_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_4	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_4	2	8	8	C&T Major Cycle number
TR_COLD_TIP2_N	3	0	16	temp diode 2 narrow (50k to 100K)
TR_TEMP_DIODE_RW	4	0	16	temp diode reference wide (offset)
IR_SCAN1_MTR	5	0	16	SCDM current monitor, scan motor 1
IR_SCAN2_MTR	6	0	16	SCDM current monitor, scan motor 2
IR_SCAN3_MTR	7	0	16	SCDM current monitor, scan motor 3
IR_SCAN4_MTR	8	0	16	SCDM current monitor, scan motor 4
IR_CHOP1_MTR	9	0	16	SCDM current monitor, chopper 1
IR_CHOP2_MTR	10	0	16	SCDM current monitor, chopper 2
IR_CHOP3_MTR	11	0	16	SCDM current monitor, chopper 3
IR_CHOP4_MTR	12	0	16	SCDM current monitor, chopper 4
IR_LMC1_MTR	13	0	16	PLDM current monitor, LMC 1 motor
IR_LMC2_MTR	14	0	16	PLDM current monitor, LMC 2 motor
IR_LMC3_MTR	15	0	16	PLDM current monitor, LMC 3 motor
IR_LMC4_MTR	16	0	16	PLDM current monitor, LMC 4 motor
IR_PMC1_MTR	17	0	16	PLDM current monitor, PMC 1 motor
IR_PMC2_MTR	18	0	16	PLDM current monitor, PMC 2 motor
spare_19	19	0	16	unused
spare_20	20	0	16	unused
spare_21	21	0	16	unused
spare_22	22	0	16	unused
spare_23	23	0	16	unused
spare_24	24	0	16	unused
spare_25	25	0	16	unused
spare_26	26	0	16	unused
spare_27	27	0	16	unused
spare_28	28	0	16	unused

Name	Word	Bit	Width	Description
spare_29	29	0	16	unused
spare_30	30	0	16	unused
spare_31	31	0	16	unused

6.5 TelemBlock5

Name	Word	Bit	Width	Description
SS_CRITICAL_5_0	0	0	16	critical telemetry, first word
SS_CRITICAL_5_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_5	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_5	2	8	8	C&T Major Cycle number
TR_COOL_COMP1	3	0	16	compressor 1 temp.
TR_COOL_COMP2	4	0	16	compressor 2 temp.
TR_SCAN1_MTR	5	0	16	Scan motor 1 temperature
TR_SCAN2_MTR	6	0	16	Scan motor 2 temperature
TR_SCAN3_MTR	7	0	16	Scan motor 3 temperature
TR_SCAN4_MTR	8	0	16	Scan motor 4 temperature
TR_CHOP1_MTR	9	0	16	Chopper 1 motor temperature
TR_CHOP2_MTR	10	0	16	Chopper 2 motor temperature
TR_CHOP3_MTR	11	0	16	Chopper 3 motor temperature
TR_CHOP4_MTR	12	0	16	Chopper 4 motor temperature
TR_LMC1_MTR	13	0	16	LMC1 motor temperature
TR_LMC2_MTR	14	0	16	LMC2 motor temperature
TR_LMC3_MTR	15	0	16	LMC3 motor temperature
TR_LMC4_MTR	16	0	16	LMC4 motor temperature
TR_PMC1_MTR	17	0	16	PMC1 motor temperature
TR_PMC2_MTR	18	0	16	PMC2 motor temperature
TR_SPM1	19	0	16	SPM1 temperature
TR_SPM2	20	0	16	SPM 2 Temperature
TR_TCMMA_1	21	0	16	TCMM PRT board A temp.
TR_TCMMA_2	22	0	16	TCMM PRT board B temp.
TR_TCMMB_1	23	0	16	TCMM Thermistor board temp.

Name	Word	Bit	Width	Description
TR_TCM MB_2	24	0	16	TCMM Pressure sensor board temp.
TR_PSM	25	0	16	PSM Temperature Point
TR_BPLT_1	26	0	16	Base Plate, Temperature Point 1
TR_BPLT_2	27	0	16	Base Plate, Temperature Point 2
TR_BPLT_3	28	0	16	Base Plate, Temperature Point 3
spare_29	29	0	16	unused
spare_30	30	0	16	unused
spare_31	31	0	16	unused

6.6 TelemBlock6

Name	Word	Bit	Width	Description
SS_CRITICAL_6_0	0	0	16	critical telemetry, first word
SS_CRITICAL_6_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_6	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_6	2	8	8	C&T Major Cycle number
TR_THERM1_HI	3	0	16	TCMM Thermistor high ref, bank 1
TR_THERM1_LO	4	0	16	TCMM Thermistor low ref, bank 1
TR_THERM2_HI	5	0	16	TCMM Thermistor high ref, bank 2
TR_THERM2_LO	6	0	16	TCMM Thermistor low ref, bank 2
TR_THERM3_HI	7	0	16	TCMM Thermistor high ref, bank 3
TR_THERM3_LO	8	0	16	TCMM Thermistor low ref, bank 3
TR_THERM4_HI	9	0	16	TCMM Thermistor high ref, bank 4
TR_THERM4_LO	10	0	16	TCMM Thermistor low ref, bank 4
TR_SPARE_1	11	0	16	Spare, 0
TR_SPARE_2	12	0	16	Spare, 0
TR_SPARE_3	13	0	16	Spare, 0
spare_14	14	0	16	Obsolete TR_LATCH_EARTH, Earth view latch temp point
spare_15	15	0	16	Obsolete TR_LATCH_SPACE, Space view latch temp point
spare_16	16	0	16	Obsolete TR_PCA_EARTH_1, Earth Cover Temp Point 1

Name	Word	Bit	Width	Description
spare_17	17	0	16	Obsolete TR_PCA_EARTH_2, Earth Cover Temp Point 2
spare_18	18	0	16	Obsolete TR_PCA_SPACE_1, Space Cover Temp Point 3
spare_19	19	0	16	Obsolete TR_PCA_SPACE_2, Space Cover Temp Point 4
spare_20	20	0	16	Obsolete TR_THERM_PCDM_HI, PCDM thermistor, hi ref
spare_21	21	0	16	Obsolete TR_THERM_PCDM_LO, PCDM thermistor, low ref
spare_22	22	0	16	unused
spare_23	23	0	16	unused
spare_24	24	0	16	unused
spare_25	25	0	16	unused
spare_26	26	0	16	unused
spare_27	27	0	16	unused
spare_28	28	0	16	unused
spare_29	29	0	16	unused
spare_30	30	0	16	unused
spare_31	31	0	16	unused

6.7

TelemBlock7

Name	Word	Bit	Width	Description
SS_CRITICAL_7_0	0	0	16	critical telemetry, first word
SS_CRITICAL_7_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_7	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_7	2	8	8	C&T Major Cycle number
TS_ENG_POINT1	3	0	16	Engineering temperature point 1
TS_ENG_POINT2	4	0	16	Engineering temperature point 2
TS_ENG_POINT3	5	0	16	Engineering temperature point 3
TS_ENG_POINT4	6	0	16	Engineering temperature point 4
TS_ENG_POINT5	7	0	16	Engineering temperature point 5
TS_ENG_POINT6	8	0	16	Engineering temperature point 6

Name	Word	Bit	Width	Description
TS_ENG_POINT7	9	0	16	Engineering temperature point 7
TS_ENG_POINT8	10	0	16	Engineering temperature point 8
TS_ENG_POINT9	11	0	16	Engineering temperature point 9
TS_ENG_POINT10	12	0	16	Engineering temperature point 10
TS_ENG_POINT11	13	0	16	Engineering temperature point 11
TS_ENG_POINT12	14	0	16	Engineering temperature point 12
TS_ENG_POINT13	15	0	16	Engineering temperature point 13
TS_ENG_POINT14	16	0	16	Engineering temperature point 14
TS_ENG_POINT15	17	0	16	Engineering temperature point 15
TS_ENG_POINT16	18	0	16	Engineering temperature point 16
TS_ENG_POINT17	19	0	16	Engineering temperature point 17
TS_ENG_POINT18	20	0	16	Engineering temperature point 18
TS_ENG_POINT19	21	0	16	Engineering temperature point 19
TS_ENG_POINT20	22	0	16	Engineering temperature point 20
TS_ENG_POINT21	23	0	16	Engineering temperature point 21
TS_ENG_POINT22	24	0	16	Engineering temperature point 22
TS_ENG_POINT23	25	0	16	Engineering temperature point 23
TS_ENG_POINT24	26	0	16	Engineering temperature point 24
TS_ENG_POINT25	27	0	16	Engineering temperature point 25
TS_ENG_POINT26	28	0	16	Engineering temperature point 26
TS_ENG_POINT27	29	0	16	Engineering temperature point 27
TS_ENG_POINT28	30	0	16	Engineering temperature point 28
TS_ENG_POINT29	31	0	16	Engineering temperature point 29

6.8 TelemBlock8

Name	Word	Bit	Width	Description
SS_CRITICAL_8_0	0	0	16	critical telemetry, first word
SS_CRITICAL_8_1	1	0	16	critical telemetry, second word
SS_TELEM_BLOCK_8	2	0	8	Telemetry Block Number
SS_MAJOR_CYCLE_8	2	8	8	C&T Major Cycle number

Name	Word	Bit	Width	Description
SR_CT_STATUS	3	0	16	C&T BCRTM status register
SR_CT_COMMAND	4	0	16	C&T BCRTM current 1553 command register
SR_LRS_STATUS	5	0	16	LRS BCRTM status register
SR_LRS_COMMAND	6	0	16	LRS BCRTM current 1553 command register
spare_7	7	0	16	unused
spare_8	8	0	16	unused
spare_9	9	0	16	unused
spare_10	10	0	16	unused
spare_11	11	0	16	unused
spare_12	12	0	16	unused
spare_13	13	0	16	unused
SR_EARTH_STATUS	14	0	16	Earth port status, see following bit descriptions
SR_SPACE_STATUS	15	0	16	Space port status, see following bit descriptions
TR_EARTH_MOTOR	16	0	16	Earth port, motor temperature
TR_EARTH_BEARING	17	0	16	Earth port, bearing temperature
TR_EARTH_LATCH	18	0	16	Earth port, latch temperature
TR_EARTH_BAFFLE	19	0	16	Earth port, baffel temperature
VR_PCDM_REF28	20	0	16	PCDM +28V reference
VR_PCDM_REF14	21	0	16	PCDM +13.7V reference
VR_PCDM_REF5	22	0	16	PCDM +5V reference
VR_PCDM_SPARE1	23	0	16	PCDM spare
TR_SPACE_MOTOR	24	0	16	Space port, motor temperature
TR_SPACE_BEARING	25	0	16	Space port, bearing temperature
TR_SPACE_LATCH	26	0	16	Space port, latch temperature
TR_SPACE_BAFFLE	27	0	16	Space port, baffel temperature
TR_PCDM_REF_H	28	0	16	PCDM temperature reference high
TR_PCDM_REF_L	29	0	16	PCDM temperature reference low
TR_PCDM_SPARE1	30	0	16	PCDM spare
TR_PCDM_SPARE2	31	0	16	PCDM spare

6.9 LastVoltage

This table is used internally by the ICM and included for reference only.

Name	Word	Bit	Width	Description
HS_DETECTOR1	0	0	16	detector 1
HS_DETECTOR2	1	0	16	detector 2
HS_DETECTOR3	2	0	16	detector 3
HS_DETECTOR4	3	0	16	detector 4
HS_DETECTOR5	4	0	16	detector 5
HS_DETECTOR6	5	0	16	detector 6
HS_DETECTOR7	6	0	16	detector 7
HS_DETECTOR8	7	0	16	detector 8
HS_CAL1_1	8	0	16	Cal source 1, PRT 1, coarse reading
HS_CAL1_2	9	0	16	Cal source 1, PRT 2, coarse reading
HS_CAL2_1	10	0	16	Cal source 2, PRT 1, coarse reading
HS_CAL2_2	11	0	16	Cal source 2, PRT 2, coarse reading
HS_CAL3_1	12	0	16	Cal source 3, PRT 1, coarse reading
HS_CAL3_2	13	0	16	Cal source 3, PRT 2, coarse reading
HS_CAL4_1	14	0	16	Cal source 4, PRT 1, coarse reading
HS_CAL4_2	15	0	16	Cal source 4, PRT 2, coarse reading
HS_SIEVE1	16	0	16	Sieve 1, PRT, coarse reading
HS_SIEVE2	17	0	16	Sieve 2, PRT, coarse reading
HS_SIEVE3	18	0	16	Sieve 3, PRT, coarse reading
HS_SIEVE4	19	0	16	Sieve 4, PRT, coarse reading

6.10 EngTelem

This is the MOPITT Instrument Engineering telemetry. It is available on the LRS bus in engineering CCSDS packets. Note that this table does not contain the packet header information, only the actual engineering data.

Name	Word	Bit	Width	Description
TS_ENG_CAL1_1	0	0	16	calibration source 1, PRT 1
TS_ENG_CAL1_1RH	1	0	16	calibration source 1, PRT 1, ref hi
TS_ENG_CAL1_1RL	2	0	16	calibration source 1, PRT 1, ref lo
TS_ENG_CAL1_2	3	0	16	calibration source 1, PRT 2
TS_ENG_CAL1_2RH	4	0	16	calibration source 1, PRT 2, ref hi
TS_ENG_CAL1_2RL	5	0	16	calibration source 1, PRT 2, ref lo
TS_ENG_CAL2_1	6	0	16	calibration source 2, PRT 1
TS_ENG_CAL2_1RH	7	0	16	calibration source 2, PRT 1, ref hi
TS_ENG_CAL2_1RL	8	0	16	calibration source 2, PRT 1, ref lo
TS_ENG_CAL2_2	9	0	16	calibration source 2, PRT 2
TS_ENG_CAL2_2RH	10	0	16	calibration source 2, PRT 2, ref hi
TS_ENG_CAL2_2RL	11	0	16	calibration source 2, PRT 2, ref lo
TS_ENG_CAL3_1	12	0	16	calibration source 3, PRT 1
TS_ENG_CAL3_1RH	13	0	16	calibration source 3, PRT 1, ref hi
TS_ENG_CAL3_1RL	14	0	16	calibration source 3, PRT 1, ref lo
TS_ENG_CAL3_2	15	0	16	calibration source 3, PRT 2
TS_ENG_CAL3_2RH	16	0	16	calibration source 3, PRT 2, ref hi
TS_ENG_CAL3_2RL	17	0	16	calibration source 3, PRT 2, ref lo
TS_ENG_CAL4_1	18	0	16	calibration source 4, PRT 1
TS_ENG_CAL4_1RH	19	0	16	calibration source 4, PRT 1, ref hi
TS_ENG_CAL4_1RL	20	0	16	calibration source 4, PRT 1, ref lo
TS_ENG_CAL4_2	21	0	16	calibration source 4, PRT 2
TS_ENG_CAL4_2RH	22	0	16	calibration source 4, PRT 2, ref hi
TS_ENG_CAL4_2RL	23	0	16	calibration source 4, PRT 2, ref lo
TR_ENG_LMC1	24	0	16	LMC1 GAS, thermistor
TR_ENG_LMC2	25	0	16	LMC2 GAS, thermistor

Name	Word	Bit	Width	Description
TR_ENG_LMC3	26	0	16	LMC3 GAS, thermistor
TR_ENG_LMC4	27	0	16	LMC4 GAS, thermistor
TR_ENG_PMC1	28	0	16	PMC1 GAS, thermistor
TR_ENG_PMC2	29	0	16	PMC2 GAS, thermistor
TS_ENG_SIEVE1	30	0	16	sieve 1, PRT
TS_ENG_SIEVE1_RH	31	0	16	sieve 1, PRT, ref hi
TS_ENG_SIEVE1_RL	32	0	16	sieve 1, PRT, ref lo
TS_ENG_SIEVE2	33	0	16	sieve 2, PRT
TS_ENG_SIEVE2_RH	34	0	16	sieve 2, PRT, ref hi
TS_ENG_SIEVE2_RL	35	0	16	sieve 2, PRT, ref lo
TS_ENG_SIEVE3	36	0	16	sieve 3, PRT
TS_ENG_SIEVE3_RH	37	0	16	sieve 3, PRT, ref hi
TS_ENG_SIEVE3_RL	38	0	16	sieve 3, PRT, ref lo
TS_ENG_SIEVE4	39	0	16	sieve 4, PRT
TS_ENG_SIEVE4_RH	40	0	16	sieve 4, PRT, ref hi
TS_ENG_SIEVE4_RL	41	0	16	sieve 4, PRT, ref lo
TR_ENG_DIODE1_HI	42	0	16	diode reference, high, bank 1
TR_ENG_DIODE1_LO	43	0	16	diode reference, low, bank 1
TR_ENG_CFILTER1	44	0	16	cold filter 1
TR_ENG_CFILTER3	45	0	16	cold filter 3
TR_ENG_CFILTER5	46	0	16	cold filter 5
TR_ENG_CFILTER7	47	0	16	cold filter 7
TR_ENG_DETECTOR1	48	0	16	detector 1
TR_ENG_DETECTOR2	49	0	16	detector 2
TR_ENG_DETECTOR3	50	0	16	detector 3
TR_ENG_DETECTOR4	51	0	16	detector 4
TR_ENG_DETECTOR5	52	0	16	detector 5
TR_ENG_DETECTOR6	53	0	16	detector 6
TR_ENG_DETECTOR7	54	0	16	detector 7
TR_ENG_DETECTOR8	55	0	16	detector 8
TR_ENG_THERM1_HI	56	0	16	thermistor reference 1, high

Name	Word	Bit	Width	Description
TR_ENG_THERM1_LO	57	0	16	thermistor reference 1, low
TR_ENG_THERM2_HI	58	0	16	thermistor reference 2, high
TR_ENG_THERM2_LO	59	0	16	thermistor reference 2, low
TR_ENG_THERM3_HI	60	0	16	thermistor reference 3, high
TR_ENG_THERM3_LO	61	0	16	thermistor reference 3, low
TR_ENG_THERM4_HI	62	0	16	thermistor reference 4, high
TR_ENG_THERM4_LO	63	0	16	thermistor reference 4, low
TR_ENG_CHOP1	64	0	16	chopper 1, thermistor
TR_ENG_CHOP2	65	0	16	chopper 2, thermistor
TR_ENG_CHOP3	66	0	16	chopper 3, thermistor
TR_ENG_CHOP4	67	0	16	chopper 4, thermistor
TR_ENG_OPT1_1	68	0	16	optical table 1, thermistor 1
TR_ENG_OPT1_2	69	0	16	optical table 1, thermistor 2
TR_ENG_OPT1_3	70	0	16	optical table 1, thermistor 3
TR_ENG_OPT1_4	71	0	16	optical table 1, thermistor 4
TR_ENG_OPT2_1	72	0	16	optical table 2, thermistor 1
TR_ENG_OPT2_2	73	0	16	optical table 2, thermistor 2
TR_ENG_OPT2_3	74	0	16	optical table 2, thermistor 3
TR_ENG_OPT2_4	75	0	16	optical table 2, thermistor 4
TR_ENG_SCAN1	76	0	16	scan mirror 1
TR_ENG_SCAN2	77	0	16	scan mirror 2
TR_ENG_SCAN3	78	0	16	scan mirror 3
TR_ENG_SCAN4	79	0	16	scan mirror 4
TR_ENG_DIODE2_HI	80	0	16	diode reference, high, bank 2
TR_ENG_DIODE2_LO	81	0	16	diode reference, low, bank 2
TR_ENG_PRESS1	82	0	16	temp. of pressure 1, thermistor
TR_ENG_PRESS2	83	0	16	temp. of pressure 2, thermistor
TR_ENG_PRESS3	84	0	16	temp. of pressure 3, thermistor
TR_ENG_PRESS4	85	0	16	temp. of pressure 4, thermistor
VR_ENG_PRESS1	86	0	16	pressure 1
VR_ENG_PRESS1_RH	87	0	16	pressure 1 high ref

Name	Word	Bit	Width	Description
VR_ENG_PRESS1_RL	88	0	16	pressure 1 low ref
VR_ENG_PRESS2	89	0	16	pressure 2
VR_ENG_PRESS2_RH	90	0	16	pressure 2 high ref
VR_ENG_PRESS2_RL	91	0	16	pressure 2 low ref
VR_ENG_PRESS3	92	0	16	pressure 3
VR_ENG_PRESS3_RH	93	0	16	pressure 3 high ref
VR_ENG_PRESS3_RL	94	0	16	pressure 3 low ref
VR_ENG_PRESS4	95	0	16	pressure 4
VR_ENG_PRESS4_RH	96	0	16	pressure 4 high ref
VR_ENG_PRESS4_RL	97	0	16	pressure 4 low ref
VR_ENG_PMC1_PPO	98	0	16	PMC1 positional pick-off amplitude
VR_ENG_PMC2_PPO	99	0	16	PMC2 positional pick-off amplitude
VR_ENG_PMC1_PERR	100	0	16	PMC1 Phase Error
VR_ENG_PMC2_PERR	101	0	16	PMC2 Phase Error
VR_HTR_NEST1	102	0	16	Heater Voltage - Detector Nest 1
VR_HTR_NEST2	103	0	16	Heater Voltage - Detector Nest 2
VR_CAL_1	104	0	16	Heater Voltage - Calibration Source 1
VR_CAL_2	105	0	16	Heater Voltage - Calibration Source 2
VR_CAL_3	106	0	16	Heater Voltage - Calibration Source 3
VR_CAL_4	107	0	16	Heater Voltage - Calibration Source 4
VR_SIEVE_1	108	0	16	Heater Voltage - Sieve 1
VR_SIEVE_2	109	0	16	Heater Voltage - Sieve 2
VR_SIEVE_3	110	0	16	Heater Voltage - Sieve 3
VR_SIEVE_4	111	0	16	Heater Voltage - Sieve 4
VR_HTR_REF_HI	112	0	16	Heater Voltage - Reference Hi
VR_HTR_REF_LO	113	0	16	Heater Voltage - Reference Lo
VR_LMC1_MOTOR	114	0	16	Motor Voltage - LMC1
VR_LMC2_MOTOR	115	0	16	Motor Voltage - LMC2
VR_LMC3_MOTOR	116	0	16	Motor Voltage - LMC3

Name	Word	Bit	Width	Description
VR_LMC4_MOTOR	117	0	16	Motor Voltage - LMC4
VR_MIRROR1_MOTOR	118	0	16	Motor Voltage - Mirror 1
VR_MIRROR2_MOTOR	119	0	16	Motor Voltage - Mirror 2
VR_MIRROR3_MOTOR	120	0	16	Motor Voltage - Mirror 3
VR_MIRROR4_MOTOR	121	0	16	Motor Voltage - Mirror 4
VR_CHOP1_MOTOR	122	0	16	Motor Voltage - Chopper 1
VR_CHOP2_MOTOR	123	0	16	Motor Voltage - Chopper 2
VR_CHOP3_MOTOR	124	0	16	Motor Voltage - Chopper 3
VR_CHOP4_MOTOR	125	0	16	Motor Voltage - Chopper 4
VR_PMC1_MOTOR	126	0	16	Motor Voltage - PMC 1
VR_PMC2_MOTOR	127	0	16	Motor Voltage - PMC 2

APPENDIX B

LRS BUS SCIENCE CCSDS PACKETS

The LRS Bus telemetry consists of 3 types of CCSDS packets:

- Science Packets (normal science and burst data)
- Engineering Packets
- Table Packets
- Test Packets

Two types of Science Packets exist: normal science and burst data. The normal science packet contains the MOPITT Instrument data from the detector arrays from a typical step/stare scan sequence. The Science Data will be the data sent when the instrument is in Science Mode. Each normal science packet will nominally hold 5 stare's worth of data as shown below:

Typical Science CCSDS Packet:

Word	Description
=====	=====
0- 7	CCSDS Header, Secondary Header, and first data byte
8-	Stare 1
	Stare 2
	Stare 3
	Stare 4
	Stare 5

Each stare of data is further divided up into separate optical channels preceded by a stare header, as shown below:

Science Stare Format:

Word	Description
=====	=====
0- 9	Stare Header
10-	Channel 1 Data
	Channel 2 Data
	Channel 3 Data
	Channel 4 Data
	Channel 5 Data
	Channel 6 Data
	Channel 7 Data
	Channel 8 Data

The format of the stare header is as follows:

Word	Bits	Value	Description
0	15-8	'S'	Header Type ('S' = stare)
0	7-0	--	Active Channel Bit Mask (bit 0 = channel 1, 1 = active, 0 = inactive)
1	15-0	8	Number of Words
2-3	15-0	--	Time of start of stare
4	15-0	--	Mirror 1 position (11 bit number)
5	15-0	--	Mirror 2 position (11 bit number)
6	15-0	--	Mirror 3 position (11 bit number)
7	15-0	--	Mirror 4 position (11 bit number)
8	15-8	--	Mirror 2 status bits
8	7-0	--	Mirror 1 status bits
9	15-8	--	Mirror 4 status bits
9	7-0	--	Mirror 3 status bits

The channels each have a header to identify the channel and algorithm for the data packing. The format of the header is as follows:

Word	Bits	Value	Description
0	15-8	'1' - '8'	Channel Identifier
0	7-0	0 - 5	Compression Algorithm: 0 = ALGOR_NONE 1 = ALGOR_LMC_SUM 2 = ALGOR_LMC_DIFF 3 = ALGOR_LMC_SIMPLE 4 = ALGOR_PMC_SUM 5 = ALGOR_PMC_SIMPLE
1	15-0	--	Number of Words
2	15-8	--	Total LMC/PMC Sectors
2	7-0	--	Last LMC/PMC Sector

Each data packing algorithm of data has its own format. The packing algorithm formats are shown below:

Store Data; ALGOR_LMC_SUM:

Word	Bits	Description
0-2	15-0	Channel Header (see below for detailed format)
3	15-8	Pixel 0: Open Chopper Sum, Sector A, MSB
3	7-0	Pixel 0: Open Chopper Sum, Sector A, middle byte
4	15-8	Pixel 0: Open Chopper Sum, Sector A, LSB
4 - 5	start: 7-0, end: 7-0	Pixel 0: Open Chopper Sum, Sector B (format same as for word 3 - word 4, bits 15-8)
6 - 7	start: 15-8 end: 15-8	Pixel 0: Open Chopper Sum, Sector C (format same as for word 3 - word 4, bits 15-8)
7 - 8	start: 7-0, end: 7-0	Pixel 0: Open Chopper Sum, Sector D (format same as for word 3 - word 4, bits 15-8)
9 - 10	start: 15-8, end: 15-8	Pixel 0: Closed Chopper Sum, Sector A (format same as for word 3 - word 4, bits 15-8)
10 - 11	start: 7-0, end: 7-0	Pixel 0: Closed Chopper Sum, Sector B (format same as for word 3 - word 4, bits 15-8)
12 - 13	start: 15-8, end: 15-8	Pixel 0: Closed Chopper Sum, Sector C (format same as for word 3 - word 4, bits 15-8)
13 - 14	start: 7-0, end: 7-0	Pixel 0: Closed Chopper Sum, Sector D (format same as for word 3 - word 4, bits 15-8)
15-26	--	Pixel 1 (repeat format for words 3 - 14)
27-38	--	Pixel 2 (repeat format for words 3 - 14)
39-50	--	Pixel 3 (repeat format for words 3 - 14)

Store Data, ALGOR_LMC_DIFF for LMC Solar and Thermal measurements (Channels 1,2, 4, 5, 6, and 8):

Word	Bits	Description
0-2	15-0	Channel Header (see below for detailed format)
3	15-8	Pixel 0: Open Chopper Sum, Sector A, MSB
3	7-0	Pixel 0: Open Chopper Sum, Sector A, middle byte
4	15-8	Pixel 0: Open Chopper Sum, Sector A, LSB
4	7-0	Pixel 0: Open Chopper Delta 2, Sector A, MSB
5	15-8	Pixel 0: Open Chopper Delta 2, Sector A, LSB
5	7-0	Pixel 0: Open Chopper Delta 3, Sector A, MSB
6	15-8	Pixel 0: Open Chopper Delta 3, Sector A, LSB
6	7-0	Pixel 0: Open Chopper Delta 4, Sector A, MSB
7	15-8	Pixel 0: Open Chopper Delta 4, Sector A, LSB
7 - 11	start: 7-0, end: 7-0	Pixel 0: Open Chopper Sum/Delta, Sector B (format same as for words 3 to word 7, bits 15-8)
12 - 16	start: 15-8, end: 15-8	Pixel 0: Open Chopper Sum/Delta, Sector C (format same as for words 3 to word 7, bits 15-8)
16 - 20	start: 7-0, end: 7-0	Pixel 0: Open Chopper Sum/Delta, Sector D (format same as for word 3 to word 7, bits 15-8)
21	15-8	Pixel 0: Closed Chopper Sum, Sector A, MSB
21	7-0	Pixel 0: Closed Chopper Sum, Sector A, middle byte
22	15-8	Pixel 0: Closed Chopper Sum, Sector A, LSB
22 - 23	start: 7-0, end: 7-0	Pixel 0: Closed Chopper Sum, Sector B (format same as for word 21 to word 22, bits 15-8)
24 - 25	start: 15-8, end: 15-8	Pixel 0: Closed Chopper Sum, Sector C (format same as for word 21 to word 22, bits 15-8)
25 - 26	start: 7-0, end: 7-0	Pixel 0: Closed Chopper Sum, Sector D (format same as for word 21 to word 22, bits 15-8)
27 - 50	--	Pixel 1 (repeat format for word 3 to word 26)
51 - 74	--	Pixel 2 (repeat format for word 3 to word 26)
75 - 98	--	Pixel 3 (repeat format for word 3 to word 26)

Store Data, ALGOR_PMC_DIFF for PMC Thermal measurements (Channels 3 and 7):

Word	Bits	Description
0-2	15-0	Channel Header (see below for detailed format)
3	15-8	Pixel 0: Open Chopper Low Stroke Sums, MSB
3	7-0	Pixel 0: Open Chopper Low Stroke Sums, middle byte
4	15-8	Pixel 0: Open Chopper Low Stroke Sums, LSB
4 - 5	start: 7-0, end: 7-0	Pixel 0: Open Chopper High Stroke Sums (format same as for word 3 - word 4, bits 15-8)
6 - 7	start: 15-8, end: 15-8	Pixel 0: Closed Chopper Low Stroke Sums (format same as for word 3 - word 4, bits 15-8)
7 - 8	start: 7-0, end: 7-0	Pixel 0: Closed Chopper High Stroke Sums (format same as for word 3 - word 4, bits 15-8)
9 - 14	--	Pixel 1 (repeat format for words 3 - 8)
15 - 20	--	Pixel 2 (repeat format for words 3 - 8)
21 - 26	--	Pixel 3 (repeat format for words 3 - 8)

The burst data also contains data from the detector arrays. However, this data is slightly modified raw data from the Signal Processing Module (SPM) A/Ds and the data format is different from that of the normal science data. The format of the burst data Science CCSDS Packet is as follows:

Typical Burst CCSDS Packet:

Word	Description
=====	=====
0- 7	CCSDS Header, Secondary Header, and first data byte
8- 11	Burst Header
12-3839	Burst Data (maximum per packet)

The burst data may consist of as much as 46 KB of data (buffer limited). Thus, more than one CCSDS packet will be required to send this data in such a situation. The first CCSDS packet will contain a Burst Header and the CCSDS packet header Sequence Flag field will be set to 1 (to indicate the first packet). Subsequent packets will NOT contain a Burst Header (but only have burst data beginning at word 8) and will have the Sequence Flag set to 0 to indicate a continuation of the burst data. The last burst packet will have the Sequence Flag set to 2 to indicate the end of the burst data packets.

The Burst Header is shown below:

Word	Bits	Value	Description
0	15-8	'B'	Header Type ('B' = burst)
0	7-0	0	Not used
1	15-0	--	Number of Words
2	15-0	--	Mirror Position (actual position, 11 bit number)
3	15 - 8	0	Not used
3	7-6	0 - 3	Pixel Number
3	5-4	0 - 3	Channel Number
3	3 - 0	0 - 15	Burst Duration

Each sample of burst data is 2 words wide (32 bits) and each sample has the same format. The format of a single sample of burst data is as follows:

Word	Bits	Value	Description
0	15 - 0	--	A/D Data
1	15	0/1	Chopper 1 State (0=closed, 1=open)
1	14	0/1	Chopper 2 State (0=closed, 1=open)
1	13	0/1	PMC Sector Number
1	12 - 11	--	LMC 1 Sector Number
1	10 - 9	--	LMC 2 Sector Number
1	8 - 1	--	Not used
1	0	--	A/D Data