Column Name	Type	Length (bytes)	Range	Description
Table 1: CAPS HSK Data File Contents and Structure				
B cycle number	Unsigned Integer	2	[1,338]	B cycle number from the start of day, a value of 65535 indicates no B-cycle data is available
A cycle number	Unsigned Integer	2	[1,2700]	A cycle number from the start of day, a value of 65535 indicates no A-cycle information was available
Time	Float	8	$[-7.1 \times 10^7 - 1.5 \times 10^9]$	Time when housekeeping was collected, seconds from J2000 (barycentric dynamic time)
SCLK	Unsigned Integer	4	$[0, 3.0 \times 10^9]$	Time when housekeeping was collected, spacecraft clock
HK Quality	Unsigned Integer	2	[0,3]	Information regarding the quality of the housekeeping product and the source of the record: 0: full record from Engineering stream 1: 1st half only valid (science stream) 2: 2nd half only valid (science stream) 3: full record from Science stream
SYS_M5_2V_MN	Float	4	[-6.5,0.0]	-5.2 Voltage Supply Monitor, converted with the equation V = VMON * -0.02553 (Volts). VMON is the value in the housekeeping stream: word 7, bits 15-8.
SYS_LVPS_IMN	Float	4	[0,1000]	Low Voltage Power Supply Current Monitor, converted with the equation I = IMON * 3.922 (mA). IMON is the value in word 7, bits 7-0.
SYS_P8V_MN	Float	4	[0, 9.76]	+8 Voltage Supply Monitor, converted with the equation V = VMON * 0.03827 (Volts). VMON is the value in word 8, bits 15-8.
SYS_M8V_MN	Float	4	[-10.0,0.0]	-8 Voltage Supply Monitor, converted with the equation V = VMON * -0.03922 (Volts). VMON is the value in word 8, bits 7-0 of HK.
SYS_P5V_MN	Float	4	[0,6.0]	+5 Voltage Supply Monitor, converted with the equation V = VMON * 0.02336 (Volts). VMON is the value in word 9, bits 15-8 of HK.
SYS_P5V_AMN	Float	4	[0,6.0]	+5 Analog Voltage Supply Monitor, converted with the equation V = VMON * 0.02336 (Volts). VMON is the value in word 9, bits 7-0 of HK.
SYS_P15V_MN	Float	4	[0.0,17.7]	+15 Voltage Supply Monitor, converted

Table 1: CAPS HSK Data File Contents and Structure				
				with the equation V = VMON * 0.06956 (Volts). VMON is the value in word 10, bits 15-8 of HK.
SYS_M15V_MN	Float	4	[-18.7,0.0]	-15 Voltage Supply Monitor, converted with the equation V = VMON *-0.07323 (Volts). VMON is the value in word 10, bits 7-0 of HK.
SYS_LVPS_TMN	Float	4	[-40.0, 100.0]	Low Voltage Power Supply Temperature Monitor, converted with the equation: T = -47.9005394 + 0.6271286011 * TMON - 0.001936307643 * TMON^2 - 1.115957616E-6 * TMON^3 + 2.579906422E-8 * TMON^4 (deg C). Where TMON is the value in word 11, bits 15-8 of HK.
SPARE_11	Unsigned Integer	2	0	Spare bits at word 11, bits 7-0
ELS_P15V_PWR	Unsigned Integer	1	[0,1]	ELS +15V High voltage power status: 0 = OFF, 1 = ON. Found at word 12, bit 15 of the HK stream.
ELS_SYNC	Unsigned Integer	1	[0,1]	ELS Synchronized status bit: 0 = OK, 1 = ERROR. Found at word 12, bit 14 of the HK stream.
ELS_SUM_AVG	Unsigned Integer	1	[0,1]	ELS Summing/Averaging status bit: 0 = Averaging, 1 = Summing. Found at word 12, bit 13 of HK.
SPARE4	Unsigned Integer	1	0	Spare bits for padding only
ELS_DTM_PER	Float	4	[0.125, 0.25]	ELS Deadtime Period bit. Found at word 12, bit 12 of HK
ELS_DTM_CTRL	Unsigned Integer	1	[0,1]	ELS Deadtime Algorithm Control bit: 0 = Disable, 1 = Enable. Found at word 12, bit 11 of the HK stream.
ELS_GRD_CTRL	Unsigned Integer	1	[0,1]	ELS Grid Control status: 0 = Disable, 1 = Enable. Found at word 12, bit 10 of the HK stream.
ELS_SWP_LEN	Unsigned Integer	1	[1,64]	ELS Sweep Length: 1 or 32 steps. Found at word 12, bit 9 of the HK stream.
ELS_SWP_CTRL	Unsigned Integer	1	[0,1]	ELS Sweep Control: 0 = Disable, 1 = Enable. Found at word 12, bit 8 of the HK stream.
ELS_SHV_CTRL	Unsigned Integer	1	[0,1]	ELS Sweep High Voltage Control: 0 = Disable, 1 = Enable. Found at word 12, bit 7 of the HK stream.
ELS_PSET_ADJ	Unsigned Integer	1	[0, 31]	ELS Preset Adjust. Found at word 12, bits 6-2 of the HK stream.
ELS_DE_CTRL	Unsigned Integer	1	[16, 36]	ELS delta E/E control. %. Found at

				word 12, bits 1-0 of the HK stream.
ELS_STATE_MN	Unsigned Integer	1	[0, 3]	ELS High Voltage State Monitor: 0 = Both SAFE, 1 = Sweep ARM, 2 = MCP ARM, 3 = Both ARM. Found at word 13, bits 15-14 of the HK stream.
ELS_MCP_ADJ	Float	4	[0.0,3700]	ELS High Voltage Adjust, converted with the equation: VDAC = DAC * 58.73 (Volts), where DAC is the value at word 13, bits 13-8 of the HK stream.
ELS_MCP_CTRL	Unsigned Integer	1	[0,1]	ELS MCP High Voltage Control: 0 = Disable, 1 = Enable. Found at word 13, bit 7 of the HK stream.
ELS_STM_MODE	Unsigned Integer	1	[0,1]	ELS Stimulation Mode: 0 = Constant, 1 = Variable. Found at word 13, bit 6 of the HK stream.
ELS_STM_CTRL	Unsigned Integer	1	[0,1]	ELS Stimulation Control: 0 = Disable, 1 = Enable. Found at word 13, bit 5 of the HK stream.
SPARE5	Unsigned Integer	1	0	Spare bits for padding only
ELS_STM_ADJ	Float	4	[14.8, 108.8]	ELS MCP High Voltage Control. Units are mV. Found at word 13, bits 4-2 of the HK stream.
SPARE_13	Unsigned Integer	2	0	Spare bits at word 13, bits 1-0 of HK
ELS_P15V_MN	Float	4	[0.0, 23.0]	ELS +15 Volt Monitor, converted with the equation: V = VMON * 0.08994 (Volts). VMON is the value at word 14, bits 15-8 of the HK stream.
ELS_MCP_MN	Float	4	[0.0,5000]	ELS MCP Voltage Monitor, converted with the equation: V = VMON * 19.61 (Volts). VMON is the value at word 14, bits 7-0 of HK stream.
ELS_MCP_IMN	Float	4	[0.0, 50.0]	ELS MCP Current Monitor, converted with the equation: I = IMON * 0.196078 (μA). IMON is the value at word 15, bits 15-8 of the HK stream.
ELS_MCP_TMN	Float	4	[-40.0, 100.0]	ELS MCP Temperature Monitor, converted with the equation: $T = -52.67739487 + 0.9737095833 * TMON - 0.007247802336 * TMON^2 + 3.0067853E\text{-}5 * TMON^3 - 3.6325428E\text{-}8 * TMON^4$ (deg C). TMON is the value at word 15, bits 7-0 of the HK stream.
ELS_TRAFFIC	Unsigned Integer	1	[0,1]	ELS Traffic Control: 0 = Disable, 1 = Enable. When Enabled, no ELS data is put on the bus. Found at word 16, bit 15 of the HK stream.

Table 1: CAPS HSK Data File Contents and Structure

				Table 1: CAPS HSK Data File Contents and Structure

ELS_MODE	Unsigned Integer	1	[0,5]	ELS Operational Mode. 0 = Mode A, 1 = Mode B, 2 = Mode C0, 3 = Mode C1, 4 = Mode D, 5 = Mode E. Found at word 16, bits 14-12 of HK.
ELS_SWP_MN	Float	4	[-0.1, 5000.0]	ELS Sweep High Voltage Monitor (peak), converted with: V = VMON * 1.221 (Volts). VMON is found at word 16, bits 11-0 of the HK stream.
ELS_MN	Unsigned Integer	1	[0,1]	ELS Monitor value error status: 0 = OK, 1 = Error. Found at word 17, bit 15 of the HK stream.
ELS_MN_ADDR	Unsigned Integer	1	[0,7]	ELS Monitor Address: 0 = +15V, 1 = Sweep HV, 2 = MCP HV, 3 = MCP Current, 4 = MCP Temperature, 5 = HV Safe/Arm, 6 = Not Used, 7 = Stim Amplitude. Found at word 17, bits 14-12 of the HK stream.
ELS_SWP_MN1	Float	4	[-0.1, 5000.0]	ELS Sweep High Voltage Monitor 1 (trickle), converted with V = VMON * 1.221 (Volts). Where VMON is found at word 17, bits 11-0 of the HK stream.
ELS_SWSTAT	Unsigned Integer	1	[0,15]	ELS Software Status: TBD configuration. Found at word 18, bits 15-12 of the HK stream.
SPARE0	Unsigned Integer	1	0	Added for padding only
ELS_SWP_MN2	Float	4	[-0.1, 5000.0]	ELS Sweep High Voltage Monitor 2 (trickle), converted with V = VMON * 1.221 (Volts). Where VMON is found at word 18, bits 11-0 of the HK stream.
IBS_ESA_DAC	Float	4	Off: [0.0,0.0] Low: [-1.85,0.0] Medium: [-69.9,0.0] High: [-2600,0.0]	IBS ESA Sweep High Voltage DAC value (peak), where the conversion is based upon the value of the variable, IBS_ESA_DRNG: Value: Conversion OFF V = DAC*-0.000451880 (V) LOW V = DAC*-0.000451880 (V) MEDIUM V=DAC*-0.016938349 (V) HIGH V = DAC*0.634920635 (V). DAC is found at word 19, bits 15-4.
IBS_ESA_DRNG	Unsigned Integer	1	[0,3]	IBS ESA Sweep High Voltage DAC range (peak). 0 = OFF, 1 = LOW, 2 = MEDIUM, 3 = HIGH. Found at word 19, bits 3-2 of the HK stream.
IBS_HV_STATE	Unsigned Integer	1	[0,1]	IBS High Voltage State: 0 = Safe, 1 = Arm. Found at word 19, bit 1.
IBS_HV_POWER	Unsigned Integer	1	[0,1]	IBS High Voltage Power. 0 = OFF, 1 = On. Found at word 19, bit 0.

				Table 1: CAPS HSK Data File Contents and Structure
SPARE1	Unsigned Integer	1	0	Adding for padding only
IBS_CEM_DAC	Float	4	[-4000.0, 0.0]	IBS CEM High Voltage DAC value, converted with: V = DAC * (-15.68627451) (Volts). DAC is found at word 20, bits 15-8 of the HK stream.
IBS_STM_CHNL	Unsigned Integer	1	[0,7]	IBS Stimulator Channel Mask: Bit 5 = Channel 1: 0=Off, 1=On Bit 6 = Channel 2: 0=Off, 1=On Bit 7 = Channel 3: 0=Off, 1=On. Found at word 20, bits 7-5 of HK.
IBS_STM_CTRL	Unsigned Integer	1	[0,1]	IBS Stimulator Control. 0 = Disable, 1 = Enable. Found at word 20, bit 4.
IBS_SIM_FREQ	Float	4	[0, 524.288]	IBS Stimulator Frequency. Units are kHz. 0 = No Stim. Found at word 20, bits 3-0 of HK.
SPARE6	Unsigned Integer	1	0	Spare bits for padding only.
IBS_ESA_MRNG	Unsigned Integer	1	[0,3]	IBS ESA Sweep High Voltage Monitor range (peak). 0 = OFF, 1 = LOW, 2 = MEDIUM, 3 = HIGH. Found at word 21, bits 3-2 of HK.
IBS_ESA_MN	Float	4	Off: [-1.9,0.0] Low: [-1.9,0.0] Medium: [-72.8,0.0] High: [-2730,0.0]	IBS ESA Sweep High Voltage Monitor (peak), the conversion is based on the value of the variable IBS_ESA_MRNG: **Value Conversion** OFF V = VMON*-0.0004744 (Volts) LOW V = VMON*-0.0004744 (Volts) MEDIUM V = VMON*-0.0177850 (V) HIGH V = VMON*-0.0004744 (Volts) DAC is found at word 21, bits 15-4 of the HK stream"
IBS_TRAFFIC	Unsigned Integer	1	[0,1]	IBS Traffic Control: 0 = Disable, 1 = Enable. If Enabled, then no IBS data is put on the bus. Found at word 21, bit 1 of the HK stream"
IBS_HV_CTRL	Unsigned Integer	1	[0,1]	IBS High Voltage Control: 0 = Disable, 1 = Enable. Found at word 21, bit 0 of the HK stream.
IBS_CEM_MN	Float	4	[-4200.0, 0.0]	IBS CEM High Voltage Monitor, converted with: V = DAC * (-16.470588) (Volts). DAC is found at word 22, bits 15-8 of the HK stream
IBS_TMN	Float	4	[-40.0, 100.0]	IBS Temperature Monitor, converted with : T = -47.93090439 + 0.6965667605 * TMON - 0.002877314575 * TMON^2 + 4.231294952E-6 * TMON^3 + 1.539952699E-8 * TMON^4 (deg C).

	Table 1: CAPS HSK Data File Contents and Structure			
				TMON is found at word 22, bits 7-0 of the HK stream.
IBS_SWP_TBL	Unsigned Integer	2	[0,15]	IBS Sweep Table ID Number. Found at word 23, bits 15-12.
IBS_SWSTAT	Unsigned Integer	2	[0,4095]	IBS Software Status. TBD configuration. Found at word 23, bits 11-0 of the HK stream.
IBS_ESA_MN1	Float	4	Off: [-1.9,0.0] Low: [-1.9,0.0] Medium: [-72.8,0.0] High: [-2730,0.0]	IBS ESA Sweep High Voltage Monitor #1 (trickle), conversion is based upon the value of the variable, IBS_ESA_RNG1: **Value Conversion** OFF V=VMON*-0.0004744 (Volts) LOW V=VMON*-0.0004744 (Volts) MEDIUM V=VMON*-0.0177850 (V) HIGH V=VMON*-0.6667000 (V). VMON is found at word 24, bits 15-4 of the HK stream.
IBS_ESA_RNG1	Unsigned Integer	1	[0,3]	IBS ESA Sweep High Voltage Monitor #1 range (trickle). 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 24, bits 3-2 of HK.
IBS_DTM_CTRL	Unsigned Integer	1	[0,1]	IBS Deadtime Algorithm Control. 0 = Disable, 1 = Enable. Found at word 24, bit 1 of the HK stream.
SPARE_24	Unsigned Integer	2	0	Spare bit at word 24, bit 0
IBS_ESA_MN2	Float	4	Off: [-1.9,0.0] Low: [-1.9,0.0] Medium: [-72.8,0.0] High: [-2730,0.0]	IBS ESA Sweep High Voltage Monitor #2 (trickle), conversion is based upon the value of the variable, IBS_ESA_RNG2: **Value Conversion** OFF V=VMON*-0.0004744 (Volts) LOW V=VMON*-0.0004744 (V) MEDIUM V=VMON*-0.0177850 (V) HIGH V=VMON*-0.6667000 (V). VMON is found at word 25, bits 15-4 of the HK stream.
IBS_ESA_RNG2	Unsigned Integer	1	[0,3]	IBS ESA Sweep High Voltage Monitor #2 range (trickle). 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 25, bits 3-2 of HK.
IBS_SWP_SKIP	Unsigned Integer	1	[0,3]	IBS ESA Sweep table index skip. Found at word 25, bits 1-0 of HK.
IBS_SWP_INDX	Unsigned Integer	2	[0,600]	IBS ESA Sweep table index number. The table can be found in the TBD document. Found at word 26, bits 15-0 of the HK stream.

Table 1: CAPS HSK Data File Contents and Structure				
IMS_SWSTAT	Unsigned Integer	2	[0,16383]	IMS Software Status. TBD configuration. Found at word 27, bits 15-2 of the HK stream.
IMS_TRAFFIC	Unsigned Integer	1	[0,1]	IMS traffic control. 0 = Disable, 1 = Enable. If Enabled, then no IMS data is put on the bus. Found at word 27, bit 1 of the HK stream.
SPARE_27	Unsigned Integer	1	0	Spare bits at word 27, bit 0 of HK.
SPARE_28	Unsigned Integer	2	0	Spare bit at word 28, bit 15 of HK.
CP1_RCVD_CNT	Unsigned Integer	2	[0,4047]	CPU1 Received Command Count. Found at word 28, bits 14-4 of HK.
HVU1_PWR2	Unsigned Integer	1	[0,1]	HVU1 Power Switch 2. 0 = Off, 1 = On. Found at word 28, bit 3 of HK.
HVU1_PWR1	Unsigned Integer	1	[0,1]	HVU1 Power Switch 1. 0 = Off, 1 = On. Found at word 28, bit 2 of HK.
HVU1_CTRL	Unsigned Integer	1	[0,1]	HVU1 Control. 0 = Disable, 1 = Enable. Found at word 28, bit 1 of the HK stream.
HVU1_STATE	Unsigned Integer	1	[0,1]	HVU1 State. 0 = Safe, 1 = Arm. Found at word 28, bit 0 of HK.
HVU1_RET_DAC	Float	4	[0, 16.0]	HVU1 Retarding High Voltage DAC, converted with: V = DAC * 0.0627451 (kVolts). DAC is found at word 29, bits 15-8 of the HK stream
HVU1_ACC_DAC	Float	4	[-16.0, 0.0]	HVU1 Accelerating High Voltage DAC, converted with: V = DAC * -0.0627451 (kVolts). DAC is found at word 29, bits 7-0 of the HK stream
HVU1_RET_MN	Float	4	[0.0, 21.0]	HVU1 Retarding High Voltage Monitor, converted with: V = VMON * 0.0829435 (kVolts). VMON is found at word 30, bits 15-8 of HK.
HVU1_ACC_MN	Float	4	[-21.0, 0.0]	HVU1 Accelerating High Voltage Monitor, converted with: V = VMON * -0.0829435 (kVolts). VMON is found at word 30, bits 7-0 of HK.
HVU2_ESA_TBL_ID	Unsigned Integer	1	TBD	HVU2 ESA Sweep Table ID. TBD Configuration. Found at word 31, bits 15-8 of the HK stream
SPARE_31	Unsigned Integer	1	0	Spare bits at word 31, bits 7-4 of HK
HVU2_SWP_CTR	Unsigned Integer	1	[0,1]	HVU2 Sweep Control. 0 = Disable, 1 = Enable. Found at word 31, bit 3 of the HK stream.
HVU2_PWR	Unsigned Integer	1	[0,1]	HVU2 Power: 0 = OFF, 1 = On. Found at word 31, bit 2 of HK.
HVU2_CTRL	Unsigned Integer	1	[0,1]	HVU2 Control. 0 = Disable, 1 = Enable. Found at word 31, bit 1 of the

				HK stream.
HVU2_STATE	Unsigned Integer	1	[0,1]	HVU2 State: 0 = Safe, 1 = Arm. Found at word 31, bit 0 of HK.
HVU2_ST_DAC	Float	4	[-3600.0, 0.0]	HVU2 ST MCP DAC, converted with V = DAC * -14.1176 (Volts). DAC is found at word 32, bits 15-8 of HK.
HVU2_LEF_DAC	Float	4	[-2400.0, 0.0]	HVU2 LEF MCP DAC, converted with V = DAC * -9.4118 (Volts). DAC is found at word 32, bits 7-0 of HK.
SPARE_33	Unsigned Integer	1	0	Spare bits at word 33, bits 15-14.
HVU2_ESA_DRG	Unsigned Integer	1	[0,3]	HVU2 ESA Sweep High Voltage DAC range (peak): 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 33, bits 13-12 of the HK stream
HVU2_ESA_DAC	Float	4	Off: [0.0,0.0] Low: [-5.1,0.0] Medium: [-194.8,0.0] High: [-7415.0, 0.0]	HVU2 ESA Sweep High Voltage DAC value (peak), where the conversion is based upon the value of the variable HVU2_ESA_DRG: **Value** **Conversion (Volts)** OFF V = DAC * -0.00125033 LOW V = DAC * -0.00125033 MEDIUM V = DAC * -0.04758171 HIGH V = DAC * -1.81074500 DAC is found at word 33, bits 11-0 of the HK stream.
HVU2_ST_MN	Float	4	[-3780.0, 0.0]	HVU2 ST MCP Monitor, converted with the equation: V = DAC * -14.82353 (Volts). DAC is found at word 34, bits 15-8 of the HK stream
HVU2_LEF_MN	Float	4	[-2520.0, 0.0]	HVU2 LEF MCP Monitor, converted with the equation: V = DAC * -9.88235 (Volts). DAC is found at word 34, bits 7-0 of the HK stream.
SPARE_35	Unsigned Integer	1	0	Spare bits at word 35, bits 15-14
HVU2_ESA_MRG	Unsigned Integer	1	[0,3]	HVU2 ESA Sweep High Voltage Monitor range (peak): 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 35, bits 13-12 of the HK stream
HVU2_ESA_MN	Float	4	Off: [-5.38,0.0] Low: [-5.38,0.0] Medium: [-204.6,0.0] High: [-7786.0, 0.0]	HVU2 ESA Sweep High Voltage Monitor value (peak), where the conversion is based upon the value of the variable HVU2_ESA_MRG: **Value** **Conversion (Volts)** OFF V = VMON * -0.0013128 LOW V = VMON * -0.0013128 MEDIUM V=VMON * -0.0499677 HIGH V = VMON * -1.9012821

Table 1: CAPS HSK Data File Contents and Structure

				DAC is found at word 35, bits 11-0 of the HK stream.
SPARE_36	Unsigned Integer	1	0	Spare bits at word 36, bits 15-14
HVU2_ESA_RG1	Unsigned Integer	1	[0,3]	HVU2 ESA Step High Voltage Monitor #1 range (trickle): 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 36, bits 13-12 of HK.
HVU2_ESA_MN1	Float	4	Off: [-5.38,0.0] Low: [-5.38,0.0] Medium: [-204.6,0.0] High: [-7786.0, 0.0]	HVU2 ESA Step High Voltage Monitor #1 value (trickle), where the conversion is based upon the value of the variable HVU2_ESA_RG1: **Value Conversion (Volts)** OFF V = VMON * -0.0013128 LOW V = VMON * -0.0013128 MEDIUM V=VMON * -0.0499677 HIGH V = VMON * -1.9012821 VMON is found at word 36, bits 11-0 of the HK stream.
SPARE_37	Unsigned Integer	1	0	Spare bits at word 37, bits 15-14
HVU2_ESA_RG2	Unsigned Integer	1	[0,3]	HVU2 ESA Step High Voltage Monitor #2 range (trickle): 0 = Off, 1 = Low, 2 = Medium, 3 = High. Found at word 37, bits 13-12 of HK.
HVU2_ESA_MN2	Float	4	Off: [-5.38,0.0] Low: [-5.38,0.0] Medium: [-204.6,0.0] High: [-7786.0, 0.0]	HVU2 ESA Step High Voltage Monitor #2 value (trickle), where the conversion is based upon the value of the variable HVU2_ESA_RG2: **Value Conversion (Volts)** OFF V = VMON * -0.0013128 LOW V = VMON * -0.0013128 MEDIUM V=VMON * -0.0499677 HIGH V = VMON * -1.9012821 VMON is found at word 37, bits 11-0 of the HK stream.
HVU2_TMN	Float	4	[-35.0, 55.0]	HVU2 Temperature Monitor, converted with: $T = -47.93090439 + 0.6965667605 * TMON - 0.002877314575 * TMON^2 + 4.231294952E\text{-}6 * TMON^3 + 1.539952699E\text{-}8 * TMON^4$ (deg C). TMON is found at word 38, bits 15-8 of the HK stream.
CP1_RJCT_CNT	Unsigned Integer	1	[0,255]	CPU1 Rejected Command Count. Found at word 38, bits 7-0 of HK.
SPARE_39	Unsigned Integer	1	0	Spare bits at word 39, bits 15-11
TDC_LOGICAL	Unsigned Integer	1	[0,1]	TDC Logical/Single Select. 0 = ES14, 1 = TIMEOUTS. Found at word 39, bit

Table 1: CAPS HSK Data File Contents and Structure

				10 of the HK stream.
TDC_BIT_STAT	Unsigned Integer	1	[0,1]	TDC Built-In-Test State. 0 = Off, 1 = On. Found at word 39, bit 9 of HK.
TDC_THRS_ADJ	Unsigned Integer	1	[0,1]	TDC Threshold Adjust. 0 = Disable, 1 = Enable. Found at word 39, bit 8.
TDC_ID_CFD	Unsigned Integer	1	[0,1]	TDC ID CFD. 0 = No Coincidence, 1 = Coincidence. Found at word 39, bit 7 of the HK stream.
TDC_SNG_MODE	Unsigned Integer	1	[0,1]	TDC Single Mode. 0 = No Coincidence, 1 = Coincidence. Found at word 39, bit 6 of the HK stream.
TDC_ENG_SNGS	Unsigned Integer	1	[0,3]	TDC Engineering Singles ID. 0 = Start CFD/Stop CFD, 1 = Acquisition Error/Deadtimes, 2 = Single TOFs/Double TOFs, 3 = Data Strobes/Resets. Found at word 39, bit 5-4 of the HK stream
TDC_SAM_FIFO	Unsigned Integer	1	[0,1]	TDC SAM FIFO State. 0 = Disable, 1 = Enable. Found at word 39, bit 3
TDC_NUM_HITS	Unsigned Integer	1	[0,1]	TDC Number of Hits. 0 = 1 Hit, 1 = 2 Hits. Found at word 39, bit 2
TDC_PARA_DTM	Unsigned Integer	1	[0,1]	TDC Paralyzable Deadtime. 0 = Disable, 1 = Enable. Found at word 39, bit 1 of the HK stream
TDC_RESET	Unsigned Integer	1	[0,1]	TDC Reset. 0 = Off, 1 = On. Found at word 39, bit 0 of the HK stream
TDC_DTM_ADJ	Float	4	[2.2,8.0]	TDC Deadtime Adjust. Units are ns. Found at word 40, bits 15-14 of the HK stream.
TDC_VERN_ADJ	Unsigned Integer	2	[0, 2250]	TDC Vernier Adjust. Units are ps. Found at word 40, bits 13-12 of HK.
SPARE_40	Unsigned Integer	1	0	Spare bits at word 40, bits 11-9
FEE_STOP_BIT_HR	Unsigned Integer	1	[0,1]	FEE Stop Bit High Resolution. 0 = Disable, 1 = Enable. Found at word 40, bit 8 of the HK stream
FEE_START8	Unsigned Integer	1	[0,1]	FEE Start 8: 0 = Disable, 1 = Enable. Found at word 40, bit 7.
FEE_START7	Unsigned Integer	1	[0,1]	FEE Start 7: 0 = Disable, 1 = Enable. Found at word 40, bit 6.
FEE_START6	Unsigned Integer	1	[0,1]	FEE Start 6: 0 = Disable, 1 = Enable. Found at word 40, bit 5.
FEE_START5	Unsigned Integer	1	[0,1]	FEE Start 5: 0 = Disable, 1 = Enable. Found at word 40, bit 4.
FEE_START4	Unsigned Integer	1	[0,1]	FEE Start 4: 0 = Disable, 1 = Enable. Found at word 40, bit 3.
FEE_START3	Unsigned Integer	1	[0,1]	FEE Start 3: 0 = Disable, 1 = Enable. Found at word 40, bit 2.

Table 1: CAPS HSK Data File Contents and Structure

				Table 1: CAPS HSK Data File Contents and Structure
FEE_START2	Unsigned Integer	1	[0,1]	FEE Start 2: 0 = Disable, 1 = Enable. Found at word 40, bit 1.
FEE_START1	Unsigned Integer	1	[0,1]	FEE Start 1: 0 = Disable, 1 = Enable. Found at word 40, bit 0.
FEE_STOP_BIT_MR	Unsigned Integer	1	[0,1]	FEE Stop Bit Medium Resolution. 0 = Disable, 1 = Enable. Found at word 41, bit 15 of the HK stream
FEE_STRT_BIT	Unsigned Integer	1	[0,1]	FEE Start Built-in-Test. 0 = Disable, 1 = Enable. Found at word 41, bit 14 of the HK stream
FEE_MDRESTOP	Unsigned Integer	1	[0,1]	FEE Medium Resolution Stop. 0 = Disable, 1 = Enable. Found at word 41, bit 13 of the HK stream
FEE_HIRESTOP	Unsigned Integer	1	[0,1]	FEE High Resolution Stop. 0 = Disable, 1 = Enable. Found at word 41, bit 12 of the HK stream
FEE_BIT_FREQ	Float	4	[62.5, 1000]	FEE Built-In-Test Stimulation Frequency. Units are kHz. Found at word 41, bits 11-8 of HK
FEE_STOP_THR	Float	4	[0.0,1.875]	FEE Stop Threshold. Operating Threshold Multiplier. Found at word 41, bits 7-4 of the HK stream
FEE_START_TH	Float	4	[0.0, 1.875]	FEE Start Threshold. Operating Threshold Multiplier. Found at word 41, bits 3-0 of the HK stream
FEE_BITSTOP2	Unsigned Integer	2	[62, 1938]	FEE Built-In-Test Stop 2 Delay. Units are ns. 1688 ns, 1813 ns, and 1938 ns are all Timeouts. Found at word 42, bits 15-12 of the HK stream
FEE_BITSTOP1	Unsigned Integer	2	[125, 2000]	FEE Built-In-Test Stop 1 Delay. Units are ns. Found at word 42, bits 11-8 of the HK stream
SPARE7	Unsigned Integer	1	0	Spare bits for padding only.
SAM_SECTR_BL	Unsigned Integer	1	[0,255]	SAM sector anode blank: 0: 0 = S 0 OFF, 1 = S 0 ON 1: 0 = S 1 OFF, 1 = S 1 ON 2: 0 = S 2 OFF, 1 = S 2 ON 3: 0 = S 3 OFF, 1 = S 3 ON 4: 0 = S 4 OFF, 1 = S 4 ON 5: 0 = S 5 OFF, 1 = S 5 ON 6: 0 = S 6 OFF, 1 = S 6 ON 7: 0 = S 7 OFF, 1 = S 7 ON Found at word 42, bits 7-0 of HK.
SAM_ION_IDX	Unsigned Integer	1	[0,15]	SAM ION Index. Found at word 43, bits 15-12 of the HK stream
SAM_MLUT_IDX	Unsigned Integer	1	[0,1]	SAM Mass Look Up Table Index. Found at word 43, bit 11 of HK

				Table 1: CAPS HSK Data File Contents and Structure
SAM_DP_SELCT	Unsigned Integer	1	[0,3]	SAM Data Product Select. 0 = None, 1 = MOL, 2 = LEF, 3 = Both. Found at word 43, bits 10-9 of HK.
SAM_HEALTH	Unsigned Integer	1	[0,1]	SAM Health. 0 = OK, 1 = Error. Found at word 43, bit 8 of HK
SAM_WATCHDOG	Unsigned Integer	1	[0,1]	SAM Watchdog. 0 = Disable, 1 = Enable. Found at word 43, bit 7.
SAM_SELF_TST	Unsigned Integer	1	[0,1]	SAM Self Test. 0 = OK, 1 = Error. Found at word 43, bit 6 of HK.
SAM_FIFO	Unsigned Integer	1	[0,1]	SAM First-In-First-Out. 0 = OK, 1 = Error. Found at word 43, bit 5
SAM_TOF	Unsigned Integer	1	[0,1]	SAM Time-of-Flight. 0 = OK, 1 = Error. Found at word 43, bit 4
SAM_EVNT_ACC	Unsigned Integer	1	[0,1]	SAM Event Accumulator. 0 = OK, 1 = Error. Found at word 43, bit 3
SAM_TOF_ACC	Unsigned Integer	1	[0,1]	SAM Time-of-Flight Accumulator. 0 = OK, 1 = Error. Found at word 43, bit 2
SAM_OPSTATE	Unsigned Integer	1	[0,1]	SAM Operating State. 0 = Reset, 1 = Run. Found at word 43, bit 1 of HK
SAM_PWR	Unsigned Integer	1	[0,1]	SAM Power. 0 = Off, 1 = On. Found at word 43, bit 0 of HK
SPARE_45	Unsigned Integer	2	[0,1]	Spare bits at word 45, bits 15-12
SAM_GRP_TBL	Unsigned Integer	2	[0,65535]	SAM Group Table Number. Found at word 44, bits 15-0 of HK.
SAM_TOF_BKUP	Unsigned Integer	1	[0,1]	SAM Time-of-Flight Backup. 0 = Disable, 1 = Enable. Found at word 45, bit 11 of the HK stream
SAM_FIFO_BKUP	Unsigned Integer	1	[0,1]	SAM FIFO Backup. 0 = Disable, 1 = Enable. Found at word 45, bit 10 of the HK stream
SAM_EV_BKUP	Unsigned Integer	1	[0,1]	SAM Event Backup. 0 = Disable, 1 = Enable. Found at word 45, bit 9
SAM_TOF_CMPR	Unsigned Integer	1	[0,1]	SAM Time-of-Flight Compress Mode. 0 = Off, 1 = On. Found at word 45, bit 8.
SAM_TEST	Unsigned Integer	1	[0,1]	SAM Test Mode. 0 = Self Test, 1 = Normal Operations. Found at word 45, bit 7 of the HK stream
SAM_EV1_2	Unsigned Integer	1	[0,1]	SAM Dual Stop Event Accumulation Mode. 0 = 1st Event, 1 = Both Events. Found at word 45, bit 6
SAM_CFG_IDX	Unsigned Integer	1	[0,1]	SAM Configuration Index. . 0 = Off, 1 = On. Found at word 45, bit 5
SAM_BKGD_CMP	Unsigned Integer	1	[0,1]	SAM Background Compensation. 0 = Disable, 1 = Enable. Found at word 45, bit 4
SAM_DTM_CTRL	Unsigned Integer	1	[0,1]	SAM Deadtime Algorithm Control. 0 = Disable, 1 = Enable. Found at word 45,

				bit 3
SAM_HDWR_BIN	Unsigned Integer	1	[0,1]	SAM Hardware Binning. 0 = Off, 1 = On. Found at word 45, bit 2
SAM_HDWR_LUT	Unsigned Integer	1	[0,3]	SAM Hardware Look Up Table. Found at word 45, bits 1-0 of HK
SPARE_46	Unsigned Integer	1	0	Spare bits at word 46, bit 15
ACT_EXEC	Unsigned Integer	1	[0,1]	Actuator Execution. 0 = Stop, 1 = Start. Found at word 46, bit 14
ACT_TEMP_CMP	Unsigned Integer	1	[0,1]	Actuator Temperature Compensation. 0 = Disable, 1 = Enable. Found at word 46, bit 13
ACT_WOBL_CMP	Unsigned Integer	1	[0,1]	Actuator Wobble Compensation. 0 = Disable, 1 = Enable. Found at word 46, bit 12
ACT_OPMODE	Unsigned Integer	1	[0, 15]	Actuator Operating Mode. 0 = FOV, 1 = Park, 2 = RAM, 3 = Slew, 4 = TBD, 5 = TBD, 6 = TBD, 7 = TBD, 8 = TBD, 9 = TBD, 10 = TBD, 11 = TBD, 12 = TBD, 13 = TBD, 14 = Search, 15 = Maint. Found at word 47, bits 15-12 of HK.
ACT_FOV_POS1	Float	4	[-110, 110]	Actuator Field-of-View Position 1 (degrees). Position = MON - 104, where MON is found at word 46, bits 11-0. CAPS actuates from ACT_FOV_POS1 to ACT_FOV_POS2
ACT_FOV_POS2	Float	4	[-110, 110]	Actuator Field-of-View Position 2 (degrees). Position = MON - 104, where MON is found at word 47, bits 11-0. CAPS actuates from ACT_FOV_POS1 to ACT_FOV_POS2
ACT_CONV_MN	Float	4	TBD	Actuator Converter Monitor, converted with V = VMON * 0.09608 (Volts). Where VMON is the value at word 48, bits 15-8 of the HK stream
ACT_TMN	Float	4	[-40.0, 100.0]	Actuator Temperature Monitor, converted with: T = -47.9005394 + 0.6271286011 * TMON - 0.001936307643 * TMON^2 - 1.115957616E-6 * TMON^3 + 2.579906422E-8 * TMON^4 (deg C) TMON is found at word 48, bits 7-0
ACT_5V_MN	Float	4	[0, 6.28]	Actuator 5 Volt Monitor, converted with V = VMON * 0.02464 (volts). VMON is the value at word 49, bits 15-8 of the HK stream.
ACT_20V_MN	Float	4	[0, 24.5]	Actuator 20 Volt Monitor, converted with V = VMON * 0.09608 (Volts).

Table 1: CAPS HSK Data File Contents and Structure

				VMON is found at word 49, bits 7-0
ACT_POSITION	Float	4	[-110, 110]	Actuator Position Decoder (degrees), converted with position = -169.88 + 0.0996 * pMON. pMON is found at word 50, bits 11-0 of HK.
ACT_RATE	Float	4	[0.125,1]	Actuator Step Execution Rate. Units are degree/second. Found at word 50, bits 15-12 of the HK stream
SPARE_51	Unsigned Integer	2	0	Spare bits at word 51, bits 15-8
BIU_CMD_BIT7	Unsigned Integer	1	[0,1]	BIU Discrete Command Bit #7 (TBD). 0 = Disable, 1 = Enable. Found at word 51, bit 7 of the HK stream
BIU_CMD_BIT6	Unsigned Integer	1	[0,1]	BIU Discrete Command Bit #6 (TBD). 0 = Disable, 1 = Enable. Found at word 51, bit 6 of the HK stream
BIU_CMD_BIT5	Unsigned Integer	1	[0,1]	BIU Discrete Command Bit #5 (TBD). 0 = Disable, 1 = Enable. Found at word 51, bit 5 of the HK stream
BIU_WTA_ILCK	Unsigned Integer	1	[0,1]	BIU Wax Thermal Actuator Interlock. 0 = Disable, 1 = Enable. Found at word 51, bit 4 of the HK stream
BIU_DPU_BOOT	Unsigned Integer	1	[0,1]	BIU DPU Boot Address. 0 = 80000h, 1 = 90000h. Found at word 51, bit 3
BIU_OPMODE	Unsigned Integer	1	[0,3]	BIU CAPS Power Mode Interlock. 0 = Sleep, 1 = OP, 2 = Sleep2, 3 = OPWART. OP=operate, OPWART= operate with articulation. Found at word 51, bits 2-1 of the HK stream
SPARE_51_0	Unsigned Integer	1	0	Spare bits at word 51, bit 0
BIU_STA_BIT7	Unsigned Integer	1	[0,1]	BIU Discrete Status Bit 7 (TBD). 0 = No, 1 = Yes. Found at word 52, bit 15
BIU_STA_BIT6	Unsigned Integer	1	[0,1]	BIU Discrete Status Bit 6 (TBD). 0 = No, 1 = Yes. Found at word 52, bit 14
BIU_STA_BIT5	Unsigned Integer	1	[0,1]	BIU Discrete Status Bit 5 (TBD). 0 = No, 1 = Yes. Found at word 52, bit 13
BIU_DPU_SMEM	Unsigned Integer	1	[0,1]	BIU DPU Shared Memory Test. 0 = OK, 1 = Error. Found at word 52, bit 12
BIU_DPU_ROM	Unsigned Integer	1	[0,1]	BIU DPU ROM Test. 0 = OK, 1 = Error. Found at word 52, bit 11 of HK
BIU_DPU_RAM	Unsigned Integer	1	[0,1]	BIU DPU RAM Test. 0 = OK, 1 = Error. Found at word 52, bit 10 of HK
BIU_DESC_LOC	Unsigned Integer	1	[0,1]	BIU Descriptor Location. 0 = Auto, 1 = RAM. Found at word 52, bit 9 of HK
BIU_ROM_BOOT	Unsigned Integer	1	[0,1]	BIU ROM Boot Complete. 0 = Incomplete, 1 = Complete. Found at word 52, bit 8 of the HK stream
BIU_HKFORMAT	Unsigned Integer	1	[0,1]	BIU Housekeeping Format Type. 0 =

Table 1: CAPS HSK Data File Contents and Structure

				Table 1: CAPS HSK Data File Contents and Structure
				Maintenance, 1 = Normal. Found at word 52, bit 7 of the HK stream
SPARE_52_6	Unsigned Integer	1	0	Spare bits at word 52, bit 6
BIU_XTRA_RTI	Unsigned Integer	1	[0,1]	BIU Extra Real Time Interrupt. 0 = No, 1 = Yes. Found at word 52, bit 5 of HK
SPARE_52_4	Unsigned Integer	1	0	Spare bits at word 52, bit 4
BIU_MISD_RTI	Unsigned Integer	1	[0,1]	BIU Missed Real Time Interrupt. 0 = No, 1 = Yes. Found at word 52, bit 3
BIU_DESC_TBL	Unsigned Integer	1	[0,1]	BIU Descriptor Table. 0 = OK, 1 = Error. Found at word 52, bit 2 of HK
BIU_RAM	Unsigned Integer	1	[0,1]	BIU RAM. 0 = OK, 1 = Error. Found at word 52, bit 1 of the HK stream
BIU_AUTO_INI	Unsigned Integer	1	[0,1]	BIU Auto Initialization. 0 = OK, 1 = Error. Found at word 52, bit 0
SPARE_53_15	Unsigned Integer	1	0	Spare bits at word 53, bits 15-12
BIU_XTRA_RTC	Unsigned Integer	1	[0,15]	BIU Extra RTI Count. Found at word 53, bits 11-8 of the HK stream
SPARE_53_7	Unsigned Integer	1	0	Spare bits at word 53, bits 7-4
BIU_MISD_RTC	Unsigned Integer	1	[0,15]	BIU Missed RTI Count. Found at word 53, bits 3-0 of the HK stream
CPU2_EVENT	Unsigned Integer	1	[0,1]	CPU2 Event Mode. 0 = Disable, 1 = Enable. When Enabled, CPU2 schedules event mode to be executed on the following B-cycle. Data is collected for that B-cycle and then telemetered the following B-cycle. Note: this only works in 16kbp, and a B-cycle is 256 seconds. Found at word 54, bit 15
CPU2_LEF_INT	Unsigned Integer	1	[1,4]	CPU2 TOF LEF Interval. 1 – every word taken, 2 – every other word taken, 4 – every 4th word taken (from the start channel). Found at word 54, bits 14-13
CPU2_LEF_COL	Unsigned Integer	1	[0,3]	CPU2 TOF LEF Collapse Option. Found at word 54, bits 12-11 of HK
CPU2_LEF_STR	Unsigned Integer	2	[0,2047]	CPU2 TOF LEF Start Channel. Found at word 54, bits 10-0 of HK
CPU2_EXE_STA	Unsigned Integer	1	[0,1]	CPU2 Execution State. 0 = ROM, 1 = RAM. Found at word 55, bit 15
CPU2_ST_INT	Unsigned Integer	1	[1,4]	CPU2 TOF ST Interval. 1 – every word taken, 2 – every other word taken, 4 – every 4th word taken (from the start channel). Found at word 55, bits 14-13
CPU2_ST_COLL	Unsigned Integer	1	[0,3]	CPU2 TOF ST Collapse Option. Found at word 55, bits 12-11 of HK
SPARE2	Unsigned Integer	1	0	Added for padding only
CPU2_ST_STA	Unsigned Integer	2	[0,2047]	CPU2 TOF ST Start Channel. Found at word 55, bits 10-0 of HK

SPARE_56	Unsigned Integer	2	0	Spare bits at word 56, bits 15-7
CPU2_SHMEM	Unsigned Integer	1	[0,1]	CPU2 Shared Memory Test Status. 0 = OK, 1 = Error. Found at word 56, bit 6
CPU2_SAM_MEM	Unsigned Integer	1	[0,1]	CPU2 SAM Memory Test Status. 0 = OK, 1 = Error. Found at word 56, bit 5
CPU2_RAM_MEM	Unsigned Integer	1	[0,1]	CPU2 RAM Memory Test Status. 0 = OK, 1 = Error. Found at word 56, bit 4
CPU2_ROM_MEM	Unsigned Integer	1	[0,1]	CPU2 ROM Memory Test Status. 0 = OK, 1 = Error. Found at word 56, bit 3
CPU2_WATCHDG	Unsigned Integer	1	[0,1]	CPU2 Watchdog. 0 = Disable, 1 = Enable. Found at word 56, bit 2 of HK
CPU2_HEALTH	Unsigned Integer	1	[0,1]	CPU2 Health. 0 = OK, 1 = Error. Found at word 56, bit 1
CPU2_STATE	Unsigned Integer	1	[0,1]	CPU2 State. 0 = Reset, 1 = Run. Found at word 56, bit 0 of the HK stream
SPARE3	Unsigned Integer	1	0	Added for padding only
CPU2_ERROR_1	Unsigned Integer	2	[0, 65535]	CPU2 Error Word 1. TBD. See Table 24: "CPU2 Error Bit Definitions" in the CAPS Flight software functional design document. Found at word 57, bits 15-0 of the HK stream.
CPU2_ERROR_2	Unsigned Integer	2	[0, 65535]	CPU2 Error Word 2. TBD. See Table 24: "CPU2 Error Bit Definitions" in the CAPS Flight software functional design document. Found at word 58, bits 15-0 of the HK stream.
CP1_EXEC_CNT	Unsigned Integer	2	[0, 2047]	CPU1 Executed Command Count. Found at word 59, bits 15-5 of HK
CPU1_SHMEM	Unsigned Integer	1	[0,1]	CPU1 Shared Memory Test Status. 0 = OK, 1 = Error. Found at word 59, bit 4
CPU1_RAM_MEM	Unsigned Integer	1	[0,1]	CPU1 RAM Memory Test Status. 0 = OK, 1 = Error. Found at word 59, bit 3
CPU1_ROM_MEM	Unsigned Integer	1	[0,1]	CPU1 ROM Memory Test Status. 0 = OK, 1 = Error. Found at word 59, bit 2
CPU1_WATCHDG	Unsigned Integer	1	[0,1]	CPU1 Watchdog. 0 = Disable, 1 = Enable. Found at word 59, bit 1 of HK
CPU1_EXE_STA	Unsigned Integer	1	[0,1]	CPU1 Execution State. 0 = ROM, 1 = RAM. Found at word 59, bit 0 of HK
SPARE_62	Unsigned Integer	1	0	Spare bits at word 62, bits 15-14
CPU1_ERROR_1	Unsigned Integer	2	[0, 65535]	CPU1 Error Word 1. See Table 23: CPU 1 Error Bit Definitions, in the CAPS Flight Software Functional Design Document. Found at word 60, bits 15-0
CPU1_ERROR_2	Unsigned Integer	2	[0, 65535]	CPU1 Error Word 2. See Table 23: CPU 1 Error Bit Definitions, in the CAPS Flight Software Functional Design Document. Found at word 61, bits 15-0

Table 1: CAPS HSK Data File Contents and Structure

				Table 1: CAPS HSK Data File Contents and Structure
SC_TLM_RATE	Unsigned Integer	1	[0,16]	Spacecraft Telemetry Rate. Units are kbps. Found at word 62, bits 13-11 of HK
DPU_BKG_CTRL	Unsigned Integer	1	[0,1]	DPU Background Control. 0 = Disable, 1 = Enable. Found at word 62, bit 10
DPU_BKG_INT	Unsigned Integer	1	[0,63]	DPU Background Interval. Found at word 62, bits 9-4 of HK
DPU_SHTR_PWR	Unsigned Integer	1	[0,1]	DPU Supplemental Heater Power. 0 = Off, 1 = On. Found at word 62, bit 3
DPU_MODE_CHG	Unsigned Integer	1	[0,1]	DPU Mode Change. 0 = No, 1 = Yes. Found at word 62, bit 2 of HK
DPU_PWR_OPMD	Unsigned Integer	1	[0,1]	CPU Power Operation Mode. 0 = Sleep, 1 = Sleep, 2 = Op, 3 = Opwart. Op = operate and Opwart = operate with articulation. Found at word 62, bits 1-0
DPU_MODE	Unsigned Integer	1	[0,15]	DPU Mode. 0 = Maintenance, 1 = LowPower (ROM), 2 = CPU2/SAM Ready, 3 = LowPower (Science), 4 = Normal Science, 5 = Sleep, 6-15 = TBD. Found at word 63, bits 15-12
DPU_BCYCLE	Unsigned Integer	1	[0,15]	DPU B-cycle Counter. Found at word 63, bits 11-8 of the HK stream
DPU_ACYCLE	Unsigned Integer	1	[0,255]	DPU A-cycle Counter. Found at word 63, bits 7-0 of the HK stream
CP1_ILL_CNT	Unsigned Integer	1	[0,255]	CPU1 Illegal Command Counter. Found at word 64, bits 15-8 of the HK stream
SC_TLM_MODE	Unsigned Integer	1	[0,31]	Spacecraft Telemetry Mode. 0 = RTE_5, 1 = RTE_10, 2 = RTE_20, 3 = RTE_1896, 4 = PCHK-24.885, 5 = PRLY (Prime), 6 = S&ER1, 7 = S&ER2, 8 = S&ER3, 9 = S&ER4, 10 = S&ER5, 11 = S&ER5a, 12 = S&ER6, 13 = S&ER7, 14 = S&ER8, 15 = S&ER10 (Prime), 16 = RTE&SPB-14420, 17 = RTE&SPB-22120, 18 = RTE&SPB-27650, 19 = RTE&SPB-33180, 20 = RTE&SPB-35550, 21 = RTE&SPB-41475, 22 = RTE&SPB-47400, 23 = RTE&SPB-66360, 24 = RTE&SPB-82950, 25 = RTE&SPB-99540, 26 = RTE&SPB-110600, 27 = RTE&SPB-124425, 28 = RTE&SPB-142200, 29 = RTE&SPB-165900, 30 = SAF-248.85(2), 31 = SAF-142.2. Found at word 64, bits 7-0 of HK
SC_MODE_CHG	Unsigned Integer	1	[0,1]	Spacecraft Mode Change. 0 = No, 1 = Yes. Found at word 65, bit 15.

				Table 1: CAPS HSK Data File Contents and Structure
SPARE_65	Unsigned Integer	2	0	Spare bits at word 65, bits 14-13
LTLM_RATE	Float	4	[0.25,16]	Logical Telemetry Rate. CAPS internal rate. Units are kbps. Found at word 65, bits 12-10
SC_CLOCK_STA	Unsigned Integer	1	[0,1]	Spacecraft Clock Status. 0 = OK, 1 = Adjusted. Found at word 65, bit 9
TELEMETRY	Unsigned Integer	1	[0,1]	Telemetry Data Stream Status. 0 = Invalid, 1 = Valid. Found at word 65, bit 8 of the HK stream
CP1_LAST_RCV	Unsigned Integer	1	[0,255]	CPU1 Last Command Received. The hex value can be used to look up the last command received by CPU1. Hex values are in the CAPS command dictionary. Found at word 65, bits 7-0
SCLK_MULTR	Unsigned Integer	1	[0,255]	Sample Clock Multiplier. Found at word 66, bits 15-8 of the HK stream
SEQ_LAST	Unsigned Integer	1	[0,255]	Last Activated Sequence Number. Indicates which IEB was the last IEB to be running. Found at word 66, bits 7-0
CPU1_INV_CNT	Unsigned Integer	1	[0,255]	CPU1 Invalid Commands Count. Found at word 67, bits 15-8 of the HK stream
SEQ_CNT	Unsigned Integer	1	[0,15]	Active Sequence Counter. Indicates the number of active IEBs. Found at word 67, bits 7-4 of the HK stream
ALF_LOAD	Unsigned Integer	1	[0,1]	ALF Block Load. 0 = OK, 1 = Error. Found at word 67, bit 3 of HK
DIST_SEQ	Unsigned Integer	1	[0,1]	Distributed Sequence. 0 = OK, 1 = Error. Found at word 67, bit 2 of HK
DPU_ACQ	Unsigned Integer	1	[0,1]	DPU Acquisition and Compression Strategy. 0 = Normal, 1 = Solar Wind. Found at word 67, bit 1 of HK
IMS_ION_CFG	Unsigned Integer	1	[0,1]	IMS Ion Configuration. 0 = Disable, 1 = Enable. Found at word 67, bit 0 of HK
CP2_RCVD_CNT	Unsigned Integer	1	[0,255]	CPU2 Received Command Count. Found at word 68, bits 15-8 of HK
CP2_EXEC_CNT	Unsigned Integer	1	[0,255]	CPU2 Executed Command Count. Found at word 68, bits 7-0 of HK
CP2_RJCT_CNT	Unsigned Integer	1	[0,255]	CPU2 Rejected Command Count. Found at word 69, bits 15-8 of HK
CP2_ILL_CNT	Unsigned Integer	1	[0,255]	CPU2 Illegal Command Count. Found at word 69, bits 7-0 of the HK stream
CP2_LAST_RCV	Unsigned Integer	1	[0,255]	CPU2 Last Command Received. The hex value can be used to look up the last command received by CPU2. Hex values are in the CAPS command dictionary. Found at word 70, bits 15-8

Table 1: CAPS HSK Data File Contents and Structure				
CP2_INV_CNT	Unsigned Integer	1	[0,255]	CPU2 Invalid Count. Found at word 70, bits 7-0 of the HK stream
HK_MRO_TBLNO	Unsigned Integer	1	[0,63]	Housekeeping Memory Read-Out Table Number. 0 = CPU1 Memory, 1 = CPU2 Memory, 2 = ELS MCP Tolerance Table, 3 = IBS CEM Tolerance Table, 4 = IBS ESA Tolerance Table, 5 = HVU1 ACC Tolerance Table, 6 = HVU1 RET Tolerance Table, 7 = HVU2 ESA Tolerance Table, 8 = HVU2 LEF Tolerance Table, 9 = HVU2 ST Tolerance Table, 10 = ACT Step Table 1, 11 = ACT Step Table 2, 12 = ACT Step Table 3, 13 = ACT Accel/Decel Table, 15 = ELS/IBS Compression Table, 16 = Revision ID, 19 = ELS Sweep Monitor Table, 20 = IBS SW Search Table, 21 = IBS MAG Table 1, 22 = IBS MAG Table 2, 23 = IBS STD Table, 24 = IBS Sweep Monitor Table, 30 = HVU2 ESA Sweep Table 1, 31 = HVU2 ESA Sweep Table 2, 32 = HVU2 ESA Sweep Table 3, 33 = HVU2 ESA Sweep Table 4, 34 = IMS Sweep Monitor Table, 40 = Group Table 1, 41 = Group Table 2, 42 = Group Table 3, 44 = Ancillary S/C Data, 50 = IEBs, 59 = Mode Transition Sequence Low/Power to Normal Science, 60 = Mode Transition Sequence Normal Science To Low/Power, 61 = Mode Transition Sequence Normal Science To Sleep, 62 = Mode Transition Sequence Sleep To Normal Science, 63 = Mode Transition Sequence Sleep to Low/Power. Found at word 71, bits 15-8 of the HK stream.
HK_MRO_ADDRESS	Unsigned Integer	4	[0, 0xFFFFF]	Housekeeping MRO Address: Built using the Most Significant Byte found at word 71, bits 7-0 and least significant word at word 72, bits 15-0 of HK.
HK_MRO_WORDS	Unsigned Integer	32	Each word can have a range from [0, xFFFF]	Housekeeping MRO Words 0 - 15: Built using word 73 to 88 (all bits) of the HK stream. The Memory Read-Out is "trickled" down every A-cycle.