

THEMIS

HOUSEKEEPING L1 Data files Variable Name Definition

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Timothy Quinn, THEMIS Science Operations

Dr. John Bonnell, THEMIS EFI

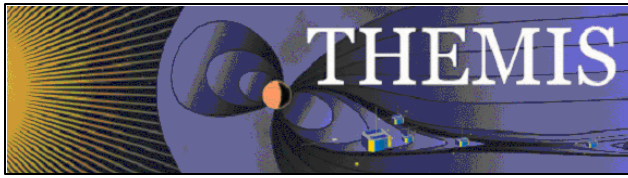
Alain Roux, THEMIS SCM

Uli Auster, THEMIS FGM

Michael Ludlam, THEMIS ISE

Peter Harvey, THEMIS Project Manager

Vassilis Angelopoulos, THEMIS Principal Investigator



Document Revision Record

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Distribution List

Name	Email
Jim Lewis, U.C. Berkeley	jwl@ssl.berkeley.edu
Dr. John Bonnell, U.C. Berkeley	jbonnell@ssl.berkeley.edu
Dr. Davin Larson, U.C. Berkeley	davin@ssl.berkeley.edu
Dr. Jim McFadden, U.C. Berkeley	mcfadden@ssl.berkeley.edu
Dr. Uli Auster	uli.auster@tu-bs.de
Dr. Alain Roux	Alain.Roux@cetp.ipsl.fr
Dr. Tai Phan, U.C. Berkeley	phan@ssl.berkeley.edu
Dr. Forrest Mozer, UCB	fmozer@ssl.berkeley.edu
Dr. Robert Ergun, LASP	ree@fast.colorado.edu
Dr. Chris Cully, LASP	cully@colorado.edu
Dr. Manfred Bester	Manfred@ssl.berkeley.edu
Dr. Ellen Taylor, U.C. Berkeley	ertaylor@ssl.berkeley.edu
Dr. Krishan Khurana, UCLA	kkhurana@igpp.ucla.edu
Dr. Dave Sibeck, NASA GSFC	david.g.sibeck@nasa.gov

TBD List

Identifier	Description
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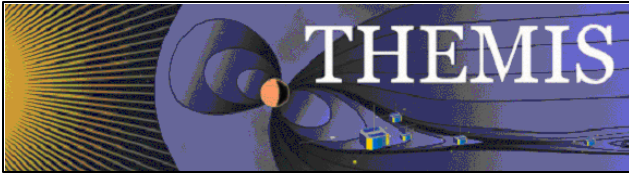


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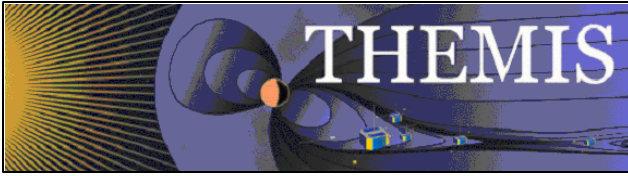
1. Introduction

1.1 Purpose and Scope.

THEMIS data are transmitted to the ground as Virtual Channel (VC), Application Identifier (APID) packets, each containing packets of a specific instrument data type from a specific IDPU instrument APID. Time-ordering of individual APID packet files, time-tagging, decompression of the IDPU post-recording compression, a small re-arrangement of quantities and possible trivial processing of raw quantities results in L0 file data. These files (herein termed APID_LODAT.pkt) contain APID data in daily files. The APIDs are described in:

THEMIS IDPU APPLICATION IDENTIFIERS		
APID(Hex)	Description of Packet	Length
404	Housekeeping Data 1	
406	Housekeeping Data 2	
410	IDPU SPIN FIT PACKET (EFI & FGM)	4048
411	spare	
412	spare	
440	DIGITAL FIELDS BOARD FILTERS	3600
441	DIGITAL FIELDS BOARD Fast Survey (A) V1-V6	3088
442	DIGITAL FIELDS BOARD Fast Survey (B) V1-V6	3088
443	DIGITAL FIELDS BOARD Fast Survey E12DC, E34DC, E56DC at 2 to 256 Hz	3088
444	DIGITAL FIELDS BOARD Fast Survey SCM1, SCM2, SCM3 at 2 to 256 Hz	3088
445	DIGITAL FIELDS BOARD Particle Burst (A) V1-V6 at 2 to 256 Hz	3088
446	DIGITAL FIELDS BOARD Particle Burst (B) V1-V6 at 2 to 256 Hz	3088
447	DIGITAL FIELDS BOARD Particle Burst E12DC, E34DC, E56DC at 2 to 256 Hz	3088
448	DIGITAL FIELDS BOARD Particle Burst SCM1, SCM2, SCM3 at 2 to 256 Hz	3088
449	DIGITAL FIELDS BOARD Wave Burst (A) V1-V6 at 512 to 8192 Hz	3088
44A	DIGITAL FIELDS BOARD Wave Burst (B) V1-V6 at 512 to 8192 Hz	3088
44B	DIGITAL FIELDS BOARD Wave Burst E12DC, E34DC, E56DC at 512 to 16384 Hz	3088
44C	DIGITAL FIELDS BOARD Wave Burst SCM1, SCM2, SCM3 at 512 to 16384 Hz	3088
44D	DIGITAL FIELDS BOARD Particle Burst Spectra 1 to 4 16-64 pts @1/4-8 Hz	2064
44E	DIGITAL FIELDS BOARD Wave Burst Spectra 1 to 4 16-64 pts @1/4-8 Hz	2064
44F	spare	
450	spare	
451	Trigger Data	4048
452	SST Engineering Data	3856
453	ESA and SST Moments [212 bytes/spin]	3408
454	iESA_RDF Survey Ion 88x32 Angle*Energies	2836
455	eESA_RDF Survey Electron 88x32 Angle*Energies	3216
456	iESA_RDF Burst Ion 88x32 Angle*Energies	2836
457	eESA_RDF Burst Electron 88x32 Angle*Energies	2836
458	iSST_RDF Survey Ion 64x16 Angle*Energies	3100
459	eSST_RDF Survey Electron 64x16 Angle*Energies	3344
45A	iSST_RDF Burst Ion 64x16 Angle*Energies	3100
45B	eSST_RDF Burst Electron 64x16 Angle*Energies	3100
45C	iSST_RDF Survey Ion 6x8 Angle*Energies	3344
45D	eSST_RDF Survey Electron 6x8 Angle*Energies	3100
45E	iSST_RDF Burst Ion 6x8 Angle*Energies	3100
45F	eSST_RDF Burst Electron 6x8 Angle*Energies	3088
460	FGM LOW RATE DATA (TML)	3088
461	FGM HIGH RATE DATA (TMH)	3088

THEMIS Level 1 probe data (herein termed L1DAT.cdf), shall be CDF files containing the above L0 data, in principle as close to their L0 format as feasible, but with addition of metadata and time stamps that facilitate interpretation and access by the scientific community. It is anticipated that L1 files will originally contain data stemming from their individual APID files, but will eventually be merged into a single daily multi-instrument file, containing all the science APIDs for a single probe.



Generation of physical quantities from such L1DAT.cdf files shall proceed, in principle, by use of two additional files and a piece of code: A calibration file (herein termed CAL.cdf), a probe STATE file (herein termed STATE.cdf) and a piece of IDL code that reads the three files, calibrates and transforms the data into the proper coordinate system and produces physical quantities.

The purpose of this document is to define the Housekeeping L1 data file quantities and names. The overarching principle is to create short and unique mnemonics that facilitate easy understanding of the data quantities they carry, while preserving, if possible, the efficiency (and compactness) of the L0 and APID data representation.

1.2 Applicable Documents.

1. THM_SYS_012_PDMP	THEMIS Project Data Management Plan
2. THM_SOC_101_TIME	THEMIS TIME Definition
3. THM_SOC_108_GMAG_L1_VARNAAMES	THEMIS GMAG Variable Name Def's
4. THM_SOC_109_ASI_L1_VARNAAMES	THEMIS ASI Variable Name Definitions
5. THM_SOC_110_COORDINATES	THEMIS Coordinate Systems Definitions
6. THM_SOC_111_SUNSENSPROC	THEMIS SUN SENSOR Science Processing
7. THM_SOC_112_ATTPAIPROC	THEMIS Science ATT & Inertia Determ.
8. THM_SOC_113_FGM_CALPROC	THEMIS FGM CAL File and Processing
9. THM_SOC_114_SCM_CALPROC	THEMIS SCM CAL File and Processing
10. THM_SOC_115_EFI_CALPROC	THEMIS EFI CAL File and Processing
11. THM_SOC_116_ESA_CALPROC	THEMIS ESA CAL File and Processing
12. THM_SOC_117_SST_CALPROC	THEMIS SST CAL File and Processing
13. THM_SOC_117_ASI_CALPROC	THEMIS ASI CAL File and Processing

2. General L1DAT File Variable Naming Conventions

2.1 Construct of HOUSEKEEPING VARNAAMES: th[a-e]_x

Following an overall principle of naming THEMIS variables using more general to less general descriptors, separated by the underscore character “_”, the Housekeeping Variables shall be named: th[a-e]_x, where a-e is the probe letter – identifier, “x” is the unique, descriptive quantity identifier.

2.2 HOUSEKEEPING Packet HEADERS: th[a-e]_[hsk1 or hsk2]_hed

Packet header information and packet time (but not packet data) shall be included in the L1 files. Such headers shall be named by appending the 3 letters “hed” to the variable name, e.g., “th[a-e]_hsk1_hed”.

3. Specific Housekeeping Quantities

The next two sections (3.1 and 3.2) outline all the housekeeping variables from the 404 and 406 APIDs.

3.1 HSK1 (APID 404)

The HSK1 data contains the following variables in addition to the ones listed in the following spreadsheets:

- th[a-e]_hsk1_time : UTC, start of DF accumulation, in sec since 01-Jan-1970 00:00:00
- th[a-e]_hsk1_hed : Packet header information

The following spreadsheets outline the other HSK1 variables. Column 1 contains the partial variable name (“x”) so to construct the full variable name th[a-e]_ must be appended to the front of the partial variable



name; e.g. idpu_rstctr → tha_idpu_rstctr (Note: Variables are all lower case characters). Column 2 indicates the number of bytes for the variable; column 3 is an offset; column 4 is the variable type (UB=unsigned byte, SB=signed byte); column 5 is the number of bits; column 6 is the units (if applicable); column 7 is a short variable description; column 8 is the module.

DCB/FSW							
HOUSEKEEPING	#bytes	Offset	Type	#bit	Units	Description	MODULE
IDPU_RSTCTR	1	12	UB	8	CTS	Processor Reset Count	EXEC
IENABLES	2	13	U21	16		Safety Enables	EXEC
IDPU_VERSION	1	15	UB	8		Software Version Code	EXEC
IDPU_MODE	1	16	UB	8		Operating Mode 0-3 : Safe, Normal, Engin, LowPower	EXEC
IDPU_FGND	1	17	UB	8	%	Foreground Availability	EXEC
IDPU_ERRCODE	1	18	UB	8		Error Code	EXEC
IDPU_ERRDATA	2	19	U21	16		Error Data (Associated with Error Code)	EXEC
IDPU_ERRCTR	1	21	UB	8		Error Counter	EXEC
IDPU_CMDREG	2	22	U21	16		Command Register (Uplink Only, Not Internal)	CMD
IDPU_CMDEXP	1	24	UB	8		Number of Commands Expected in a Command Uplink	CMD
IDPU_CMDTOT	1	25	UB	8		Number of Commands Received and Executed	CMD
IDPU_LOADADR	2	26	U21	16		Load Address (ADR)	LD
IDPU_DUMPADR	2	28	U21	16		Dump Address (DUMPADR)	LD
#MEMDUMP	16	30	UB	128		Memory Dump starting at DUMPADR	LD
IDPU_MEM_DUMP0	1	30	UB	8		Memory Dump	LD
IDPU_MEM_DUMP1	1	31	UB	8		Memory Dump	LD
IDPU_MEM_DUMP2	1	32	UB	8		Memory Dump	LD
IDPU_MEM_DUMP3	1	33	UB	8		Memory Dump	LD
IDPU_MEM_DUMP4	1	34	UB	8		Memory Dump	LD
IDPU_MEM_DUMP5	1	35	UB	8		Memory Dump	LD
IDPU_MEM_DUMP6	1	36	UB	8		Memory Dump	LD
IDPU_MEM_DUMP7	1	37	UB	8		Memory Dump	LD
IDPU_MEM_DUMP8	1	38	UB	8		Memory Dump	LD
IDPU_MEM_DUMP9	1	39	UB	8		Memory Dump	LD
IDPU_MEM_DUMP10	1	40	UB	8		Memory Dump	LD
IDPU_MEM_DUMP11	1	41	UB	8		Memory Dump	LD
IDPU_MEM_DUMP12	1	42	UB	8		Memory Dump	LD
IDPU_MEM_DUMP13	1	43	UB	8		Memory Dump	LD
IDPU_MEM_DUMP14	1	44	UB	8		Memory Dump	LD
IDPU_MEM_DUMP15	1	45	UB	8		Memory Dump	LD
IQ_FPGA	1	46	UB	8		FPGA Version Readback	IO
IQ_VC2CNT	1	47	UB	8		VC2 Frame Count	IO
IQ_VC3CNT	1	48	UB	8		VC3 Frame Count	IO
IQ_DCBCTL	1	49	UB	8		xCwxxxxRB C=SCM Cal, w=EEPROM Write, R=SDRAM On	IO
IQ_AUXSTAT	1	50	UB	8		AMMMRNC A=ADC On, M=Mux, R=SDRAM Rdy, N=Nul	IO
IQ_HSTSTAT	1	51	UB	8		HST Status: [pgAdr28,VC, ,sc rdy,errbits,enb]	IO
ITM_ENABLE	1	52	UB	8		High Speed Telemetry Enables [xxxxBSQE]	TM
ITM_ERRORS	1	53	UB	8		High Speed Telemetry Packet Headers Corrupted	TM



ANALOG HOUSEKEEPING READBACK							
	#bytes	Offset	Type	#bit	Units	Description	MODULE
IMON_P10VA	1	54	SB	8	mA	Instrument Payload +10VA Current Monitor	HSK
IMON_N10VA	1	55	SB	8	mA	Instrument Payload -10VA Current Monitor	HSK
IMON_P5VA	1	56	SB	8	mA	Instrument Payload +5VA Current Monitor	HSK
IMON_N5VA	1	57	SB	8	mA	Instrument Payload -5VA Current Monitor	HSK
IMON_N8VA	1	58	SB	8	mA	Instrument Payload -8VA Current Monitor	HSK
IMON_P5VD	1	59	SB	8	mA	Instrument Payload +5VD Current Monitor	HSK
IMON_P2_5VD	1	60	SB	8	mA	Instrument Payload +2.5VD Current Monitor	HSK
IGND	1	61	SB	8	V	Ground	HSK
IVMON_P10VA	1	62	SB	8	V	Instrument Payload +10VA Voltage Monitor	HSK
IVMON_N10VA	1	63	SB	8	V	Instrument Payload -10VA Voltage Monitor	HSK
IVMON_P5VA	1	64	SB	8	V	Instrument Payload +5VA Voltage Monitor	HSK
IVMON_N5VA	1	65	SB	8	V	Instrument Payload -5VA Voltage Monitor	HSK
IVMON_P8VA	1	66	SB	8	V	Instrument Payload +8VA Voltage Monitor	HSK
IVMON_N8VA	1	67	SB	8	V	Instrument Payload -8VA Voltage Monitor	HSK
IVMON_P5VD	1	68	SB	8	V	Instrument Payload +5VD Voltage Monitor	HSK
IVMON_P2_5VD	1	69	SB	8	V	Instrument Payload +2.5VD Voltage Monitor	HSK
IMON_ESA28V	1	70	SB	8	mA	ESA HV +28V Regulated Current Monitor	HSK
IVMON_ESA28V	1	71	SB	8	V	ESA HV +28V Regulated Voltage Monitor	HSK
IVMON_ACT	1	72	SB	8	V	Instrument Payload +28VA Actuator Voltage Monitor	HSK
IMON_SMA	1	73	SB	8	mA	Instrument Payload +5VA SMA Current Monitor	HSK
IVMON_SMA	1	74	SB	8	V	Instrument Payload +5VA SMA Voltage Monitor	HSK
IFGE_ELECT	1	75	SB	8	C	FGE Housekeeping Analog 1 (ELECTRONICS)	HSK
IFGE_SENSORT	1	76	SB	8	C	FGE Housekeeping Analog 2 (SENSOR)	HSK
IMON_IDPU	1	77	SB	8	mA	IDPU +28VA Current Monitor (LVPS HSK1)	HSK
IMON_EFI X	1	78	SB	8	mA	EFI X-Axis +/-10V Floating Current Monitor (LVPS HSK2)	HSK
IMON_EFI Y	1	79	SB	8	mA	EFI Y-Axis +/-10V Floating Current Monitor (LVPS HSK3)	HSK
IMON_EFI Z	1	80	SB	8	mA	EFI Z-Axis +/-10V Floating Current Monitor (LVPS HSK4)	HSK
IMON_EFI BOARD	1	81	SB	8	mA	EFI Boards (DFB and BEB) Current Monitor (LVPS HSK5)	HSK
IVMON_IDPU	1	82	SB	8	V	IDPU +28VA Voltage Monitor (LVPS HSK6)	HSK
IPCB_FET	1	83	SB	8	C	PCB Frangibolt FET Temperature Monitor	HSK
IDCB_FPGAT	1	84	SB	8	C	DCB FPGA Temperature	HSK
IDCB_SSRT	1	85	SB	8	C	DCB Solid State Recorder Temperature	HSK
IDCB_GND	1	86	SB	8	V	DCB Ground	HSK
IDCB_3V	1	87	SB	8	V	DCB 3.3 V Monitor	HSK



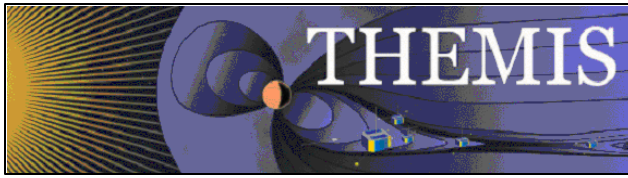
POWER CONTROL, ONE SHOT ACTUATION, SST ATTENUATION							
	#bytes	Offset	Type	#bit:	Units	Description	MODULE
IPWRSWITCH	1	88	UB	8	-	Power switches [EFI, VFX, VFY, VFZ, ESA, SST, FGM, SCM]	PwR
IACSELECT	1	89	UB	8	-	Actuator Selected (5-bit) See "Actuator Page"	PwR
IACETIME	1	90	UB	8	Secs	Actuation Time in Seconds (5-bit)	PwR
IATTALOC1	1	91	UB	8	Moves	Attenuator Allocation #1 (Cycles)	PwR
IATTALOC2	1	92	UB	8	Moves	Attenuator Allocation #2 (Cycles)	PwR
IMTRSTAT	1	93	UB	8	On/Off	Spin Plane Boom Motor Status- Motor-[xxxx4321]	PwR
PWRSPARE	2	94	UB	16	-	spares	PwR
SOLID STATE RECORDER							
	#bytes	Offset	Type	#bit:	Units	Description	MODULE
ISSR_MODE	1	96	UB	8	-	Storage Mode 0-3 = Slow, Fast, Pburst, wburst	SSR
ISSR_ENG	2	97	U21	16	PKTS	Engineering Segment Storage Indicator	SSR
ISSR_QUICK	2	99	U21	16	PKTS	Quick Look Segment Storage Indicator	SSR
ISSR_SURVEY	2	101	U21	16	PKTS	Survey Segment Storage Indicator	SSR
ISSR_BURST	2	103	U21	16	PKTS	Burst Segment Storage Indicator	SSR
ITM_FIFOSTAT	1	105	UB	8	PKTS	Science Telemetry FIFO Depth	SSR
ITM_BURST	1	106	UB	8	PKTS	Burst Telemetry in Output Stage	SSR
IECCCTRL	1	107	UB	8	-	Error Correction Logic Status	SSR
IECCADR2	1	108	UB	8	-	ECC Address	SSR
IECCSING	1	109	UB	8	Errs	ECC Single Error Count Accumulated	SSR
IECCMULT	1	110	UB	8	Errs	ECC Multiple Error Count Accumulated	SSR
ATTITUDE CONTROL							
	#bytes	Offset	Type	#bit:	Units	Description	MODULE
ISUNTIME	3	111	Time12	24	Sec	Time of the Local Spin Sector Pulse	ACS
ISPINPERIOD	3	114	Time12	24	Sec	Spin Period of the Spacecraft	ACS
IPHASERR	3	117	Time12	24	Sec	Phase Error Between Local Spin and Sun	ACS
IDPU_PAGEADR	2	120	U21	16	-	Dump Page (PAGEADR)	LD
ONESECMARK	6	122	Time42	48	Sec	Time at the 1Hz Tick Delivered from the S/C	CMD

3.2 HSK2 (APID 406)

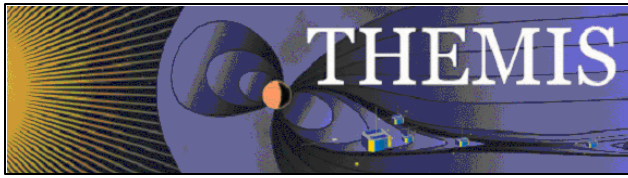
The HSK2 data contains the following variables in addition to the ones listed in the following spreadsheets:

- th[a-e]_hsk2_time : UTC, start of DF accumulation, in sec since 01-Jan-1970 00:00:00
- th[a-e]_hsk2_hed : Packet header information

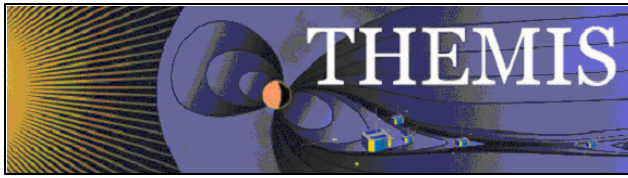
The following spreadsheets outline the other HSK2 variables. Column 1 contains the partial variable name ("x") so to construct the full variable name th[a-e]_ must be appended to the front of the partial variable name; e.g. iefi_ibias → tha_iefi_ibias (Note: Variables are all lower case characters). Column 2 indicates the number of bytes for the variable; column 3 is an offset; column 4 is the variable type (UB=unsigned byte, SB=signed byte); column 5 is the number of bits; column 6 is the units (if applicable); column 7 is a short variable description; column 8 is the module. Also, some variables listed in the spreadsheet have been consolidated into single variables, e.g. th[a-e]_iefi_ibias[1-6] → th[a-e]_iefi_ibias, and can be recognized by redundant variable descriptions.



INSTRUMENTATION	#bytes	Offset	Type	#bits	Description	MODULE
IEFI_IBIAS1	2	12	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_IBIAS2	2	14	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_IBIAS3	2	16	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_IBIAS4	2	18	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_IBIAS5	2	20	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_IBIAS6	2	22	I21	16	EFI BIAS VOLTAGE	HSK
IEFI_USHER1	1	24	SB	8	BEB USHER Readback	HSK
IEFI_USHER2	1	25	SB	8	BEB USHER Readback	HSK
IEFI_USHER3	1	26	SB	8	BEB USHER Readback	HSK
IEFI_USHER4	1	27	SB	8	BEB USHER Readback	HSK
IEFI_USHER5	1	28	SB	8	BEB USHER Readback	HSK
IEFI_USHER6	1	29	SB	8	BEB USHER Readback	HSK
IEFI_GUARD1	1	30	SB	8	BEB GUARD Readback	HSK
IEFI_GUARD2	1	31	SB	8	BEB GUARD Readback	HSK
IEFI_GUARD3	1	32	SB	8	BEB GUARD Readback	HSK
IEFI_GUARD4	1	33	SB	8	BEB GUARD Readback	HSK
IEFI_GUARD5	1	34	SB	8	BEB GUARD Readback	HSK
IEFI_GUARD6	1	35	SB	8	BEB GUARD Readback	HSK
IEFI_BRAID	1	36	SB	8	BEB Braid Voltage Readback	HSK
IBEB_TEMP	1	37	SB	8	BEB Temperature	HSK
ISPB_TEMP	1	38	SB	8	Axial Boom Preamp Thermister	HSK
IAXB_TEMP	1	39	SB	8	Spin Plane Boom Preamp Thermister	HSK
IESA_IMCP	1	40	UB	8	ESA Electron MCP HV DAC	ETC
IESA_EMCP	1	41	UB	8	ESA Ion MCP HV DAC	ETC
IESA_ISWP	1	42	UB	8	ESA Electron SWEEP HV DAC	ETC
IESA_ESWP	1	43	UB	8	ESA Ion SWEEP HV DAC	ETC
IESA_IGAIN	1	44	UB	8	ESA Gain A (CDI 07)	EEPROM
IESA_EGAIN	1	45	UB	8	ESA Gain B (CDI 08)	EEPROM
IESA_ENABLES	1	46	UB	8	ESA Enables[PRRRSCIE] See Note 2	EEPROM
IESA_PULSER	1	47	UB	8	ESA Pulser DAC Setting	EEPROM
IESA_ESwPV	1	48	UB	8	ESA Electron Sweep Voltage	HSK
IESA_EHVI	1	49	UB	8	ESA Electron High Voltage Current	HSK
IESA_EMCPV	1	50	UB	8	ESA Electron MCP Current	HSK
IESA_EMCPV	1	51	UB	8	ESA Electron MCP Voltage	HSK
IESA_ISWPV	1	52	UB	8	ESA Ion Sweep Voltage	HSK
IESA_IHVI	1	53	UB	8	ESA Ion High Voltage Current	HSK
IESA_IMCPV	1	54	UB	8	ESA Ion MCP Current	HSK
IESA_IMCPV	1	55	UB	8	ESA Ion MCP Voltage	HSK



INSTRUMENTATION	#bytes	Offset	Type	#bits	Description	MODULE
IETC_CONFIG	1	56	UB	8	ETC CONFIG CODE	ETC
IETC_TABLE	1	57	UB	8	ETC Table Version Code	ETC
IETC_SCPOT	2	58	I21	16	Spacecraft Potential	EEPROM
IETC_COVERS	1	60	UB	8	ESA Cover & SST Attenuators [H..EAABB] See Note1	EEPROM
ISST1_TEMP	1	61	UB	8	SST Sensor	HSK
ISST2_TEMP	1	62	UB	8	SST Sensor	HSK
ISST_BIAS	1	63	SB	8	SST Sensor	HSK
ISST_VREF	1	64	UB	8	SST Sensor	HSK
ISST_FLUX	2	65	U21	16	SST Flux Measured in One Sector (0.1 SEC)	SCI
IATT_STATE	1	67	UB	8	SST Atten State[0..3] = {Open, Closing, Closed, Opening}	SCI
IATT_TIMER	1	68	UB	8	SST Time Between Actuations	SCI
IDHSK_STATE	1	69	UB	8	SST DHSK State[0..3] = {Start,Accum,Read,Wait}	EEPROM
IDHSK_WAIT	1	70	UB	8	SST DHSK Wait in #Spins	EEPROM
IFGM_CONFIG	1	71	UB	8	FGM Configuration Code	FGM
IFGM_MESSAGE	1	72	UB	8	FGM Message Byte	FGM
IFGM_CONTROL	2	73	U21	16	FGM Control Word (81H)	FGM
IFGM_PHASE	2	75	U21	16	FGM Phase	FGM
IFGM_SAMPLING	1	77	UB	8	Number of sampling periods M in FPGA SE	FGM
IFGM_XY	1	78	UB	8	FGM Range Setting X and Y	FGM
IFGM_ZR	1	79	UB	8	FGM Range Setting Z, Rate of Low Packets	FGM
IEFI_CONFIG	1	80	UB	8	EFI Configuration Byte	EFI
IFBANKSEL	1	81	UB	8	Filter Bank Select [22221111] (CDI 40)	SCM
IFILTER1	1	82	SB	8	Filter Bank Output 1	EEPROM
IFILTER2	1	83	SB	8	Filter Bank Output 2	EEPROM
IDEPPAIR	1	84	UB	8	Deployment Pair 1=X, 3=Y	DEP
IDEPSTAT	1	85	UB	8	Deployment Status [CodeB : CodeA]	DEP
IBOOMBITS	1	86	UB	8	Boom Status Bits (when deployment pair selected)	DEP
IDLENA	1	87	UB	8	Boom A Length (Stroke) in Clicks	DEP
IDLENB	1	88	UB	8	Boom B Length (Stroke) in Clicks	DEP
IDEPLIMIT	1	89	UB	8	Boom Target Length in Clicks	DEP
IFITMODE	1	90	UB	8	FIT MODE	FIT



COMPRESSION & SCIENCE	#bytes	Offset	Type	#bits	Description	MODULE
ICMP_MODE	1	91	UB	8	Compression Enables [xxxxBSQE]	CMP
ICMP_SEG	1	92	UB	8	Compression Segment Selected [xxxxBSQE]	CMP
ICMP_PACKET	2	93	U21	16	Compression Packet#	CMP
IPB_THRESH	1	95	UB	8	Particle Burst Collection Threshold	SCI
IWB_THRESH	1	96	UB	8	Wave Burst Collection Threshold	SCI
IPB_EVALMAX	1	97	UB	8	Particle Burst Current Maximum	SCI
IWB_EVALMAX	1	98	UB	8	Wave Burst Current Maximum	SCI
ISCOPTIONS	1	99	UB	8	Science Option Bits (SEE Note 3)	SCI
PB_RECSTAT	1	100	UB	8	Particle Burst State and Burst# : [xSSxBBBB]	SCI
WB_RECSTAT	1	101	UB	8	Wave Burst State and Burst# : [xSSxBBBB]	SCI
BU_PLAYSTAT	1	102	UB	8	Playback State and Burst# : [xSSxBBBB]	SCI
BU_CMPSTAT	1	103	UB	8	Compression State and Burst# : [xSSxBBBB]	SCI
PB_RDONLY	1	104	UB	8	Particle Burst ReadOnly Mask	SCI
PB_CMPRSD	1	105	UB	8	Particle Burst Compressed Mask	SCI
spare	1	106	UB	8		SCI
ISCRIPRT	1	107	UB	8	Script Selected to Run	SCI
IDFBMODE	1	108	UB	8	DFB Mode Readback	SCI
ITRGRECORD	1	109	UB	8	Trigger HSK Record Count	SCI
ISSTRECORD	1	110	UB	8	SST DSK Record Count	SCI
EVAL0	1	111	UB	8	Burst Evaluation	SCI
EVAL1	1	112	UB	8	Burst Evaluation	SCI
EVAL2	1	113	UB	8	Burst Evaluation	SCI
EVAL3	1	114	UB	8	Burst Evaluation	SCI
EVAL4	1	115	UB	8	Burst Evaluation	SCI
EVAL5	1	116	UB	8	Burst Evaluation	SCI
EVAL6	1	117	UB	8	Burst Evaluation	SCI
EVAL7	1	118	UB	8	Burst Evaluation	SCI
BAU Reported Data	#bytes	Offset	Type	#bits	Description	MODULE
IBAU_STATUS	1	119	UB	8	[Power Down Imminent,Trans On, Maneuver,LowPowerM	CMD
ILVPS_SCTEMP	1	120	UB	8	SIC Reported Temp	CMD
IDPU_SCTEMP	1	121	UB	8	SIC Reported Temp	CMD
ISPB_SCTEMP	1	122	UB	8	SIC Reported Temp	CMD
ISST_SCTEMP	1	123	UB	8	SIC Reported Temp	CMD
IDPU_28i	1	124	UB	8	SIC Measured IDPU Current	CMD
IACT_28i	1	125	UB	8	SIC Measured IDPU Current	CMD
IPRMY_HTRI	1	126	UB	8	SIC Measured IDPU Current	CMD
ISCND_HTRI	1	127	UB	8	SIC Measured IDPU Current	CMD