

**Telecommand and Telemetry Formats
Software Maintenance Focus (abridged)**

*Large Area Telescope (LAT) Flight Software (FSW) Group
Gamma Ray Large Area Space Telescope (GLAST) Project*

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0 SCOPE

0.0 Identification

This Interface Control Document (ICD) describes the formats and protocols associated with telecommands and telemetry for the Gamma-ray Large Area Space Telescope's (GLAST) Large Area Telescope (LAT) payload.

0.1 System Overview

GLAST is a high-energy gamma-ray observatory, designed for making observations of celestial sources in the energy band extending from 20 MeV to 300 GeV, with complementary coverage between 10 KeV and 25 MeV for gamma-ray bursts.

The LAT instrument detects both Cosmic Rays (i.e., charged particles) and Gamma Rays (i.e., high-energy photons), capturing the resulting information as "events". The LAT Flight Software (FSW) is tasked with configuring and operating the instrument, as well as deciding which events are Gamma Rays from celestial sources.

The vast majority of communication with the FSW is accomplished by the exchange of telecommand and telemetry packets. Telecommand packets are used to load new software, set configuration values, initiate operations, etc. Telemetry packets are used to report data of various types, including diagnostic, house-keeping, and science.

The FSW receives telecommand packets from the spacecraft (SC) and telemetry packets from the Gamma-ray Burst Monitor (GBM). It sends telemetry packets to the spacecraft, for retransmission to Earth-based installations. On rare occasions, the FSW sends telecommand packets (e.g., repoint requests) to the spacecraft.

0.2 Document Overview

This document details the telecommand and telemetry interfaces between the LAT payload and the GLAST spacecraft bus. It is organized as follows:

0 Scope

Discussion of the general nature of the document.

1 References

Documents, acronyms, and glossary terms referenced in or required for use with this document.

2 Interface Overview

A summary of the telecommand and telemetry interfaces between the LAT payload and the GLAST spacecraft bus and between the LAT payload and the GBM payload.

3 CCSDS Protocol

A summary of the CCSDS protocol.

4 Package Overview

A summary of the packages described in subsequent sections.

5 <package> (e.g., FILE, LCAT, LHK):

Definitions of relevant items (e.g., packets, attributes) for the package in question.

Indexes

Indexes into the package chapters, organized by APID, item name, etc.

0.3 Document Data Sources

The "front matter" for this document was derived, largely, from a set of hand-edited configuration files. Consequently, it may not track all changes in the software, etc.

The telecommand and telemetry descriptions in this document were autogenerated from the following packages/versions in the LAT flight software code management system:

0.4 Document Output Variants

The "Telecommand and Telemetry Formats" document is available in four variant formats, differing in focus ("Software Maintenance", "Instrument Operation") and level of detail ("abridged", "detailed").

The Software Maintenance variants are aimed at the needs of software maintainers. Consequently, they discuss data structures (e.g., Bitfields), use LCAT (i.e., C) nomenclature, etc.

The Instrument Operation variants are aimed at the needs of instrument operators. Consequently, they ignore data structures, use ITOS nomenclature, etc.

None of these variants is as complete and navigable, however, as the online (web-based) variants. If online access is available, this should be your first choice.

1 REFERENCES

This section lists documents, acronyms, and glossary terms that either are referenced in this Interface Control Document or provide additional information applicable to the understanding of this document.

1.0 Applicable Documents

LAT Project Documents

LAT Project Documents	
Document Number	Document Title

GLAST Project Documents

GLAST Project Documents	
Document Number	Document Title

NASA Standards and Guidelines

NASA Standards and Guidelines	
Document Number	Document Title
CCSDS 101.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Telemetry Channel Coding, May 1999
CCSDS 102.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Packet Telemetry, November 1995
CCSDS 200.0-G-6	Consultative Committee for Space Data Systems (CCSDS) Report for Telecommand: Summary of Concept and Rationale, January 1987
CCSDS 201.0-B-3	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Telecommand: Part 1, Channel Service, June 2000
CCSDS 202.0-B-2	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Telecommand: Part 2.1, Command Operation Procedures, October 1991
CCSDS 203.0-B-1	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Telecommand: Part 3, Data Management Service Architectural Specification, January 1987
CCSDS 102.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Packet Telemetry, November 1995
CCSDS 102.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Packet Telemetry, November 1995
CCSDS 102.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Packet Telemetry, November 1995
CCSDS 102.0-B-4	Consultative Committee for Space Data Systems (CCSDS) Recommendation for Packet Telemetry, November 1995

Military Standards and Guidelines

Military Standards and Guidelines	
Document Number	Document Title

Commercial Standards

Commercial Standards	
Document Number	Document Title
RFC-1590	Media Type Registration Procedure
RFC-1591	Domain Name System Structure and Delegation

1.1 Acronyms

Acronyms	
Acronym	Definition

1.2 Glossary

Glossary	
Term	Definition

2 INTERFACE OVERVIEW

This section provides a summary description of the telecommand and telemetry interfaces between the LAT payload and the GLAST spacecraft bus and between the LAT payload and the GBM payload.

2.0 Data Representation Conventions

Unless otherwise specified, the following data representation conventions are applicable for the entire document:

- Bits are numbered from 0 to N, where 0 represents the least significant bit of the field and N represents the most significant bit in a field. TBR - is this appropriate for the RAD750 and spacecraft bus? (BD)
- The data representations in this document treat bytes as the smallest addressable unit size.
- When multiple bytes are combined to form larger data units, the most significant byte of the field is the byte with the lowest address.
- When data are transferred across a serial interface, the bits flow from the most significant bit to the least significant bit.
- Floating-point values are represented in either a 32-bit IEEE-754 format or a 64-bit IEEE-754 format.

Refer to Figure 1-1 and Figure 1-2 for graphical depictions of the data representation conventions.

TBR - depending on the answer above, these pictures may need to change to reflect the convention for bit number assignments.

>>> fig_01.gif

>>> fig_02.gif

Time is represented as a 64-bit value from a time epoch. The time epoch for LAT and the spacecraft bus is 00:00:00.0 hours of January 1st, 2001. That is, the midnight between December 31st, 2000 and January 1st, 2001. The 64-bit value is represented in Figure 3. The 32-bit Timestamp Seconds represents the number of elapsed seconds since the epoch. The Timestamp Sub-Seconds represents the number of micro-seconds elapsed since the last second.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Timestamp Seconds MSW															
Timestamp Seconds LSW															
Timestamp Sub-Seconds MSW															
Timestamp Sub-Seconds LSW															

2.1 Interface Identification

The LAT interfaces are depicted below.

>>> fig_04.gif

Telecommands to LAT

Interface: 1553
 Type: BC to RT
 Source: Bus Controller - Spacecraft Bus Processor
 Destination: Remote Terminal 3 - LAT SIU
 Data Transfer: Subaddress 27 - 62 Bytes
 Transfer Rate: 20 Hz maximum
 Transfer Gap: 20 milliseconds minimum

Protocol: BC to RT data transfer will only take place when a LAT telecommand is ready for transfer.

Message Type: CCSDS Version 1 Telecommand Packet

Message Size: 62 bytes maximum, even number of bytes, zero filled to 62 bytes

APID Range: 0x640 - 0x69F, directed to LAT
0x701, broadcast from spacecraft bus processor
0x703, broadcast from GBM

Notes: None

Telecommands from LAT

Interface: 1553

Type: RT to BC

Source: Remote Terminal 3 - LAT SIU

Destination: Bus Controller - Spacecraft Bus Processor

Data Transfer: Subaddress 29 - 64 Bytes

Transfer Rate: 5 Hz

Transfer Gap: 150 milliseconds minimum to 250 milliseconds maximum

Protocol: First word of the transfer is a Transfer Request Counter. If the counter has changed since last read by the BC and is non-zero, then the transfer contains a new telecommand from the LAT.

Message Type: CCSDS Version 1 Telecommand Packet

Message Size: 62 bytes maximum, even number of bytes, zero filled to 62 bytes

APID Range: 0x600 - 0x63F, directed to spacecraft bus processor
0x6A0 - 0x6FF, directed to GBM
0x702, broadcast from LAT

Notes: The GBM telecommands and LAT broadcast telecommands are routed to the GBM by the spacecraft bus processor.

Housekeeping Telemetry from LAT

Interface: 1553

Type: RT to BC

Source: Remote Terminal 3 - LAT SIU

Destination: Bus Controller - Spacecraft Bus Processor

Data Transfer: Subaddress 11 through Subaddress 25 - 960 Bytes

Transfer Rate: 4 Hz

Transfer Gap: 500 milliseconds maximum (question - what is the minimum?)

Protocol: First word of the transfer is a Transfer Request Counter. If the counter has changed since last read by the BC and is non-zero, then the transfer contains new telemetry from the LAT. If the BC successfully reads the 15 subaddresses, then a BC to RT transaction is performed to write one data word to RT-3 subaddress 26. The fifteen BC to RT transactions and the sole RT to BC transactions are all scheduled to occur consecutively. By LAT convention, the housekeeping telemetry will occupy the first 116 bytes available for telemetry transfer (last 62 bytes of SA 11, first 54 bytes of SA 12). Multiple telemetry packets can be transferred during one transaction. The packets must be contiguous. Packets cannot span transactions. If the packet data for a transaction uses 958 or less bytes, then the last packet must be followed by at least two bytes containing zeroes.

Message Type: CCSDS Advanced Orbital Systems Telemetry Packets

Message Size: 116 bytes

APID Range: 0x200 - 0x25F from LAT

Notes: LAT Housekeeping telemetry is transmitted when a TDRSS or GN RF link is active. The spacecraft bus processor stores the housekeeping telemetry.

Diagnostic Telemetry from LAT

Interface: 1553
 Type: RT to BC
 Source: Remote Terminal 3 - LAT SIU
 Destination: Bus Controller - Spacecraft Bus Processor
 Data Transfer: Subaddress 11 through Subaddress 25 - 960 Bytes
 Transfer Rate: 4 Hz
 Transfer Gap: 500 milliseconds maximum
 Protocol: Reference protocol for Housekeeping Telemetry from LAT.
 Message Type: CCSDS Advanced Orbital Systems Telemetry Packets
 Message Size: 942 bytes maximum, even number of bytes
 APID Range: 0x260 - 0x33F from LAT
 Notes: LAT Diagnostic telemetry is transmitted when a TDRSS or GN RF link is active. The spacecraft bus processor stores the diagnostic telemetry. (question - how does the spacecraft processor rate-control the diagnostic telemetry?)

Alert Telemetry from LAT

Interface: 1553
 Type: RT to BC
 Source: Remote Terminal 3 - LAT SIU
 Destination: Bus Controller - Spacecraft Bus Processor
 Data Transfer: Subaddress 11 through Subaddress 25 - 960 Bytes
 Transfer Rate: 4 Hz
 Transfer Gap: 500 milliseconds maximum
 Protocol: Reference protocol for Housekeeping Telemetry from LAT.
 Message Type: CCSDS Advanced Orbital Systems Telemetry Packets
 Message Size: 942 bytes maximum, even number of bytes
 APID Range: 0x340 - 0x39F from LAT
 Notes: LAT Alert telemetry is transmitted when a TDRSS or GN RF link is active. If no RF link is active, then the spacecraft bus will activate the TDRSS link to transmit an alert telemetry packet. The spacecraft bus processor stores the alert telemetry.

Science Telemetry from LAT

Interface: LVDS
 Type: LAT Protocol (LATp)
 Source: LAT - GASU
 Destination: Spacecraft Bus - Solid State Recorder
 Data Transfer: Contiguous and Encapsulated 128-bit LATp cells. Encapsulation uses a cell announce, cell truncate, and cell parity for each cell. The first cell in contiguous sequence has a cell header.
 Transfer Rate: TBD bits/second
 Transfer Gap: TBD time between LATp transfers
 Protocol: TBD protocol Packets must be a multiple of bytes in length.
 Message Type: CCSDS Advanced Orbital Systems Telemetry Packets
 Message Size: 65540 bytes maximum (TBR), must be a multiple of 4 bytes in length
 APID Range: 0x3A0 - 0x3FF from LAT

Notes: None

2.2 Unit Identification

The LAT will use the following unit identification codes for external communications (via the 1553 bus) and internal communications (via the LATp bus):

LAT Unit Identification Codes		
LAT Unit	Description	LATp ID
Not Applicable	SIU(ext): SIU test port.	0x11 (TBR)
0x0	SIU(0): The SIU designated as unit 0. The LAT unit identifier of 0x0 will be used to address the active SIU on the 1553 bus. SIU 0 is active if it is the SIU that is responsive on the 1553 bus. The LATp address for SIU(0) is unique from SIU(1) and is designated as ID 18.	0x12
	SIU(1): The SIU designated as unit 1. The LAT unit identifier of 0x0 will be used to address the active SIU on the 1553 bus. SIU 1 is active if it is the SIU that is responsive on the 1553 bus. The LATp address for SIU(1) is unique from SIU(0) and is designated as ID 19.	0x13
0x1	EPU(0): EPU designated as unit 0.	0x14
0x2	EPU(1): EPU designated as unit 1.	0x15
0x3	EPU(2): EPU designated as unit 2.	0x16
0x6-0xF	Not Assigned	Not Applicable

3 CCSDS PROTOCOL

3.0 Telecommand Packet

The LAT receives CCSDS telecommand packets as input from the SC, across the 1553 bus. The LAT can also send a limited set of telecommands to the SC, across the 1553 bus.

Packet Format

Each Telecommand packet contains three items:

- GLAST CCSDS Telecommand Packet Header
- Packet Command Data
- Packet Checksum (required by Spectrum Astro)

Header Format

The GLAST CCSDS telecommand packets have the standard 6-byte primary header, followed by a 2-byte secondary header. The GLAST CCSDS telecommand header layout is shown below.

Layout:

offset	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0x00	Version = 0			T=1	SH=1	APID										
0x02	3		Sequence Count													
0x04	Packet Length															
0x06	0	Function Code														

Fields:

APID - The CCSDS-packet application identifier.

Function Code - An indicator of the specific command action to perform.

Packet Length - The CCSDS-packet length. Indicates the length of application data, plus the two bytes of secondary header, minus 1.

Sequence Count - The CCSDS-packet sequence count. This running counter increments for each packet generated for a given application type (indicated by the "APID" member).

SF - The CCSDS-packet sequence flags ('00' = continuation packet in the middle of a sequence; '01' = first packet in a sequence; '10' = standalone packet that is not part of a sequence).

SH - The CCSDS-packet secondary-header flag. Always 1, indicating that all GLAST telemetry packets have secondary headers.

T - The CCSDS packet-type identifier ('0' indicates a telemetry packet; '1' indicates a telecommand packet).

Version - The CCSDS-packet version identifier. Always '0', indicating a Version 1 packet.

Telecommand Application Identifier (APID) Summary

Telecommand Receive Application ID's

Telecommand packets with telecommand receive application ID values designate commands or other input for which the LAT is the destination. LAT telecommand receive APID's are in the range 0x640-0x69F. In addition, the LAT also receives broadcast telecommands as input from the SC.

The LAT utilizes the APID range from 0x710-0x76F for internal LAT FSW master-task to slave-task communications. This APID range is used to address message queues associated with slave tasks. The LAT utilizes the APID range from 0x780-0x7DF for internal LAT FSW slave-task to master-task

communications. This APID range is used to address message queues associated with master tasks. These APIDs are for internal communication use only and are not recognized by any LAT external system. Telecommands from the ground (across the 1553 bus) cannot utilize these APID ranges.

Telecommand Receive APIDs			
APID	Description	M -> S	S -> M
0x640	Boot operational telecommands	N/A	N/A
0x641	File Load telecommands	0x711	0x781
0x642	Memory Load telecommands	0x712	0x782
0x643	File Dump telecommands	0x713	0x783
0x644	Memory Dump telecommands	0x714	0x784
0x645	Task Management telecommands	0x715	0x785
0x646	Diagnostic telecommands	0x716	0x786
0x647	Not Assigned	N/A	N/A
0x648	Front end primitive telecommands	N/A	N/A
0x649	Not Assigned	N/A	N/A
0x650	Science operations telecommands	N/A	N/A
0x650-0x65F	Not Assigned	N/A	N/A
0x660	GBM alert telecommands	N/A	N/A
0x661	SC repoint request reply	N/A	N/A
0x663-0x69F	Not Assigned	N/A	N/A
0x662	SC load shed notification	N/A	N/A
0x701	SC broadcast telecommands	N/A	N/A

Telecommand Transmit Application ID's

Telecommand packets with telecommand transmit application ID values designate commands or other input for which the LAT is the source. The APID assignments for such telecommands depend on the destination. The SC destination is designated by APID's in the range 0x600-0x63F.

Telecommand Transmit APIDs	
APID	Description
0x600-0x63F	SC repoint request telecommands

3.1 Telemetry Packet Summary

The LAT outputs CCSDS telemetry packets to the SC on both the 1553 bus and the high-speed science data interface.

Packet Format

Each Telemetry packet contains two items:

- GLAST CCSDS Telecommand Packet Header
- Packet Command Data

Header Format

The LAT CCSDS telemetry packets have the standard 6-byte primary header, followed by an 8-byte secondary header specific to the LAT. The LAT CCSDS telemetry header layout is shown below.

Layout:

offset	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0x00	Version = 0		T=0	SH=1	APID											
0x02	SF		Sequence Count													
0x04	Packet Length: TBD															
0x06	Timestamp Seconds MSW															
0x08	Timestamp Seconds LSW															
0x0A	Timestamp Sub-Seconds MSW															
0x0C	Timestamp Sub-Seconds LSW															

APID - The CCSDS-packet application identifier.

Packet Length - The CCSDS-packet length. Indicates the length of application data, plus the two bytes of secondary header, minus 1.

Sequence Count - The CCSDS-packet sequence count. This running counter increments for each packet generated for a given application type (indicated by the "APID" member).

SF - The CCSDS-packet sequence flags ('00' = continuation packet in the middle of a sequence; '01' = first packet in a sequence; '10' = standalone packet that is not part of a sequence).

SH - The CCSDS-packet secondary-header flag. Always 1, indicating that all GLAST telemetry packets have secondary headers.

T - The CCSDS packet-type identifier ('0' indicates a telemetry packet; '1' indicates a telecommand packet).

Timestamp - Time is represented as a 64-bit offset from a time epoch. The time epoch for LAT and the spacecraft bus is 00:00:00.0 hours of January 1st, 2001. That is the midnight between December 31st, 2000 and January 1st, 2001. Timestamp Seconds represents the number of elapsed seconds since the epoch. Timestamp Sub-Seconds represents the number of microseconds elapsed since the last second.

Version - The CCSDS-packet version identifier. Always '0', indicating a Version 1 packet.

Telemetry Application Identifier (APID) Summary**Housekeeping Telemetry Application ID's**

The housekeeping telemetry packets provide critical status information about the current state of the LAT. The SC treats housekeeping telemetry packets specially, so that the packets are downlinked on the real-time channel.

Housekeeping Telemetry APIDs	
APID	Description
0x200	Boot housekeeping telemetry
0x20F	Communication test housekeeping telemetry

Diagnostic Telemetry Application ID's

Diagnostic telemetry packets provide status responses to particular commands or internal states of the LAT. The diagnostic telemetry may report general success or error reports, in response to telecommands. The diagnostic telemetry may also report data back in response to a telecommand that requests a dump or explicit status of some kind. Internal errors encountered during normal processing will also generate diagnostic telemetry error packets.

Diagnostic Telemetry APIDs	
APID	Description
0x260	File data dump telemetry
0x261	File directory dump telemetry
0x262	File system dump telemetry
0x263	Memory data dump telemetry
0x264	Memory symbol lookup telemetry
0x265	Memory pool status dump telemetry
0x266	Task status dump telemetry
0x26F	Communication test diagnostic telemetry
0x270	TEM register read telemetry
0x271	GTIC register read telemetry
0x272	GCCC register read telemetry
0x273	GCRC register read telemetry
0x274	GCFE register read telemetry
0x275	GTCC register read telemetry
0x276	GTRC register read telemetry
0x277	GTFE register read telemetry
0x278	AEM register read telemetry
0x279	GARC register read telemetry
0x27A	GAFE register read telemetry

Alert Telemetry Application ID's

Alert Telemetry APIDs	
APID	Description
0x34F	Communication test alert telemetry

Science Telemetry Application ID's

Science Telemetry APIDs	
APID	Description
0x3AF	Communication test science telemetry

4 PACKAGES

5 FILE Package

5.0 Overview

The FILE package contains routines that are specific to the file system.

The package supports the following functions:

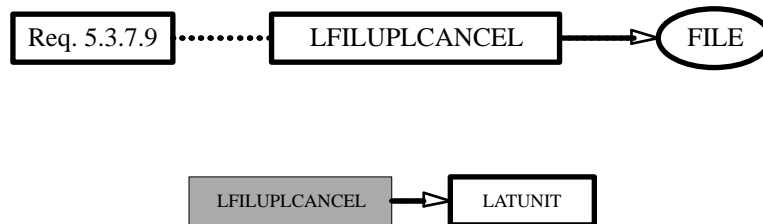
- RAD750 boot and crate initialization

5.1 Command Packets

ITOS Mnemonic: LFILUPLCANCEL

5.1.0 LFILUPLCANCEL (1601/0x641:1)

Context:



Description:

"File Upload Cancel" Telecommand Packet

This command cancels a file upload and resets the file upload state machine to the START state, regardless of the state when the command is received. A new LFILUPLSTART command is needed to begin a new file upload.

Layout:

File Upload Cancel (LFILUPLCANCEL)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x641:1										
002	SF=3		Sequence Count													
004	Packet Length=16															
006	0	Function Code=1														
008	LATUNIT: latUnit															
00A	Packet Checksum															

Fields:

LATUNIT (5.2.5)

Attribute(s):

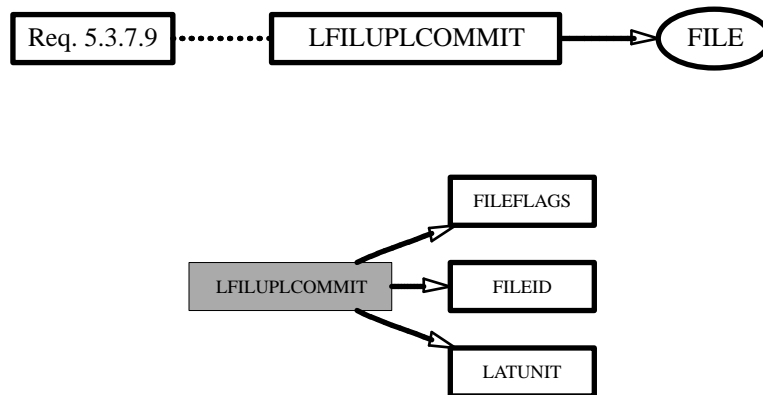
Brief: "LAT Unit ID"

Instance(s): latUnit

ITOS Mnemonic: LFILUPLCOMMIT

5.1.1 LFILUPLCOMMIT (1601/0x641:2)

Context:



Description:

"File Upload Commit" Telecommand Packet

This command indicates that the loaded LFILUPLDATA file data contents should be written to storage. The FILEID paramter indicates the storage location. The complete file data set is first validated before successfully entering the COMMIT state. The validate only flag in the FILEFLAGS parameter indicates that validations errors should be reported, but that the file upload state machine will remain in the LOAD state regardless of the validation outcome.

Layout:

File Upload Commit (LFILUPLCOMMIT)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x641:2										
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=2														
008	LATUNIT: latUnit															
00A	FILEFLAGS: fileFlags															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEFLAGS (5.2.1)

Attribute(s):

Brief: "File Commit Flags"

Instance(s): fileFlags

FILEID (5.2.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (5.2.5)

Attribute(s):

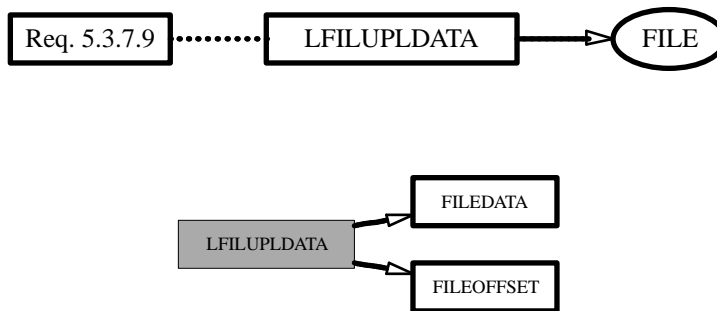
Brief: "LAT Unit ID"

Instance(s): latUnit

ITOS Mnemonic: LFILEUPLDATA

5.1.2 LFILEUPLDATA (1601/0x641:3)

Context:



Description:

"File Upload Data" Telecommand Packet

Each LFILEUPLDATA packet contains a portion of the file data being loaded. The FILEOFFSET parameter is the offset in bytes from the beginning of the file which the first FILEDATA byte in this packet represents. The LFILEUPLDATA packets may be loaded in any order with respect to the offset and may be re-loaded ad many times as wished .

Layout:

File Upload Data (LFILUPLDATA)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x641:3										
002	SF=3		Sequence Count													
004	Packet Length=416															
006	0	Function Code=3														
008	FILEOFFSET: fileOffset															
00C	FILEDATA: fileData[0-47]															
03C	Packet Checksum															

Fields:

FILEDATA (5.2.0)

Attribute(s):

Brief: "File Data"

Instance(s): fileData

FILEOFFSET (5.2.3)

Attribute(s):

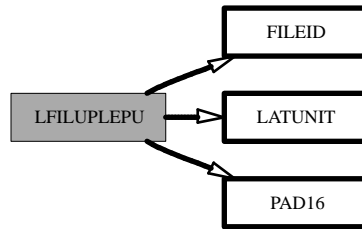
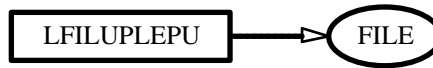
Brief: "File Data Offset"

Instance(s): fileOffset

ITOS Mnemonic: LFILUPLEPU

5.1.3 LFILUPLEPU (1601/0x641:4)

Context:



Description:

"File Upload to EPU" Telecommand Packet

Layout:

File Upload to EPU (LFILUPLEPU)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x641:4										
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=4														
008	LATUNIT: latUnit															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (5.2.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (5.2.5)

Attribute(s):

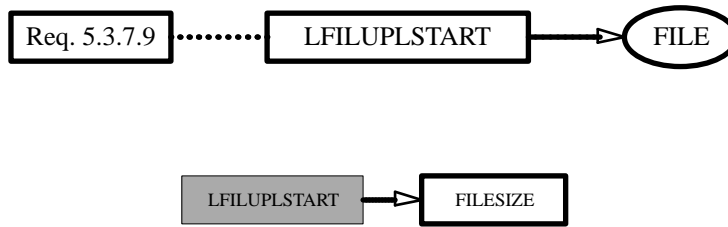
Brief: "LAT Unit ID"

Instance(s): latUnit

ITOS Mnemonic: LFILEUPLSTART

5.1.4 LFILEUPLSTART (1601/0x641:0)

Context:



Description:

"File Upload Start" Telecommand Packet

Announces the start of a new file upload. The FILESIZE parameter sets the maximum offset for incoming LFILEUPLDATA packets. Upon completion, the file upload state machine is in the LOAD state.

Layout:

File Upload Start (LFILEUPLSTART)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x641:0										
002	SF=3		Sequence Count													
004	Packet Length=32															
006	0	Function Code=0														
008	FILESIZE: fileSize															
00C	Packet Checksum															

Fields:

FILESIZE (5.2.4)

Attribute(s):

Brief: "File Size"

Instance(s): fileSize

5.2 Command Fields

5.2.0 FILEDATA (File Data) Telecommand Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:**Used by:**

LFILUPLDATA (5.1.2)

5.2.1 FILEFLAGS (File Commit Flags) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LFILUPLCOMMIT (5.1.1)

5.2.2 FILEID (File Storage ID) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LFILUPLCOMMIT (5.1.1)

5.2.3 FILEOFFSET (File Data Offset) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LFILUPLDATA (5.1.2)

5.2.4 FILESIZE (File Size) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LFILUPLSTART (5.1.4)

5.2.5 LATUNIT (LAT Unit ID) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Used by:

LFILUPLCANCEL (5.1.0)

6 ISIS Package

6.0 Overview

The ISIS package contains routines that are specific to the Instrument to Spacecraft Interface Simulator.

6.1 Enumerations

6.1.0 `CMD_CNT_SEL` (Selects count to return as diagnostic telemetry) Enumeration

ITOS Mnemonic: `CMD_CNT_SEL`

Description:

Definition:

- 0 No-op command (`NO_OP`)
- 1 Count of attitude messages from spacecraft (`ATTITUDE`)
- 2 Count of ancillary messages from spacecraft (`ANCILLARY`)
- 3 Count time-tone messages from spacecraft (`TIME_TONE`)

Used by:

???

6.1.1 `EPU_ID` (Enumeration of the EPUs) Enumeration

ITOS Mnemonic: `EPU_ID`

Description:

Definition:

- 1 EPU 1 (`EDP_1`)
- 1 EPU 0 (`EPU_0`)
- 2 EPU 2 (`EPU_2`)
- 3 External EPU (`EPU_X`)

Used by:

???

6.1.2 `FILEDEVICE` (Code for file device) Enumeration

ITOS Mnemonic: `FILEDEVICE`

Description:

Definition:

- 0 (`BOOT`)

- 1 RAM Device (RAM)
- 2 SIB EEPROM Patition 0 (EE0)
- 3 SIB EEPROM Partition 1 (EE1)
- 4 TMP file system (TMP)

Used by:

???

6.1.3 ON_OFF_SELECTOR (Enumeration of the options for the simple on-off selector) Enumeration**ITOS Mnemonic:** ON_OFF_SELECTOR**Description:****Definition:**

- 0 Off (OFF)
- 1 On (ON)

Used by:

???

6.1.4 PDU_ID (Identifies a PDU) Enumeration**ITOS Mnemonic:** PDU_ID**Description:****Definition:**

- 0 PDU 0 (PDU_0)
- 1 PDU 1 (PDU_1)

Used by:

???

6.1.5 P_S_SELECTOR (Enumeration for the simple primary-secondary selector) Enumeration**ITOS Mnemonic:** P_S_SELECTOR**Description:****Definition:**

- 0 Primary (PRIMARY)
- 1 Secondary (SECONDARY)

Used by:

???

6.1.6 SCIPATTYPE (Science data generation pattern types) Enumeration**ITOS Mnemonic:** SCIPATTYPE**Description:****Definition:**

- 0 Increment by 1 starting with parameter (INCREMENT)
- 1 Constant value using parameter (CONSTANT)
- 2 Random value using parameter as seed (RANDOM)
- 3 Walking one with parameter as width (WALK1)
- 4 Transition 0 to 1 with parameter size (TRANS01)
- 5 Transition 1 to 0 with parameter size (TRANS10)

Used by:

???

6.1.7 SIU_ID (Enumeration of the possible SIU IDs) Enumeration**ITOS Mnemonic:** SIU_ID**Description:****Definition:**

- 0 SIU 0 (aka SIU 7 aka primary SIU) (SIU_0)
- 1 SIU 1 (aka SIU 11 aka secondary SIU) (SIU_1)
- 2 External SIU (SIU_X)

Used by:

???

6.2 Ranges

6.2.0 `bits_12_range` (Range for 12-bit fields) Range

ITOS Mnemonic: `bits_12_range`

Description:

Definition:

Limits 0 - 4095

Used by:

???

6.2.1 `cmd_cnt_range` (Range for command count selection) Range

ITOS Mnemonic: `cmd_cnt_range`

Description:

Definition:

Limits 0 - 3

Used by:

???

6.2.2 `e pu_range` (EPU number range) Range

ITOS Mnemonic: `e pu_range`

Description:

Definition:

Limits 0 - 7

Used by:

???

6.2.3 `on_off_range` (On and off selector range) Range

ITOS Mnemonic: `on_off_range`

Description:

Definition:

Limits 0 - 1

Used by:

???

6.2.4 p_s_range (Primary and secondary selector range) Range

ITOS Mnemonic: p_s_range

Description:**Definition:**

Limits 0 - 1

Used by:

???

6.2.5 pdu_id_range (PDU ID range) Range

ITOS Mnemonic: pdu_id_range

Description:**Definition:**

Limits 0 - 1

Used by:

???

6.2.6 siu_id_range (SIU ID range) Range

ITOS Mnemonic: siu_id_range

Description:**Definition:**

Limits 0 - 2

Used by:

???

6.2.7 tem_mask_range (TEM mask range) Range

ITOS Mnemonic: tem_mask_range

Description:**Definition:**

Limits 0 - 65535

Used by:

???

7 ITC Package

7.0 Overview

The ITC package defines a common communications standard to unify communications between tasks on either the same or different CPUs. It also provides the services to build up tasks that are capable of communicating according to the standard.

The package supports the following functions:

- CPU internal communications/task frameworks

7.1 Telemetry Packets

7.1.0 CmdConfirm (720/0x2D0)

Context:

Description:

"Response to command from spacecraft" Telemetry Packet

Command confirmation telemetry packet. When executing spacecraft commands, ITC will autogenerate a diagnostic packet, detailing where and when a command is executed as well as the return code for the execution. To identify the command, ITC reflects the command in toto.

Layout:

Response to command from spacecraft (CmdConfirm)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x2D0										
002	SF		Sequence Count													
004	Packet Length=41															
006	Timestamp															
00E	ITC_NodeID: nid							ITC_TaskID: tid								
010	Time_msui: deq_msui															
014	Time_lsui: deq_lsui															
018	Time_msui: exe_msui															
01C	Time_lsui: exe_lsui															
020	Status: status															
024	Drop: drp															
026	Pad2: pad															
028	CmdHeader: cmd_hdr															

Fields:

CmdHeader (7.2.0)

Attribute(s):

Brief: "CCSDS telecommand header"

Instance(s): cmd_hdr

CCSDS telecommand header

Drop (7.4.2)

Attribute(s):

Brief: "Number of dropped confirmations"

Instance(s): drp

Should memory constraints result in dropped command confirmation packets, the count of dropped packets (on a per task basis) is accumulated and returned in the next successful command confirmation.

ITC_NodeID (7.4.5)

Attribute(s):

dsc: ITC_NODEID (7.5.0)

Brief: "ITC node ID"

Instance(s): nid

ITC identifies nodes on the communications network by number. These are the numbers.

ITC_TaskID (7.4.6)

Attribute(s):

dsc: ITC_TASKID (7.5.1)

Brief: "ITC task ID"

Instance(s): tid

ITC identifies tasks by number. These are the numbers.

Pad2 (7.4.7)

Attribute(s):

Brief: "Pad two bytes"

Instance(s): pad

Two bytes of padding

Status (7.4.11)

Attribute(s):

Brief: "MSG status code"

Instance(s): status

The return code from the routine that executes the command.

Time_lsui (7.4.12)

Attribute(s):

Brief: "Time (least significant 32 bits)"

Instance(s): deq_lsui, exe_lsui

Lower half of a WCT_time object (an 8-byte integer measuring nanoseconds since the LAT epoch).

Time_msui (7.4.13)

Attribute(s):

Brief: "Time (most significant 32 bits)"

Instance(s): deq_msui, exe_msui

Upper half of a WCT_time object (an 8-byte integer measuring nanoseconds since the LAT epoch).

7.2 Telemetry Structs

7.2.0 CmdHeader (CCSDS telecommand header) Telemetry Struct

Definition:

Alignment: 2 bytes
 Length: 64 bits (8 bytes)

Description:

CCSDS telecommand header

CCSDS telecommand header (CmdHeader)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Hdr0: hdr0															
002	Hdr1: hdr1															
004	Cmd_len: cmd_len															
006	Hdr3: hdr3															

Fields:

Cmd_len (7.4.1)

Attribute(s):

Brief: "CCSDS telecommand packet length"

Instance(s): cmd_len

CCSDS packet length (CCSDS definition, which is a little wierd).

Hdr0 (7.3.0)

Attribute(s):

Brief: "CCSDS telecommand header (bytes 0-1)"

Instance(s): hdr0

Bitfields for the bytes 0-1 of a standard CCSDS telecommand header

Hdr1 (7.3.1)

Attribute(s):

Brief: "CCSDS telecommand header (bytes 2-3)"

Instance(s): hdr1

Bitfields for bytes 2-3 of a standard CCSDS telecommand header

Hdr3 (7.3.2)

Attribute(s):

Brief: "CCSDS telecommand header (bytes 6-7)"

Instance(s): hdr3

Bitfields for bytes 6-7 of a standard CCSDS telecommand header, where a two-byte secondary header containing a function code has been defined.

Used by:

CmdConfirm (7.1.0)

7.3 Telemetry Bitfields

7.3.0 Hdr0 (CCSDS telecommand header (bytes 0-1)) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfields for the bytes 0-1 of a standard CCSDS telecommand header

Start	Stop	Size	Item Type and Name
0	2	3	Version ver
3	3	1	isCmd isCmd
4	4	1	Sec_hdr sec_hdr
5	15	11	Apid apid

Fields:

Apid (7.4.0)

Attribute(s):

Brief: "CCSDS application ID"

Instance(s): apid

Standard CCSDS application identifier.

isCmd (7.4.15)

Attribute(s):

Brief: "CCSDS command bit"

Instance(s): isCmd

Set for telecommands, clear for telemetry.

Sec_hdr (7.4.8)

Attribute(s):

Brief: "CCSDS secondary header flag"

Instance(s): sec_hdr

Set when a CCSDS packet includes a secondary header. Clear otherwise. All LAT telemetry/telecommands carry a secondary header.

Version (7.4.14)

Attribute(s):

Brief: "CCSDS version"

Instance(s): ver

Standard CCSDS version code

Used by:

CmdHeader (7.2.0)

7.3.1 Hdr1 (CCSDS telecommand header (bytes 2-3)) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfields for bytes 2-3 of a standard CCSDS telecommand header

Start	Stop	Size	Item Type	Name
0	1	2	Seq_flg	seq_flg
2	15	14	Seq_cnt	seq_cnt

Fields:

Seq_cnt (7.4.9)

Attribute(s):

Brief: "CCSDS sequencing count"

Instance(s): seq_cnt

Standard CCSDS sequencing count (incrementing per APID).

Seq_flg (7.4.10)

Attribute(s):

Brief: "CCSDS sequencing bits"

Instance(s): seq_flg

Standard CCSDS sequencing bits.

Used by:

CmdHeader (7.2.0)

7.3.2 Hdr 3 (CCSDS telecommand header (bytes 6-7)) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfields for bytes 6-7 of a standard CCSDS telecommand header, where a two-byte secondary header containing a function code has been defined.

Start	Stop	Size	Item Type and Name
0	0	1	Fnc_pad fnc_pad
1	15	15	Fnc_code fnc

Fields:

Fnc_code (7.4.3)

Attribute(s):

Brief: "CCSDS telecommand function code"

Instance(s): fnc

CCSDS telecommand function code

Fnc_pad (7.4.4)

Attribute(s):

Brief: "Padding"

Instance(s): fnc_pad

Function codes are not allowed to touch the most significant bit of the 16-bit function code. This padding places the bit off limits.

Used by:

CmdHeader (7.2.0)

7.4 Telemetry Fields

7.4.0 `Apid` (CCSDS application ID) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 11 bits

Description:

Standard CCSDS application identifier.

Used by:

`Hdr0` (7.3.0)

7.4.1 `Cmd_len` (CCSDS telecommand packet length) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

CCSDS packet length (CCSDS definition, which is a little wierd).

Used by:

`CmdHeader` (7.2.0)

7.4.2 `Drop` (Number of dropped confirmations) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Should memory constraints result in dropped command confirmation packets, the count of dropped packets (on a per task basis) is accumulated and returned in the next successful command confirmation.

Used by:

`CmdConfirm` (7.1.0)

7.4.3 `Fnc_code` (CCSDS telecommand function code) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 15 bits

Description:

CCSDS telecommand function code

Used by:

Hdr3 (7.3.2)

7.4.4 Fnc_pad (Padding) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 1 bit

Description:

Function codes are not allowed to touch the most significant bit of the 16-bit function code. This padding places the bit off limits.

Used by:

Hdr3 (7.3.2)

7.4.5 ITC_NodeID (ITC node ID) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:

ITC identifies nodes on the communications network by number. These are the numbers.

Used by:

CmdConfirm (7.1.0)

7.4.6 ITC_TaskID (ITC task ID) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:

ITC identifies tasks by number. These are the numbers.

Used by:

CmdConfirm (7.1.0)

7.4.7 Pad2 (Pad two bytes) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Two bytes of padding

Used by:

CmdConfirm (7.1.0)

7.4.8 sec_hdr (CCSDS secondary header flag) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 1 bit

Description:

Set when a CCSDS packet includes a secondary header. Clear otherwise. All LAT telemetry/telecommands carry a secondary header.

Used by:

Hdr0 (7.3.0)

7.4.9 seq_cnt (CCSDS sequencing count) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 14 bits

Description:

Standard CCSDS sequencing count (incrementing per APID).

Used by:

Hdr1 (7.3.1)

7.4.10 seq_flg (CCSDS sequencing bits) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 2 bits

Description:

Standard CCSDS sequencing bits.

Used by:

Hdr1 (7.3.1)

7.4.11 status (MSG status code) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The return code from the routine that executes the command.

Used by:

CmdConfirm (7.1.0)

7.4.12 Time_lsui (Time (least significant 32 bits)) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Lower half of a WCT_time object (an 8-byte integer measuring nanoseconds since the LAT epoch).

Used by:

CmdConfirm (7.1.0)

7.4.13 Time_msui (Time (most significant 32 bits)) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Upper half of a WCT_time object (an 8-byte integer measuring nanoseconds since the LAT epoch).

Used by:

CmdConfirm (7.1.0)

7.4.14 version (CCSDS version) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 3 bits

Description:

Standard CCSDS version code

Used by:

Hdr0 (7.3.0)

7.4.15 i sCmd (CCSDS command bit) Telemetry Field

Definition:

Alignment: 1 byte
C type: char
Length: 1 bit

Description:

Set for telecommands, clear for telemetry.

Used by:

Hdr0 (7.3.0)

7.5 Discretes

7.5.0 ITC_NODEID (Discrete list of ITC nodes) Discrete

ITOS Mnemonic: ITC_NODEID

Description:

Discrete list of ITC nodes

Definition:

- 1 Unknown node (guard value) (ITC_NID_UNKNOWN)
- 0 SIU (ITC_NID_SIU)
- 1 EPU 0 (ITC_NID_EPU0)
- 2 EPU 1 (ITC_NID_EPU1)
- 3 EPU 2 (ITC_NID_EPU2)
- 4 EPU 3 (external crate) (ITC_NID_EPU3)
- 5 Science Data Interface (to Solid State Recorder) (ITC_NID_SDI)
- 6 Spacecraft (ITC_NID_SC)
- 7 CPU broadcast class (ITC_NID_BCST)

Used by:

CmdConfirm (7.1.0)

7.5.1 ITC_TASKID (Discrete list of ITC task IDs) Discrete

ITOS Mnemonic: ITC_TASKID

Description:

Discrete list of ITC task IDs

Definition:

- 1 Unknown task (guard value) (ITC_TID_UNKNOWN)
- 0 The anonymous task (ITC_TID_ANON)
- 1 LAT computer manager task (ITC_TID_LCM)
- 2 LAT file system master task (ITC_TID_LFS_M)
- 3 LAT file system slave task (LAT_TID_LFS_S)
- 4 LAT housekeeping master task (LAT_TID_LHK_M)
- 5 LAT housekeeping slave task (ITC_TID_LHK_S)

- 6 LAT instrument manager master task (LAT_TID_LIM_M)
- 7 LAT instrument manager slave task (LAT_TID_LIM_S)
- 8 LAT spacecraft messages master task (LAT_TID_LSM_M)
- 9 LAT spacecraft messages slave task (ITC_TID_LSM_S)
- 10 LAT software watchdog master task (ITC_TID_LSW_M)
- 11 LAT software watchdog slave task (ITC_TID_LSW_S)
- 12 LAT charge injection calibration master task (ITC_TID_LCI_M)
- 13 LAT charge injection calibration slave task (ITC_TID_LCI_S)
- 20 ISIS command task (ITC_TID_ICT)
- 30 LCB Tx service task (ITS_SID_LCS)
- 31 CTDB Tx service task (ITC_SID_CTS)
- 32 LCB Rx driver callback (ITC_LID_LCX)
- 33 CTDB Rx driver callback (ITC_LID_CTX)
- 34 ITC hook into message task (ITC_LID_MSG)

Used by:

CmdConfirm (7.1.0)

8 LCM Package

8.0 Overview

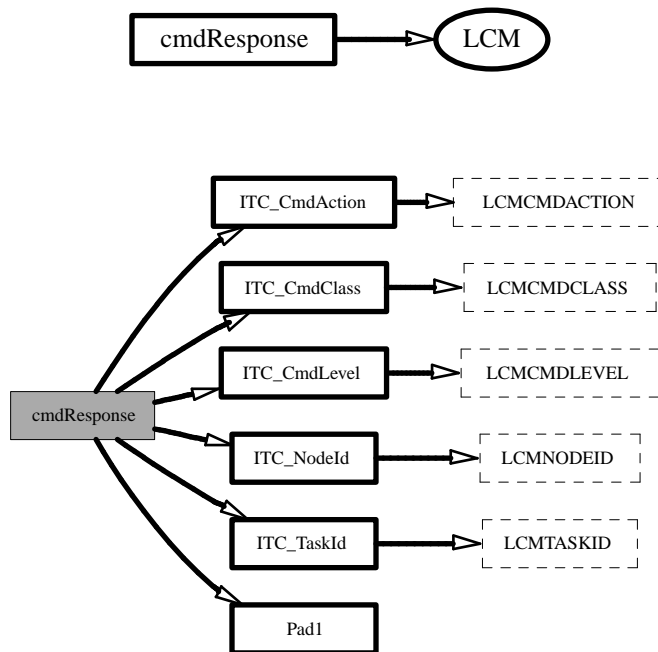
The LCM package handles the management of a single LAT computer.

8.1 Command Packets

ITOS Mnemonic: CmdResponse

8.1.0 cmdResponse (1685/0x695:1)

Context:



Description:

"Change task command confirmation level" Telecommand Packet

Change the spacecraft command confirmation level of a task

Layout:

Change task command confirmation level (cmdResponse)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x695:1										
002	SF=3		Sequence Count													
004	Packet Length=9															
006	0	Function Code=1														
008	ITC_NodeId: nid								ITC_TaskId: tid							

Change task command confirmation level (cmdResponse)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00A	ITC_CmdClass: scb							ITC_CmdAction: fwd								
00C	ITC_CmdLevel: lvl							Pad1: pad								
00E	Packet Checksum															

Fields:

ITC_CmdAction (8.2.0)

Attribute(s):

Brief: "Actions task can take (forward or execute)"

Instance(s): fwd

ITC_CmdClass (8.2.1)

Attribute(s):

Brief: "Spacecraft command class (normal or broadcast)"

Instance(s): scb

ITC_CmdLevel (8.2.2)

Attribute(s):

Brief: "Response level"

Instance(s): lvl

ITC_NodeId (8.2.3)

Attribute(s):

Brief: "ITC node ID"

Instance(s): nid

ITC_TaskId (8.2.4)

Attribute(s):

Brief: "ITC task ID"

Instance(s): tid

Pad1 (8.2.6)

Attribute(s):

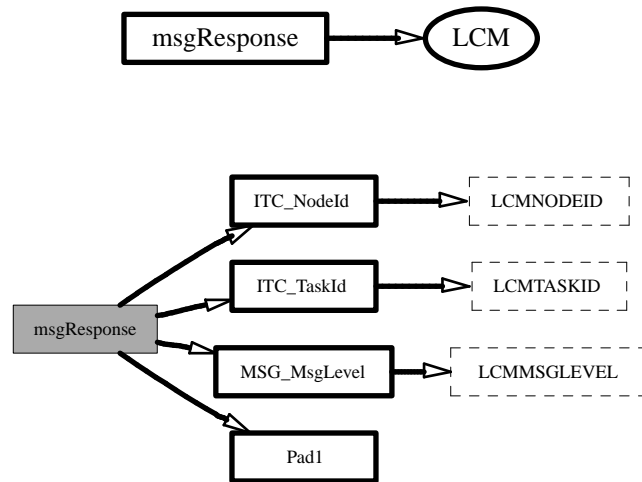
Brief: "One byte padding"

Instance(s): pad

ITOS Mnemonic: MsgResponse

8.1.1 msgResponse (1685/0x695:0)

Context:



Description:

"Change task messaging level" Telecommand Packet

Change the messaging level of a task

Layout:

Change task messaging level (msgResponse)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x695:0										
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=0														
008	ITC_NodeId: nid							ITC_TaskId: tid								
00A	MSG_MsgLevel: lvl							Pad1: pad								
00C	Packet Checksum															

Fields:

ITC_NodeId (8.2.3)

Attribute(s):

Brief: "ITC node ID"

Instance(s): nid

ITC_TaskId (8.2.4)

Attribute(s):

Brief: "ITC task ID"

Instance(s): tid

MSG_MsgLevel (8.2.5)

Attribute(s):

Brief: "Messaging level"

Instance(s): lvl

Pad1 (8.2.6)

Attribute(s):

Brief: "One byte padding"

Instance(s): pad

8.2 Command Fields

8.2.0 ITC_CmdAction (Actions task can take (forward or execute)) Telecommand Field

Definition:

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**

cmdResponse (8.1.0)

8.2.1 ITC_CmdClass (Spacecraft command class (normal or broadcast)) Telecommand Field

Definition:

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**

cmdResponse (8.1.0)

8.2.2 ITC_CmdLevel (Response level) Telecommand Field

Definition:

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**

cmdResponse (8.1.0)

8.2.3 ITC_NodeId (ITC node ID) Telecommand Field

Definition:

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**`cmdResponse (8.1.0)`**8.2.4 ITC_TaskId (ITC task ID) Telecommand Field****Definition:**

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**`cmdResponse (8.1.0)`**8.2.5 MSG_MsgLevel (Messaging level) Telecommand Field****Definition:**

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**`msgResponse (8.1.1)`**8.2.6 Pad1 (One byte padding) Telecommand Field****Definition:**

Alignment: 1 byte
C type: char
Length: 8 bits (1 byte)

Description:**Used by:**`cmdResponse (8.1.0)`

9 LFS Package

9.0 Overview

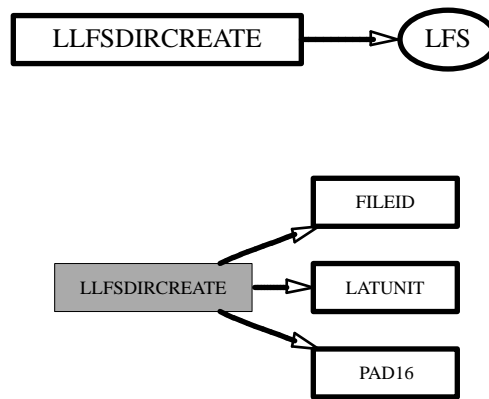
The LFS package provides the "standard" file operations (copy, delete, move, list directory, ...), plus a few "unusual" operations (file upload and file dump via spacecraft).

9.1 Command Packets

ITOS Mnemonic: LLFSDIRCREATE

9.1.0 LLFSDIRCREATE (1608/0x648:2)

Context:



Description:

"Directory Create" Telecommand Packet

Creates a directory specified by the FILEID path. Only the device and directory number portions of the file ID are used.

Layout:

Directory Create (LLFSDIRCREATE) Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=1	SH	APID=0x648:2											
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=2														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

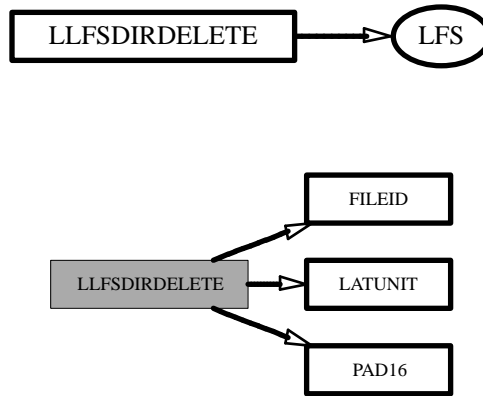
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSDIRDELETE

9.1.1 LLFSDIRDELETE (1608/0x648:3)

Context:



Description:

"Directory Delete" Telecommand Packet

Deletes a directory specified by the FILEID path. Only the device and directory number portions of the file ID are used.

Layout:

Directory Delete (LLFSDIRDELETE)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:3										
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=3														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

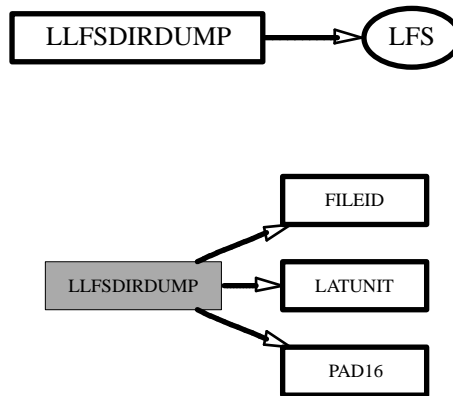
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSDIRDUMP

9.1.2 LLFSDIRDUMP (1608/0x648:5)

Context:



Description:

"Directory Dump" Telecommand Packet

Dumps the contents of a directory specified by the FILEID path. Only the device and directory number portions of the file ID are used. If the directory value is ''127'', a series of LLFSROOTLIST telemetry packets are sent, one for each directory in the root directory of the device. Otherwise, a series of LLFSDIRLIST telemetry packets are sent, one for each file in the directory.

Layout:

Directory Dump (LLFSDIRDUMP)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:5										
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=5														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

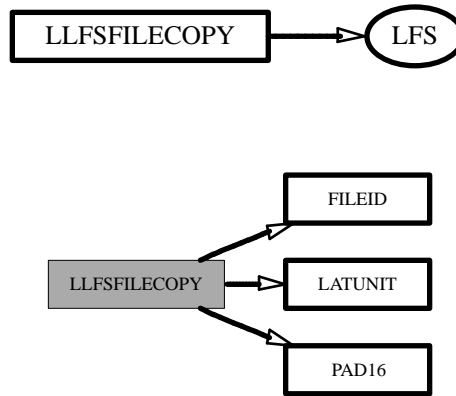
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSFILECOPY

9.1.3 LLFSFILECOPY (1608/0x648:1)

Context:



Description:

"File Copy Local" Telecommand Packet

Copies a file locally on the same CPU. The FILEID values specify the source and destination file locations.

Layout:

File Copy Local (LLFSFILECOPY)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:1										
002	SF=3		Sequence Count													
004	Packet Length=96															
006	0	Function Code=1														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: srcFileId															
010	FILEID: destFileId															
014	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): destFileId, srcFileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

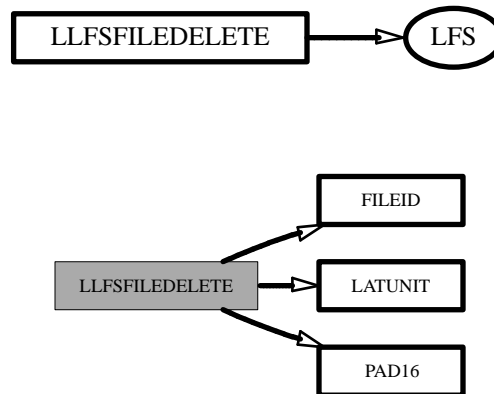
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSFILEDELETE

9.1.4 LLFSFILEDELETE (1608/0x648:0)

Context:



Description:

"File Delete" Telecommand Packet

Deletes the file specified by FILEID.

Layout:

File Delete (LLFSFILEDELETE)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:0										
002	SF=3		Sequence Count													

File Delete (LLFSFILEDELETE)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=64															
006	0	Function Code=0														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

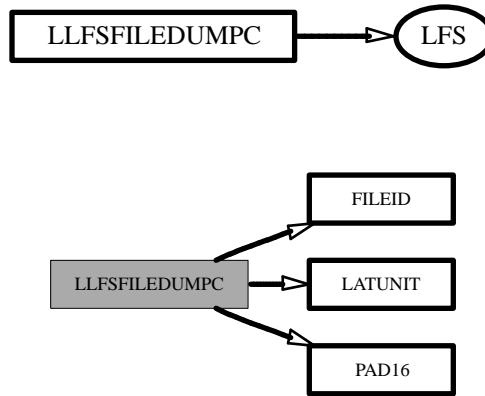
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSFILEDUMPC

9.1.5 LLFSFILEDUMPC (1608/0x648:4)

Context:



Description:

"File Dump CTDB" Telecommand Packet

Dumps the contents of a file indicated by FILEID to the CTDB interface. The file data is sent as a series of LLFSDUMPTCTBD telemetry packets.

Layout:

File Dump CTDB (LLFSFILEDUMPC)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:4										
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=4														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

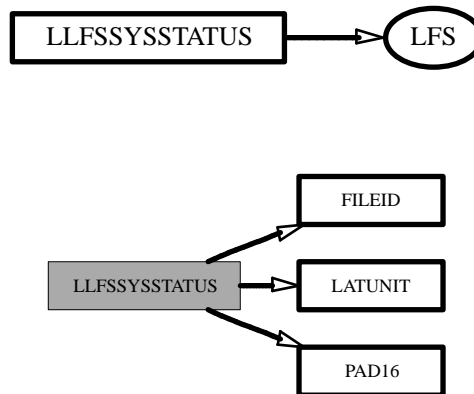
Brief: "16-bit padding"

Instance(s): pad16

ITOS Mnemonic: LLFSSYSSTATUS

9.1.6 LLFSSYSSTATUS (1608/0x648:6)

Context:



Description:

"File System Status" Telecommand Packet

Report the current status of a file system partition indicated by FILEID. Only the device number portion of the file storage ID is used. The status is returned as a single LLFSSYSLIST telemetry packet.

Layout:

File System Status (LLFSSYSSTATUS)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x648:6										

File System Status (LLFSSYSSTATUS)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
002	SF=3		Sequence Count													
004	Packet Length=64															
006	0	Function Code=6														
008	LATUNIT: latUnit															
00A	PAD16: pad16															
00C	FILEID: fileId															
010	Packet Checksum															

Fields:

FILEID (9.2.0)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

LATUNIT (9.2.1)

Attribute(s):

Brief: "LAT Unit ID and Transaction ID"

Instance(s): latUnit

PAD16 (9.2.2)

Attribute(s):

Brief: "16-bit padding"

Instance(s): pad16

9.2 Command Fields

9.2.0 FILEID (File Storage ID) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLFSDIRCREATE (9.1.0)

9.2.1 LATUNIT (LAT Unit ID and Transaction ID) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LLFSDIRCREATE (9.1.0)

9.2.2 PAD16 (16-bit padding) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LLFSDIRCREATE (9.1.0)

9.3 Telemetry Packets

9.3.0 LLFSDIRLIST (792/0x318)

Context:

Description:

"Directory Listing Report" Telemetry Packet

Lists one file entry in a LAT file system sub-directory. One of these packets is sent in response to a LLFSDIRDUMP telecommand for each file in the target directory.

Layout:

Directory Listing Report (LLFSDIRLIST)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x318										
002	SF		Sequence Count													
004	Packet Length=432															
006	Timestamp															
00E	DUMPSTFLAGS: dmpFlags															
010	FILESTFLAGS: fileFlags															
014	FILESTID: fileId															
018	FILESTIME: fileTime															
01C	FILESTSIZE: fileSize															
020	FILESTBLOCK: fileBlocks															
024	FILEHDR: fileHdr[0-31]															

Fields:

DUMPSTFLAGS (9.4.0)

Attribute(s):

Brief: "File Dump Flags"

Instance(s): dmpFlags

FILEHDR (9.5.4)

Attribute(s):

Brief: "File Header Data"

Instance(s): fileHdr

FILESTBLOCK (9.5.7)

Attribute(s):

Brief: "File Storage Blocks"

Instance(s): fileBlocks

FILESTFLAGS (9.4.1)

Attribute(s):

Brief: "File Storage Flags"

Instance(s): fileFlags

FILESTID (9.4.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

FILESTSIZE (9.5.11)

Attribute(s):

Brief: "File Storage Size"

Instance(s): fileSize

FILESTTIME (9.5.12)

Attribute(s):

Brief: "File Storage Update Time"

Instance(s): fileTime

9.3.1 LLFSDUMPCTDB (795/0x31B)

Context:

Description:

"File Dump Data CTDB" Telemetry Packet

Contains a portion of a file data dump to the CTDB interface. The FILESTOFFSET and FILEDUMP-SIZE members provide the offset into the file and size of the current packet's data contents (FILEDATA). The FILESTID gives the storage location of the file.

Layout:

File Dump Data CTDB (LLFSDUMPCTDB)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x31B										
002	SF		Sequence Count													
004	Packet Length=3232															
006	Timestamp															
00E	DUMPSTFLAGS: dmpFlags															
010	FILESTID: fileId															
014	FILESTOFFSET: fileOffset															
018	FILEDUMPSIZE: dmpSize															
01C	FILEDATA: fileData[0-389]															

Fields:

DUMPSTFLAGS (9.4.0)

Attribute(s):

Brief: "File Dump Flags"

Instance(s): dmpFlags

FILEDATA (9.5.0)

Attribute(s):

Brief: "File Data Contents"

Instance(s): fileData

FILEDUMPSIZE (9.5.3)

Attribute(s):

Brief: "File Dump Current Size"

Instance(s): `dmpSize`

FILESTID (9.4.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): `fileId`

FILESTOFFSET (9.5.9)

Attribute(s):

Brief: "File Data Offset"

Instance(s): `fileOffset`

9.3.2 LLFSROOTLIST (793/0x319)

Context:

Description:

"Root Listing Report" Telemetry Packet

Lists one file entry in a LAT file system root directory. One of these packets is sent in response to a LLFSDIRDUMP (directory = '127') telecommand for each sub-directory in the target device.

Layout:

Root Listing Report (LLFSROOTLIST)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x319										
002	SF		Sequence Count													
004	Packet Length=176															
006	Timestamp															
00E	DUMPSTFLAGS: <code>dmpFlags</code>															
010	FILESTFLAGS: <code>fileFlags</code>															
014	FILESTID: <code>fileId</code>															
018	FILESTTIME: <code>fileTime</code>															
01C	FILESTSIZE: <code>fileSize</code>															

Root Listing Report (LLFSROOTLIST)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
020	FILESTBLOCK: fileBlocks															

Fields:

DUMPSTFLAGS (9.4.0)

Attribute(s):

Brief: "File Dump Flags"

Instance(s): dmpFlags

FILESTBLOCK (9.5.7)

Attribute(s):

Brief: "File Storage Blocks"

Instance(s): fileBlocks

FILESTFLAGS (9.4.1)

Attribute(s):

Brief: "File Storage Flags"

Instance(s): fileFlags

FILESTID (9.4.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): fileId

FILESTSIZE (9.5.11)

Attribute(s):

Brief: "File Storage Size"

Instance(s): fileSize

FILESTIME (9.5.12)

Attribute(s):

Brief: "File Storage Update Time"

Instance(s): fileTime

9.3.3 LLFSSYSLIST (794/0x31A)

Context:

Description:

"File System Status Report" Telemetry Packet

Provides the status of a LAT file system partition. One of these packets is sent in response to the LLF-SSYSSTATUS telecommand.

Layout:

File System Status Report (LLFSSYSLIST)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x31A										
002	SF		Sequence Count													
004	Packet Length=144															
006	Timestamp															
00E	DUMPSTFLAGS: dmpFlags															
010	FILESTID: fileId															
014	SYSBLKSIZE: blkSize															
018	SYSBLKFREE: blkFree															
01C	SYSBLKTOTAL: blkTotal															

Fields:

DUMPSTFLAGS (9.4.0)

Attribute(s):

Brief: "File Dump Flags"

Instance(s): dmpFlags

FILESTID (9.4.2)

Attribute(s):

Brief: "File Storage ID"

Instance(s): `fileId`

SYSBLKFREE (9.5.15)

Attribute(s):

Brief: "File System Free Blocks"

Instance(s): `blkFree`

SYSBLKSIZE (9.5.16)

Attribute(s):

Brief: "File System Block Size"

Instance(s): `blkSize`

SYSBLKTOTAL (9.5.17)

Attribute(s):

Brief: "File System Total Blocks"

Instance(s): `blkTotal`

9.4 Telemetry Bitfields

9.4.0 DUMPSTFLAGS (File Dump Flags) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	LATSTUNIT latUnit
4	15	12	LFSXID xactId

Fields:

LATSTUNIT (9.5.13)

Attribute(s):

Brief: "LAT Storage Unit"

Instance(s): latUnit

LFSXID (9.5.14)

Attribute(s):

Brief: "Transaction ID"

Instance(s): xactId

Used by:

LLFSDIRLIST (9.3.0)

9.4.1 FILESTFLAGS (File Storage Flags) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	0	1	FILESTARCHIVE archiveFlag
1	1	1	FILESTDIR dirFlag
2	2	1	FILESTRDONLY roFlag

Fields:**FILESTARCHIVE (9.5.6)**

Attribute(s):

Brief: "File Storage Archive Flag"

Instance(s): archiveFlag

FILESTDIR (9.5.8)

Attribute(s):

Brief: "File Storage Directory Flag"

Instance(s): dirFlag

FILESTRDONLY (9.5.10)

Attribute(s):

Brief: "File Storage Read-Only Flag"

Instance(s): roFlag

Used by:

LLFSDIRLIST (9.3.0)

9.4.2 FILESTID (File Storage ID) Telemetry Bitfield**Definition:**

Alignment: 4 bytes
 C type: unsigned int
 Length: 32 bits (4 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	2	3	FILEDEV dev
3	9	7	FILEDIR dir
10	31	22	FILENUM file

Fields:**FILEDEV (9.5.1)**

Attribute(s):

Brief: "File ID Device Number"

Instance(s): dev

FILEDIR (9.5.2)

Attribute(s):

Brief: "File ID Directory Number"

Instance(s): dir

FILENUM (9.5.5)

Attribute(s):

Brief: "File ID File Number"

Instance(s): file

Used by:

LLFSDIRLIST (9.3.0)

9.5 Telemetry Fields

9.5.0 FILEDATA (File Data Contents) Telemetry Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:**Used by:**

LLFSDUMPCTDB (9.3.1)

9.5.1 FILEDEV (File ID Device Number) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 3 bits

Description:**Used by:**

FILESTID (9.4.2)

9.5.2 FILEDIR (File ID Directory Number) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 7 bits

Description:**Used by:**

FILESTID (9.4.2)

9.5.3 FILEDUMPSIZE (File Dump Current Size) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LLFSDUMPCTDB (9.3.1)

9.5.4 FILEHDR (File Header Data) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:**Used by:**

LLFSDIRLIST (9.3.0)

9.5.5 FILENUM (File ID File Number) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 22 bits

Description:**Used by:**

FILESTID (9.4.2)

9.5.6 FILESTARCHIVE (File Storage Archive Flag) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 1 bit

Description:**Used by:**

FILESTFLAGS (9.4.1)

9.5.7 FILESTBLOCK (File Storage Blocks) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LLFSDIRLIST (9.3.0)

9.5.8 FILESTDIR (File Storage Directory Flag) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 1 bit

Description:**Used by:**

FILESTFLAGS (9.4.1)

9.5.9 FILESTOFFSET (File Data Offset) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLFSDUMPCTDB (9.3.1)

9.5.10 FILESTRDONLY (File Storage Read-Only Flag) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 1 bit

Description:**Used by:**

FILESTFLAGS (9.4.1)

9.5.11 FILESTSIZE (File Storage Size) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LLFSDIRLIST (9.3.0)

9.5.12 FILESTTIME (File Storage Update Time) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLFSDIRLIST (9.3.0)

9.5.13 LATSTUNIT (LAT Storage Unit) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 4 bits

Description:**Used by:**

DUMPSTFLAGS (9.4.0)

9.5.14 LFSXID (Transaction ID) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 12 bits

Description:**Used by:**

DUMPSTFLAGS (9.4.0)

9.5.15 SYSBLKFREE (File System Free Blocks) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

LLFSSYSLIST (9.3.3)

9.5.16 SYSBLKSIZE (File System Block Size) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLFSSYSLIST (9.3.3)

9.5.17 SYSBLKTOTAL (File System Total Blocks) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLFSSYSLIST (9.3.3)

10 LHK Package

10.0 Overview

The LHK package provides monitoring facilities that are orthogonal and asynchronous to the monitoring that is based on the contents of physics events being read from the instrument. This is much more fundamental monitoring (e.g., temperatures, voltages, currents). LHK runs its own task.

The package supports the following functions:

- Housekeeping data stream

10.1 Command Packets

ITOS Mnemonic: LHKREQDIAGPKT

10.1.0 ReqDiagPacket (1616/0x650:0)

Context:

Description:

"Request a Housekeeping Diagnostic Packet" Telecommand Packet

Sends a request to the housekeeping system to send a packets using the diagnostic channel.

Layout:

Request a Housekeeping Diagnostic Packet (ReqDiagPacket)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x650:0										
002	SF=3		Sequence Count													
004	Packet Length=15															
006	0	Function Code=0														
008	APID: apid															
00C	DiagPktCnt: count															
010	DiagInterval: interval															
014	Packet Checksum															

Fields:

APID (10.2.0)

Attribute(s):

rng: LHKAPIDRNG (10.3.0)

Brief: "Application ID parameter"

Instance(s): apid

DiagInterval (10.2.1)

Attribute(s):
 rng: LHKDIAGINTV (10.3.1)

Brief: "Diagnostic sample interval"

Instance(s): interval

Specifies interval in milliseconds between diagnostic packet samples.

DiagPktCnt (10.2.2)

Attribute(s):
 rng: LHKDIAGPKTCNT (10.3.2)

Brief: "Diagnostic sample Packet Count"

Instance(s): count

Specifies the number of diagnostic packets to sample.

ITOS Mnemonic: LHKSTOPDIAG

10.1.1 stopDiag (1616/0x650:2)

Context:

Description:

"Stop Diagnostic Sample" Telecommand Packet

Terminates the current diagnostic sample run.

Layout:

Stop Diagnostic Sample (StopDiag)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x650:2										
002	SF=3		Sequence Count													
004	Packet Length=3															
006	0	Function Code=2														

ITOS Mnemonic: LHKSYSRESET

10.1.2 SysReset (1616/0x650:1)

Context:

Description:

"System Reset" Telecommand Packet

Resets the housekeeping system using configuration file parameters. File IDs can be null, which specifies loading of default configuration.

Layout:

System Reset (SysReset) Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x650:1										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=1														
008	FileId: file0															
00C	FileId: file1															
010	Packet Checksum															

Fields:

FileId (10.2.3)

Attribute(s):

Brief: "Configuration File ID"

Instance(s): file0, file1

32 bit value specifying the configuration file ID, which conforms to the FILE standard convention.

10.2 Command Fields

10.2.0 APID (Application ID parameter) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

ReqDiagPacket (10.1.0)

10.2.1 DiagInterval (Diagnostic sample interval) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Specifies interval in milliseconds between diagnostic packet samples.

Used by:

ReqDiagPacket (10.1.0)

10.2.2 DiagPktCnt (Diagnostic sample Packet Count) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Specifies the number of diagnostic packets to sample.

Used by:

ReqDiagPacket (10.1.0)

10.2.3 FileId (Configuration File ID) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

32 bit value specifying the configuration file ID, which conforms to the FILE standard convention.

Used by:

SysReset (10.1.2)

10.3 Ranges

10.3.0 LHKAPIDRNG (LHK APID Range) Range

ITOS Mnemonic: LHKAPIDRNG

Description:

Valid range of APIDs for LHK

Definition:

Limits 528 - 555

Used by:

ReqDiagPacket (10.1.0)

10.3.1 LHKDIAGINTV (Diagnostic Interval) Range

ITOS Mnemonic: LHKDIAGINTV

Description:

Range in milliseconds for a diagnostic sample interval.

Definition:

Limits 100 - 4000

Used by:

ReqDiagPacket (10.1.0)

10.3.2 LHKDIAGPKTCNT (Diagnostic Packet Count) Range

ITOS Mnemonic: LHKDIAGPKTCNT

Description:

Specifies the range of valid diagnostic sample packet counts.

Definition:

Limits 1 - 64

Used by:

ReqDiagPacket (10.1.0)

10.4 Telemetry Packets

10.4.0 AemEnv0 (550/0x226)

Context:

Description:

"AEM Environmental Monitor Packet 0" Telemetry Packet

AEM Packet 0

Layout:

AEM Environmental Monitor Packet 0 (AemEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x226										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-3]															
012	AEMFRPWRREG: pwrst															
014	AEMFRENV: frees[0-11]															

Fields:

AEMFRENV (10.5.1)

Attribute(s):

Brief: "AEM Free Board Environmental ADCs"

Instance(s): `frees`

AEMFRPWRREG (10.6.8)

Attribute(s):

Brief: "AEM FREE board power status register"

Instance(s): `pwrst`

Contains the status of the power supplied by the AEM to its FREE boards.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.1 CmdCnt0 (552/0x228)

Context:

Description:

"Command Statistics Packet 0" Telemetry Packet

Contains task level command statistics.

Layout:

Command Statistics Packet 0 (CmdCnt0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x228										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	CMDCNTRS: cntrs[0-5]															

Fields:

CMDCNTRS (10.5.2)

Attribute(s):

Brief: "Command Counters"

Instance(s): cntrs

Structure to hold per task command count information.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.2 CmdCnt1 (553/0x229)

Context:

Description:

"Command Statistics Packet 1" Telemetry Packet

Contains task level command statistics

Layout:

Command Statistics Packet 1 (CmdCnt1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x229										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	CMDCNTRS: cntrs[0-5]															

Fields:

CMDCNTRS (10.5.2)

Attribute(s):

Brief: "Command Counters"

Instance(s): cntrs

Structure to hold per task command count information.

TSP16 (10.7.54)

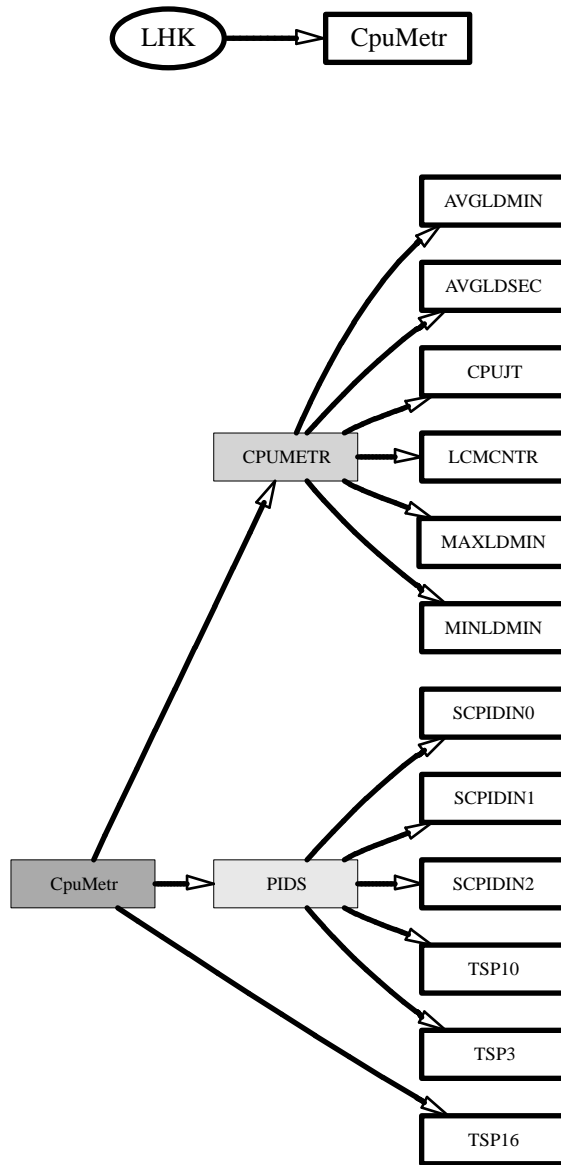
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.3 CpuMetr (555/0x22B)

Context:



Description:

"CPU Metrics/RT Statistics Packet" Telemetry Packet

Contains CPU metrics for all LAT CPUs. Contains the 1553 RT driver statistics.

Layout:

CPU Metrics/RT Statistics Packet (CpuMetr)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x22B										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	RTSTATS: rtstat															
03C	CPUMETR: cpum[0-3]															
044	TSP16: pad[0-23]															

Fields:

CPUMETR (10.5.3)

Attribute(s):

Brief: "CPU Metrics"

Instance(s): cpum

Structure containing metrics for a single CPU.

RTSTATS (10.5.7)

Attribute(s):

Brief: "1553 Remote Terminal Statistics"

Instance(s): rtstat

Contains the 1553 RT driver statistics.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): pad, spares

10.4.4 DiagAemEnv0 (646/0x286)

Context:

Description:

"Diagnostic AEM Environmental Monitor Packet 0" Telemetry Packet

AEM Packet 0

Layout:

Diagnostic AEM Environmental Monitor Packet 0 (DiagAemEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x286										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-3]															
012	AEMFRPWRREG: pwrst															
014	AEMFRENV: frees[0-11]															

Fields:

AEMFRENV (10.5.1)

Attribute(s):

Brief: "AEM Free Board Environmental ADCs"

Instance(s): `frees`

AEMFRPWRREG (10.6.8)

Attribute(s):

Brief: "AEM FREE board power status register"

Instance(s): `pwrst`

Contains the status of the power supplied by the AEM to its FREE boards.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.5 DiagCmdCnt0 (648/0x288)

Context:

Description:

"Diagnostic Command Statistics Packet 0" Telemetry Packet

Contains task level command statistics

Layout:

Diagnostic Command Statistics Packet 0 (DiagCmdCnt0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x288										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	CMDNTRS: cntrs[0-5]															

Fields:

CMDNTRS (10.5.2)

Attribute(s):

Brief: "Command Counters"

Instance(s): cntrs

Structure to hold per task command count information.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.6 DiagCmdCnt1 (649/0x289)

Context:

Description:

"Diagnostic Command Statistics Packet 1" Telemetry Packet

Contains task level command statistics.

Layout:

Diagnostic Command Statistics Packet 1 (DiagCmdCnt1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x289										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	CMDCNTRS: cntrs[0-5]															

Fields:

CMDCNTRS (10.5.2)

Attribute(s):

Brief: "Command Counters"

Instance(s): cntrs

Structure to hold per task command count information.

TSP16 (10.7.54)

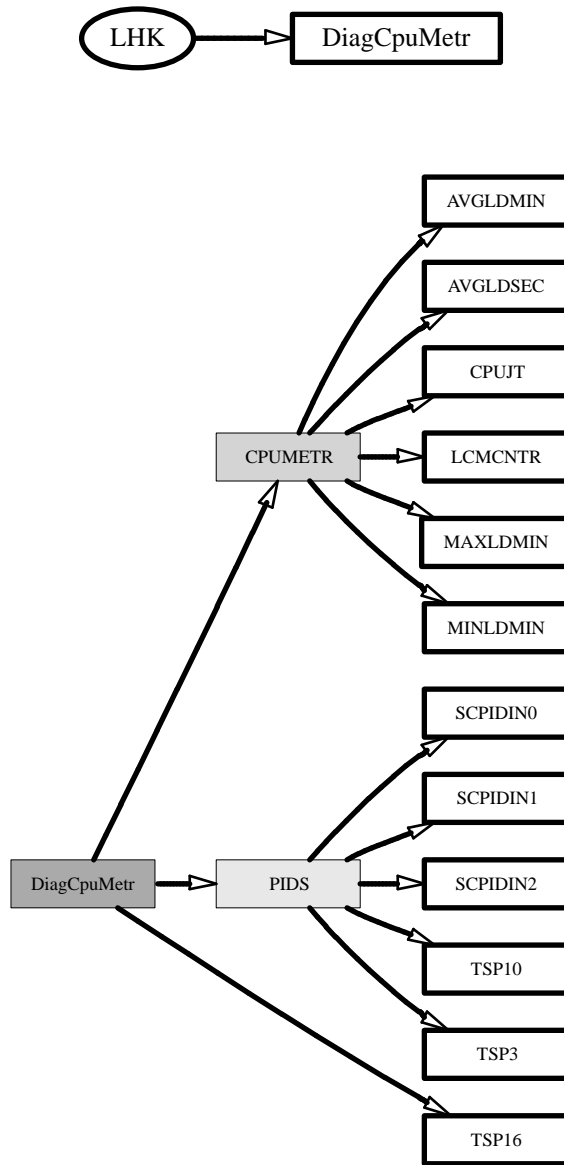
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.7 DiagCpuMetr (651/0x28B)

Context:



Description:

"Diagnostic CPU Metrics/RT Statistics Packet" Telemetry Packet

Contains CPU metrics for all LAT CPUs. Contains the 1553 RT driver statistics.

Layout:

Diagnostic CPU Metrics/RT Statistics Packet (DiagCpuMetr)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x28B										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	RTSTATS: rtstat															
03C	CPUMETR: cpum[0-3]															
044	TSP16: pad[0-23]															

Fields:

CPUMETR (10.5.3)

Attribute(s):

Brief: "CPU Metrics"

Instance(s): cpum

Structure containing metrics for a single CPU.

RTSTATS (10.5.7)

Attribute(s):

Brief: "1553 Remote Terminal Statistics"

Instance(s): rtstat

Contains the 1553 RT driver statistics.

TSP16 (10.7.54)

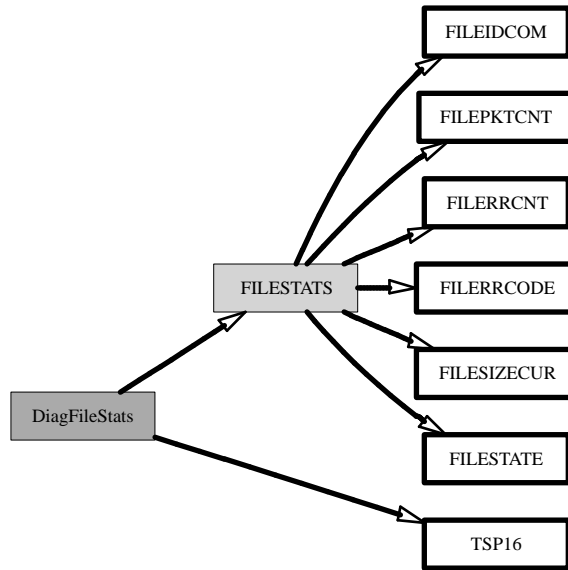
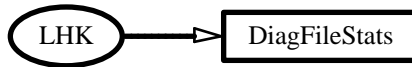
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): pad, spares

10.4.8 DiagFileStats (650/0x28A)

Context:



Description:

"Diagnostic File System Statistics Packet" Telemetry Packet

Contains FILE system statistics for each CPU.

Layout:

Diagnostic File System Statistics Packet (DiagFileStats)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x28A										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	FILESTATS: siu															
02C	FILESTATS: epu0															
044	FILESTATS: epu1															
05C	FILESTATS: epu2															

Fields:

FILESTATS (10.5.4)

Attribute(s):

Brief: "FILE Upload Statistics"

Instance(s): epu0, epu1, epu2, siu

Describes the FILE upload current state.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.9 DiagLrs0 (647/0x287)

Context:

Description:

"Diagnostic Low-rate Science Packet" Telemetry Packet

Contains TEM dead-time counters and GEM livetime counter

Layout:

Diagnostic Low-rate Science Packet (DiagLrs0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x287										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	TIMESEC: gemsec															
018	TIMESUBSEC: gemsub															
01C	GEMLRS: gemlrs															
02C	TIMESEC: temsec															
030	TIMESUBSEC: temsub															
034	TEMDEADTIMEREG: temlrs[0-15]															

Fields:

GEMLRS (10.5.5)

Attribute(s):

Brief: "GEM Low-Rate Science Counter"

Instance(s): `gemlrs`

Contains 4 GEM low-rate science counter values.

TEMDEADTIMEREG (10.6.29)

Attribute(s):

Brief: "TEM Deadtime Register Bitfield"

Instance(s): `temlrs`

Describes the TEM dead time low-rate science counter register.

TIMSECC (10.7.48)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): `gemsec, temsec`

TIMESUBSEC (10.7.49)

Attribute(s):

Brief: "Timestamp subseconds"

Instance(s): `gemsub, temsub`

TSP16 (10.7.54)

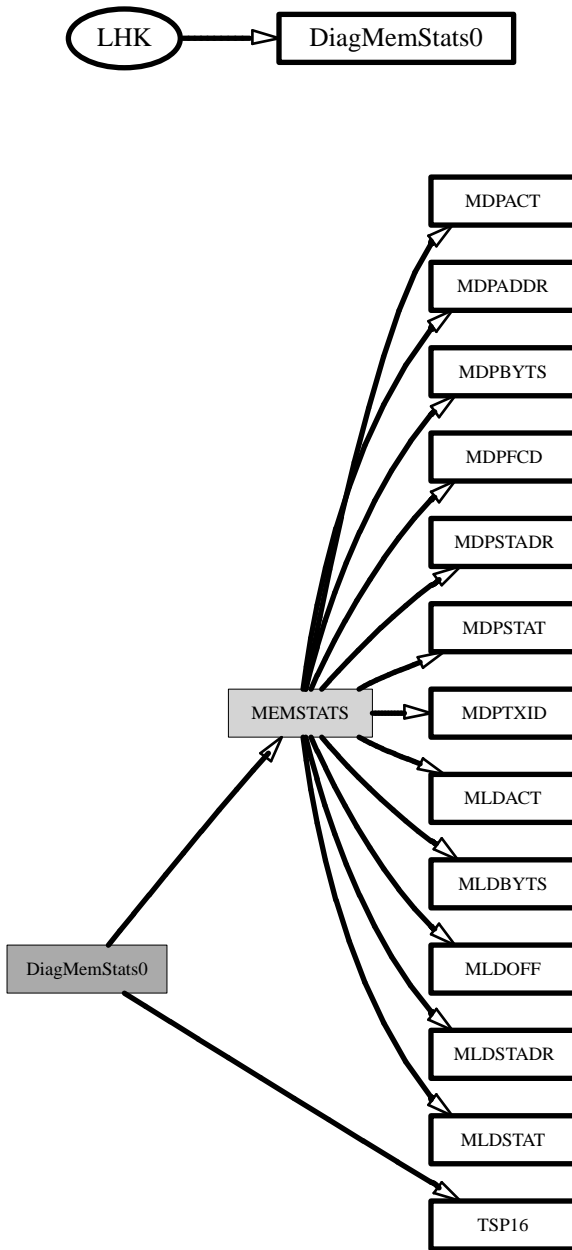
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): `spares`

10.4.10 DiagMemStats0 (652/0x28C)

Context:



Description:

"Diagnostic Memory Load/Dump Statistics" Telemetry Packet

Contains the statistics for memory loads and dumps on the SIU and EPU0.

Layout:

Diagnostic Memory Load/Dump Statistics (DiagMemStats0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x28C										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spare[0-2]															
014	MEMSTATS: mem[0-1]															

Fields:**MEMSTATS (10.5.6)**

Attribute(s):

Brief: "MEM Statistics"

Instance(s): mem

Contains statistics for the MEM task.

TSP16 (10.7.54)

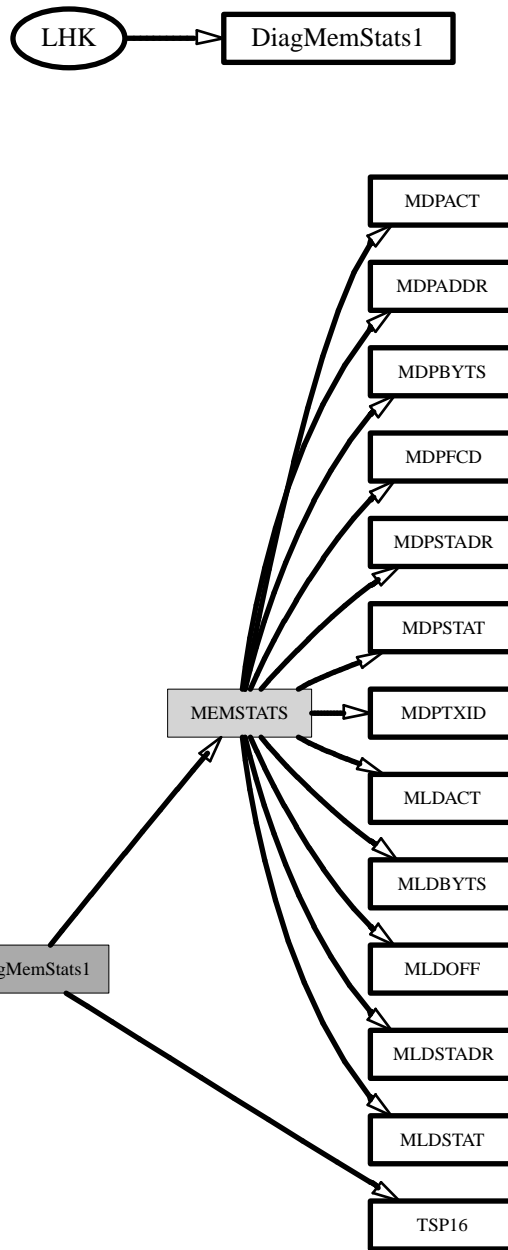
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spare

10.4.11 DiagMemStats1 (653/0x28D)

Context:



Description:

"Diagnostic Memory Load/Dump Statistics" Telemetry Packet

Contains the statistics for memory loads and dumps on the EPU1 and EPU2.

Layout:

Diagnostic Memory Load/Dump Statistics (DiagMemStats1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x28D										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	MEMSTATS: mem[0-1]															

Fields:**MEMSTATS (10.5.6)**

Attribute(s):

Brief: "MEM Statistics"

Instance(s): mem

Contains statistics for the MEM task.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.12 DiagPduEnv0 (638/0x27E)**Context:****Description:**

"Diagnostic PDU Environmental Packet 0" Telemetry Packet

PDU Packet 0

Layout:

Diagnostic PDU Environmental Packet 0 (DiagPduEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27E										
002	SF		Sequence Count													

Diagnostic PDU Environmental Packet 0 (DiagPduEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	PDUTEMPWRREG: tempwr															
016	PDUEPUCRATEPWR: epupwr															
018	ACDPWRREG: acdpwr															
01A	TEM33V: temvolt[0-15]															
03A	TEMPSTEMP: temps[0-15]															
05A	EPUV: epuvolt[0-2]															
060	EPUTEMP: eputemp[0-2]															
066	AEMDAQENV: dab															
06E	TSP8: pad[0-5]															

Fields:

ACDPWRREG (10.6.2)

Attribute(s):

Brief: "PDU ADC Power Management Register"

Instance(s): acdpwr

AEMDAQENV (10.5.0)

Attribute(s):

Brief: "AEM DAQ Environmental"

Instance(s): dab

EPUTEMP (10.6.19)

Attribute(s):

Brief: "EPU Temperature ADC value"

Instance(s): eputemp

EPUV (10.6.20)

Attribute(s):

Brief: "EPU Voltage ADC value"

Instance(s): epuvolt

PDUEPUCRATEPWR (10.6.23)

Attribute(s):

Brief: "PDU EPU Crate Power States"

Instance(s): epupwr

PDUTEMPWRREG (10.6.24)

Attribute(s):

Brief: "PDU TEM Power Management Register"

Instance(s): tempwr

TEM33V (10.6.28)

Attribute(s):

Brief: "TEM 3.3 Voltage ADC value"

Instance(s): temvolt

Describes a TEM 3.3V ADC value and status.

TEMPTEMP (10.6.31)

Attribute(s):

Brief: "TEM Power Supply Temperature ADC value"

Instance(s): temps

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.13 DiagPduEnv1 (639/0x27F)

Context:

Description:

"Diagnostic PDU Environmental Packet 1" Telemetry Packet

PDU Packet 1

Layout:

Diagnostic PDU Environmental Packet 1 (DiagPduEnv1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27F										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TEMPCBTEMP: pcbt[0-15]															
034	CALBSPTEMP: bspt[0-15]															
054	TSP8: pad[0-31]															

Fields:

CALBSPTEMP (10.6.16)

Attribute(s):

Brief: "CAL Baseplate Temperature"

Instance(s): bspt

TEMPCBTEMP (10.6.30)

Attribute(s):

Brief: "TEM PCB Temperature"

Instance(s): pcbt

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.14 DiagPduEnv2 (640/0x280)

Context:

Description:

"Diagnostic PDU Environmental Packet 2" Telemetry Packet

PDU Packet 2

Layout:

Diagnostic PDU Environmental Packet 2 (DiagPduEnv2)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x280										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	VCHPDSHPTEMP: vdi[0-11]															
02C	VCHPXLHPTEMP: vxi[0-11]															
044	VCHPRSVRHTRTEMP: vrh[0-11]															
05C	TSP8: pad[0-23]															

Fields:

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

VCHPDSHPTEMP (10.6.39)

Attribute(s):

Brief: "VCHP-DSHP Interface Temperature"

Instance(s): vdi

VCHPRSVRHTRTEMP (10.6.40)

Attribute(s):

Brief: "VCHP Reservoir Heater Temperature"

Instance(s): vrh

VCHPXLHPTEMP (10.6.41)

Attribute(s):

Brief: "VCHP-XLHP Interface Temperature"

Instance(s): vxi

10.4.15 DiagPduEnv3 (641/0x281)

Context:

Description:

"Diagnostic PDU Environmental Packet 3" Telemetry Packet

PDU Packet 3

Layout:

Diagnostic PDU Environmental Packet 3 (DiagPduEnv3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x281										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	GRIDTEMP: gridt[0-11]															
02C	ACDSHELLTEMP: acdst[0-1]															
030	ACDPMTRAILTEMP: acdpr[0-3]															
038	ACDBEAGRIDTEMP: acdbg[0-1]															
03C	RADANHTRTEMP: rah[0-1]															
040	GRIDRADIFTEMP: grift[0-3]															
048	RADTEMP: rtemp[0-11]															
060	TSP8: pad[0-19]															

Fields:

ACDBEAGRIDTEMP (10.6.0)

Attribute(s):

Brief: "ACD BEA Grid Interface Temperature"

Instance(s): acdbg

ACDPMTRAILTEMP (10.6.1)

Attribute(s):

Brief: "ADC PMT Rail Temperature"

Instance(s): acdpr

ACDSHELLTEMP (10.6.3)

Attribute(s):

Brief: "ADC Shell Temperature"

Instance(s): acdst

GRIDRADIFTEMP (10.6.21)

Attribute(s):

Brief: "Grid Radiator Interface Temperature"

Instance(s): grift

GRIDTEMP (10.6.22)

Attribute(s):

Brief: "Grid Temperature"

Instance(s): gridt

RADANHTRTEMP (10.6.25)

Attribute(s):

Brief: "Radiator Anitfreeze Heater Temperature"

Instance(s): rah

RADTEMP (10.6.26)

Attribute(s):

Brief: "Radiator Temperature"

Instance(s): rtemp

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.16 DiagPduEnv4 (642/0x282)

Context:

Description:

"Diagnostic PDU Environmental Packet 4" Telemetry Packet

PDU Packet 4

Layout:

Diagnostic PDU Environmental Packet 4 (DiagPduEnv4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x282										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	PDUTEMPWRREG: tempwr															
016	PDUEPUCRATEPWR: epupwr															
018	ACDPWRREG: acdpwr															
01A	TEM33V: temvolt[0-15]															
03A	TEMPSTEMP: temps[0-15]															
05A	EPUV: epuvolt[0-2]															
060	EPUTEMP: eputemp[0-2]															
066	TSP8: pad[0-13]															

Fields:

ACDPWRREG (10.6.2)

Attribute(s):

Brief: "PDU ADC Power Management Register"

Instance(s): acdpwr

EPUTEMP (10.6.19)

Attribute(s):

Brief: "EPU Temperature ADC value"

Instance(s): eputemp

EPUV (10.6.20)

Attribute(s):

Brief: "EPU Voltage ADC value"

Instance(s): epuvolt

PDUEPUCRATEPWR (10.6.23)

Attribute(s):

Brief: "PDU EPU Crate Power States"

Instance(s): epupwr

PDUTEMPWRREG (10.6.24)

Attribute(s):

Brief: "PDU TEM Power Management Register"

Instance(s): tempwr

TEM33V (10.6.28)

Attribute(s):

Brief: "TEM 3.3 Voltage ADC value"

Instance(s): temvolt

Describes a TEM 3.3V ADC value and status.

TEMPSTEP (10.6.31)

Attribute(s):

Brief: "TEM Power Supply Temperature ADC value"

Instance(s): temps

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.17 DiagPduEnv5 (643/0x283)

Context:

Description:

"Diagnostic PDU Environmental Packet 5" Telemetry Packet

PDU Packet 5

Layout:

Diagnostic PDU Environmental Packet 5 (DiagPduEnv5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x283										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TEMPCBTEMP: pcbt[0-15]															
034	CALBSPTEMP: bspt[0-15]															
054	TSP8: pad[0-31]															

Fields:

CALBSPTEMP (10.6.16)

Attribute(s):

Brief: "CAL Baseplate Temperature"

Instance(s): bspt

TEMPCBTEMP (10.6.30)

Attribute(s):

Brief: "TEM PCB Temperature"

Instance(s): pcbt

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.18 DiagPduEnv6 (644/0x284)

Context:

Description:

"Diagnostic PDU Environmental Packet 6" Telemetry Packet

PDU Packet 6

Layout:

Diagnostic PDU Environmental Packet 6 (DiagPduEnv6)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x284										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	VCHPDSHPTTEMP: vdi[0-11]															
02C	VCHPXLHPTTEMP: vxi[0-11]															
044	VCHPRSVRHTRTEMP: vrh[0-11]															
05C	TSP8: pad[0-23]															

Fields:

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

VCHPDSHPTEMP (10.6.39)

Attribute(s):

Brief: "VCHP-DSHP Interface Temperature"

Instance(s): vdi

VCHPRSVRHTRTEMP (10.6.40)

Attribute(s):

Brief: "VCHP Reservoir Heater Temperature"

Instance(s): vrh

VCHPXLHPTEMP (10.6.41)

Attribute(s):

Brief: "VCHP-XLHP Interface Temperature"

Instance(s): vxi

10.4.19 DiagPduEnv7 (645/0x285)

Context:

Description:

"Diagnostic PDU Environmental Packet 7" Telemetry Packet

PDU Packet 7

Layout:

Diagnostic PDU Environmental Packet 7 (DiagPduEnv7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x285										
002	SF		Sequence Count													

Diagnostic PDU Environmental Packet 7 (DiagPduEnv7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	GRIDTEMP: gridt[0-11]															
02C	ACDSHELLTEMP: acdst[0-1]															
030	ACDPMTRAILTEMP: acdpr[0-3]															
038	ACDBEAGRIDTEMP: acdbg[0-1]															
03C	RADANHTRTEMP: rah[0-1]															
040	GRIDRADIFTEMP: grift[0-3]															
048	RADTEMP: rtemp[0-11]															
060	TSP8: pad[0-19]															

Fields:

ACDBEAGRIDTEMP (10.6.0)

Attribute(s):

Brief: "ACD BEA Grid Interface Temperature"

Instance(s): acdbg

ACDPMTRAILTEMP (10.6.1)

Attribute(s):

Brief: "ADC PMT Rail Temperature"

Instance(s): acdpr

ACDSHELLTEMP (10.6.3)

Attribute(s):

Brief: "ADC Shell Temperature"

Instance(s): acdst

GRIDRADIFTEMP (10.6.21)

Attribute(s):

Brief: "Grid Radiator Interface Temperature"

Instance(s): `grift`

GRIDTEMP (10.6.22)

Attribute(s):

Brief: "Grid Temperature"

Instance(s): `gridt`

RADANHTRTEMP (10.6.25)

Attribute(s):

Brief: "Radiator Anitfreeze Heater Temperature"

Instance(s): `rah`

RADTEMP (10.6.26)

Attribute(s):

Brief: "Radiator Temperature"

Instance(s): `rtemp`

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): `pad, spares`

10.4.20 `DiagTemEnvPwr0 (624/0x270)`

Context:

Description:

"Diagnostic TEM Power Packet 0" Telemetry Packet

Contains power specific ADC values for TEMs 0, 1, and 2.

Layout:

Diagnostic TEM Power Packet 0 (DiagTemEnvPwr0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x270										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t0m0															
024	TMUX1: t0m1															
034	TMUX0: t1m0															
044	TMUX1: t1m1															
054	TMUX0: t2m0															
064	TMUX1: t2m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t0m0, t1m0, t2m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t0m1, t1m1, t2m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.21 DiagTemEnvPwr1 (625/0x271)

Context:

Description:

"Diagnostic TEM Power Packet 1" Telemetry Packet

Contains power specific ADC values for TEMs 3,4, and 5.

Layout:

Diagnostic TEM Power Packet 1 (DiagTemEnvPwr1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x271										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t3m0															
024	TMUX1: t3m1															
034	TMUX0: t4m0															
044	TMUX1: t4m1															
054	TMUX0: t5m0															
064	TMUX1: t5m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t3m0, t4m0, t5m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t3m1, t4m1, t5m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.22 DiagTemEnvPwr2 (626/0x272)

Context:

Description:

"Diagnostic TEM Power Packet 2" Telemetry Packet

Contains power specific ADC values for TEMs 6, 7, and 8.

Layout:

Diagnostic TEM Power Packet 2 (DiagTemEnvPwr2)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x272										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t6m0															
024	TMUX1: t6m1															
034	TMUX0: t7m0															
044	TMUX1: t7m1															
054	TMUX0: t8m0															
064	TMUX1: t8m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t6m0, t7m0, t8m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t6m1, t7m1, t8m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.23 DiagTemEnvPwr3 (627/0x273)

Context:

Description:

"Diagnostic TEM Power Packet 3" Telemetry Packet

Contains power specific ADC values for TEMs 9, 10, and 11.

Layout:

Diagnostic TEM Power Packet 3 (DiagTemEnvPwr3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x273										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t9m0															
024	TMUX1: t9m1															
034	TMUX0: tAm0															
044	TMUX1: tAm1															
054	TMUX0: tBm0															
064	TMUX1: tBm1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t9m0, tAm0, tBm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t9m1, tAm1, tBm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.24 DiagTemEnvPwr4 (628/0x274)

Context:

Description:

"Diagnostic TEM Power Packet 4" Telemetry Packet

Contains power specific ADC values for TEMs 12, 13, and 14.

Layout:

Diagnostic TEM Power Packet 4 (DiagTemEnvPwr4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x274										
002	SF		Sequence Count													

Diagnostic TEM Power Packet 4 (DiagTemEnvPwr4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: tCm0															
024	TMUX1: tCm1															
034	TMUX0: tDm0															
044	TMUX1: tDm1															
054	TMUX0: tEm0															
064	TMUX1: tEm1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): tCm0, tDm0, tEm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): tCm1, tDm1, tEm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.25 DiagTemEnvPwr5 (629/0x275)**Context:****Description:**

"Diagnostic TEM Power Packet 5" Telemetry Packet

Contains powr specific ADC values for TEM 15.

Layout:

Diagnostic TEM Power Packet 5 (DiagTemEnvPwr5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x275										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: tFm0															
024	TMUX1: tFm1															
034	TSP16: pad[0-31]															

Fields:**TMUX0 (10.5.8)**

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): tFm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): tFm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): pad

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.26 DiagTemEnvTemp0 (630/0x276)

Context:

Description:

"Diagnostic TEM Temperature Packet 0" Telemetry Packet

Contains temperature specific ADC values for TEMs 0 and 1.

Layout:

Diagnostic TEM Temperature Packet 0 (DiagTemEnvTemp0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x276										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t0m2															
024	TMUX3: t0m3															
034	TMUX4: t0m4															
044	TMUX2: t1m0															
054	TMUX3: t1m1															
064	TMUX4: t1m2															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t0m2, t1m0

Contains 8 AFTE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t0m3, t1m1

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t0m4, t1m2

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.27 DiagTemEnvTemp1 (631/0x277)

Context:

Description:

"Diagnostic TEM Temperature Packet 1" Telemetry Packet

Contains temperature specific ADC values for TEMs 2 and 3.

Layout:

Diagnostic TEM Temperature Packet 1 (DiagTemEnvTemp1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x277										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t2m2															
024	TMUX3: t2m3															
034	TMUX4: t2m4															
044	TMUX2: t3m2															
054	TMUX3: t3m3															
064	TMUX4: t3m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t2m2, t3m2

Contains 8 AFPE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t2m3, t3m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t2m4, t3m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.28 DiagTemEnvTemp2 (632/0x278)

Context:

Description:

"Diagnostic TEM Temperature Packet 2" Telemetry Packet

Contains temperature specific ADC values for TEMs 4 and 5.

Layout:

Diagnostic TEM Temperature Packet 2 (DiagTemEnvTemp2)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x278										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t4m2															
024	TMUX3: t4m3															
034	TMUX4: t4m4															
044	TMUX2: t5m2															
054	TMUX3: t5m3															
064	TMUX4: t5m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t4m2, t5m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t4m3, t5m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t4m4, t5m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.29 DiagTemEnvTemp3 (633/0x279)

Context:

Description:

"Diagnostic TEM Temperature Packet 3" Telemetry Packet

Contains temperature specific ADC values for TEMs 6 and 7.

Layout:

Diagnostic TEM Temperature Packet 3 (DiagTemEnvTemp3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x279										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															

Diagnostic TEM Temperature Packet 3 (DiagTemEnvTemp3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00E	TSP8: spares[0-5]															
014	TMUX2: t6m2															
024	TMUX3: t6m3															
034	TMUX4: t6m4															
044	TMUX2: t7m2															
054	TMUX3: t7m3															
064	TMUX4: t7m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t6m2, t7m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t6m3, t7m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t6m4, t7m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.30 DiagTemEnvTemp4 (634/0x27A)

Context:

Description:

"Diagnostic TEM Temperature Packet 4" Telemetry Packet

Contains temperature specific ADC values for TEMs 8 and 9.

Layout:

Diagnostic TEM Temperature Packet 4 (DiagTemEnvTemp4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27A										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t8m2															
024	TMUX3: t8m3															
034	TMUX4: t8m4															
044	TMUX2: t9m2															
054	TMUX3: t9m3															
064	TMUX4: t9m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t8m2, t9m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t8m3, t9m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t8m4, t9m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.31 DiagTemEnvTemp5 (635/0x27B)

Context:

Description:

"Diagnostic TEM Temperature Packet 5" Telemetry Packet

Contains temperature specific ADC values for TEMs A and B.

Layout:

Diagnostic TEM Temperature Packet 5 (DiagTemEnvTemp5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27B										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tAm2															
024	TMUX3: tAm3															
034	TMUX4: tAm4															

Diagnostic TEM Temperature Packet 5 (DiagTemEnvTemp5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
044	TMUX2: tBm2															
054	TMUX3: tBm3															
064	TMUX4: tBm4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): tAm2, tBm2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): tAm3, tBm3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): tAm4, tBm4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.32 DiagTemEnvTemp6 (636/0x27C)

Context:

Description:

"Diagnostic TEM Temperature Packet 6" Telemetry Packet

Contains temperature specific ADC values for TEMs C and D.

Layout:

Diagnostic TEM Temperature Packet 6 (DiagTemEnvTemp6)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27C										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tCm2															
024	TMUX3: tCm3															
034	TMUX4: tCm4															
044	TMUX2: tDm2															
054	TMUX3: tDm3															
064	TMUX4: tDm4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): tCm2, tDm2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): tCm3, tDm3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): tCm4, tDm4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.33 DiagTemEnvTemp7 (637/0x27D)

Context:

Description:

"Diagnostic TEM Temperature Packet 7" Telemetry Packet

Contains temperature specific ADC values for TEMs E and F.

Layout:

Diagnostic TEM Temperature Packet 7 (DiagTemEnvTemp7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x27D										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tEm3															
024	TMUX3: tEm4															
034	TMUX4: tEm5															
044	TMUX2: tFm2															
054	TMUX3: tFm3															
064	TMUX4: tFm4															

Fields:**TMUX2 (10.5.10)**

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): $tEm3$, $tFm2$

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): $tEm4$, $tFm3$

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): $tEm5$, $tFm4$

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

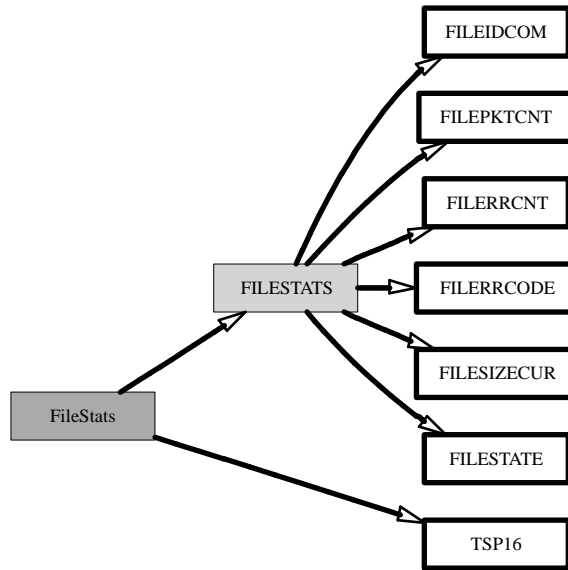
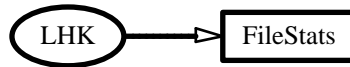
Attribute(s):

Brief: "Spare byte field"

Instance(s): *spares*

10.4.34 FileStats (554/0x22A)

Context:



Description:

"File System Statistics Packet" Telemetry Packet

Contains FILE statistics for each CPU.

Layout:

File System Statistics Packet (FileStats)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x22A										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	FILESTATS: siu															
02C	FILESTATS: epu0															
044	FILESTATS: epu1															
05C	FILESTATS: epu2															

Fields:

FILESTATS (10.5.4)

Attribute(s):

Brief: "FILE Upload Statistics"

Instance(s): epu0, epu1, epu2, siu

Describes the FILE upload current state.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.35 Lrs0 (551/0x227)

Context:

Description:

"Low-rate Science Packet" Telemetry Packet

Contains TEM dead-time counters and GEM livetime counter

Layout:

Low-rate Science Packet (Lrs0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x227										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	TIMESEC: gemsec															
018	TIMESUBSEC: gemsub															
01C	GEMLRS: gemlrs															
02C	TIMESEC: temsec															
030	TIMESUBSEC: temsub															
034	TEMDEADTIMEREG: temlrs[0-15]															

Fields:**GEMLRS (10.5.5)**

Attribute(s):

Brief: "GEM Low-Rate Science Counter"

Instance(s): `gemlrs`

Contains 4 GEM low-rate science counter values.

TEMDEADTIMEREG (10.6.29)

Attribute(s):

Brief: "TEM Deadtime Register Bitfield"

Instance(s): `temlrs`

Describes the TEM dead time low-rate science counter register.

TIMESEC (10.7.48)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): `gemsec, temsec`

TIMESUBSEC (10.7.49)

Attribute(s):

Brief: "Timestamp subseconds"

Instance(s): `gemsub, temsub`

TSP16 (10.7.54)

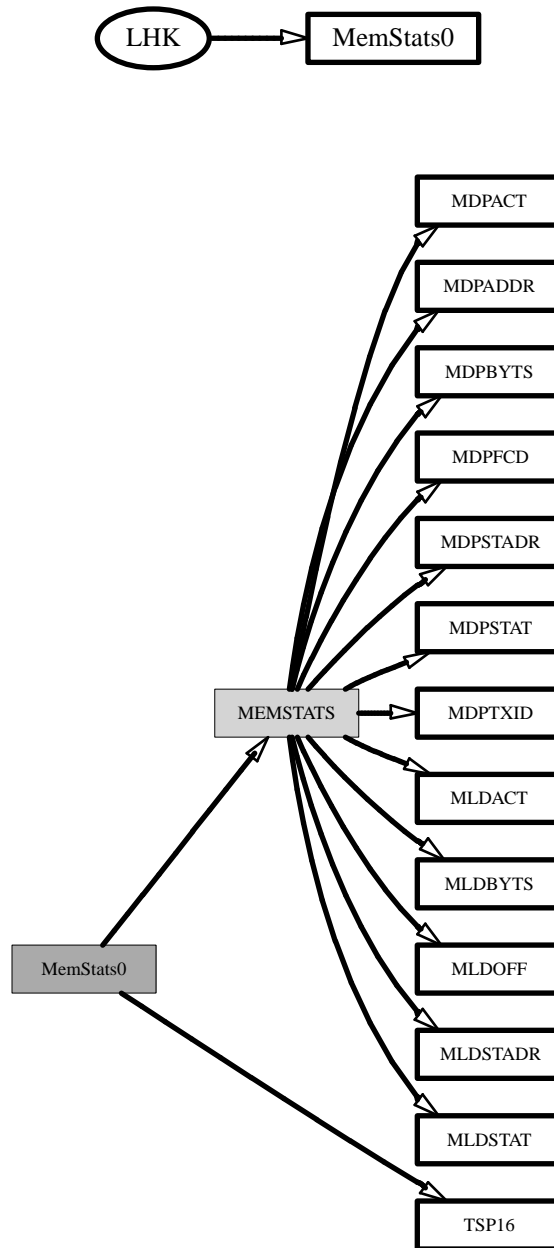
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): `spares`

10.4.36 MemStats0 (556/0x22C)

Context:



Description:

"Memory Load/Dump Statistics" Telemetry Packet

Contains the statistics for memory loads and dumps on the SIU and EPU0.

Layout:

Memory Load/Dump Statistics (MemStats0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=0	SH	APID=0x22C											
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spare[0-2]															
014	MEMSTATS: mem[0-1]															

Fields:**MEMSTATS (10.5.6)**

Attribute(s):

Brief: "MEM Statistics"

Instance(s): mem

Contains statistics for the MEM task.

TSP16 (10.7.54)

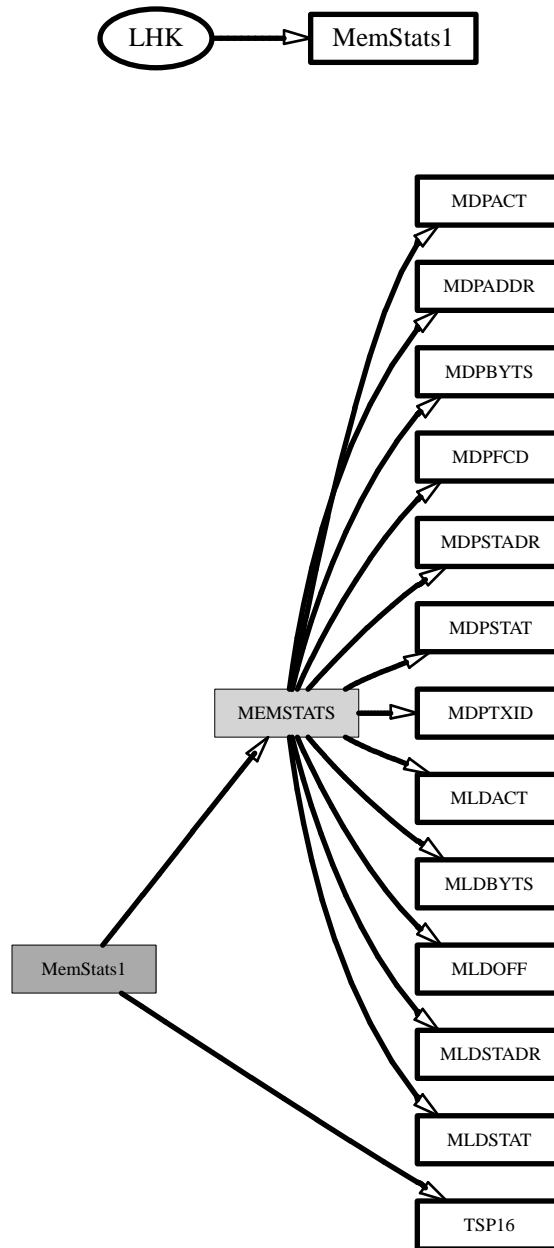
Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spare

10.4.37 MemStats1 (557/0x22D)

Context:



Description:

"Memory Load/Dump Statistics" Telemetry Packet

Contains the statistics for memory loads and dumps on the EPU1 and EPU2.

Layout:

Memory Load/Dump Statistics (MemStats1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x22D										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP16: spares[0-2]															
014	MEMSTATS: mem[0-1]															

Fields:

MEMSTATS (10.5.6)

Attribute(s):

Brief: "MEM Statistics"

Instance(s): mem

Contains statistics for the MEM task.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): spares

10.4.38 PduEnv0 (542/0x21E)

Context:

Description:

"PDU Environmental Packet 0" Telemetry Packet

PDU Packet 0

Layout:

PDU Environmental Packet 0 (PduEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21E										
002	SF		Sequence Count													

PDU Environmental Packet 0 (PduEnv0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	PDUTEMPWRREG: tempwr															
016	PDUEPUCRATEPWR: epupwr															
018	ACDPWRREG: acdpwr															
01A	TEM33V: temvolt[0-15]															
03A	TEMPSTEMP: temps[0-15]															
05A	EPUV: epuvolt[0-2]															
060	EPUTEMP: eputemp[0-2]															
066	AEMDAQENV: dab															
06E	TSP8: pad[0-5]															

Fields:

ACDPWRREG (10.6.2)

Attribute(s):

Brief: "PDU ADC Power Management Register"

Instance(s): acdpwr

AEMDAQENV (10.5.0)

Attribute(s):

Brief: "AEM DAQ Environmental"

Instance(s): dab

EPUTEMP (10.6.19)

Attribute(s):

Brief: "EPU Temperature ADC value"

Instance(s): eputemp

EPUV (10.6.20)

Attribute(s):

Brief: "EPU Voltage ADC value"

Instance(s): epuvolt

PDUEPUCRATEPWR (10.6.23)

Attribute(s):

Brief: "PDU EPU Crate Power States"

Instance(s): epupwr

PDUTEMPWRREG (10.6.24)

Attribute(s):

Brief: "PDU TEM Power Management Register"

Instance(s): tempwr

TEM33V (10.6.28)

Attribute(s):

Brief: "TEM 3.3 Voltage ADC value"

Instance(s): temvolt

Describes a TEM 3.3V ADC value and status.

TEMPTEMP (10.6.31)

Attribute(s):

Brief: "TEM Power Supply Temperature ADC value"

Instance(s): temps

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.39 PduEnv1 (543/0x21F)

Context:

Description:

"PDU Environmental Packet 1" Telemetry Packet

PDU Packet 1

Layout:

PDU Environmental Packet 1 (PduEnv1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21F										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TEMPCBTEMP: pcbt[0-15]															
034	CALBSPTEMP: bspt[0-15]															
054	TSP8: pad[0-31]															

Fields:

CALBSPTEMP (10.6.16)

Attribute(s):

Brief: "CAL Baseplate Temperature"

Instance(s): bspt

TEMPCBTEMP (10.6.30)

Attribute(s):

Brief: "TEM PCB Temperature"

Instance(s): pcbt

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.40 PduEnv2 (544/0x220)

Context:

Description:

"PDU Environmental Packet 2" Telemetry Packet

PDU Packet 2

Layout:

PDU Environmental Packet 2 (PduEnv2)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x220										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	VCHPDSHPTEMP: vdi[0-11]															
02C	VCHPXLHPTEMP: vxi[0-11]															
044	VCHPRSVRHTRTEMP: vrh[0-11]															
05C	TSP8: pad[0-23]															

Fields:

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

VCHPDSHPTEMP (10.6.39)

Attribute(s):

Brief: "VCHP-DSHP Interface Temperature"

Instance(s): vdi

VCHPRSVRHTRTEMP (10.6.40)

Attribute(s):

Brief: "VCHP Reservoir Heater Temperature"

Instance(s): vrh

VCHPXLHPTEMP (10.6.41)

Attribute(s):

Brief: "VCHP-XLHP Interface Temperature"

Instance(s): vxi

10.4.41 PduEnv3 (545/0x221)

Context:

Description:

"PDU Environmental Packet 3" Telemetry Packet

PDU Packet 3

Layout:

PDU Environmental Packet 3 (PduEnv3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x221										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	GRIDTEMP: gridt[0-11]															
02C	ACDSHELLTEMP: acdst[0-1]															
030	ACDPMTRAILTEMP: acdpr[0-3]															
038	ACDBEAGRIDTEMP: acdbg[0-1]															
03C	RADANHTRTEMP: rah[0-1]															
040	GRIDRADIFTEMP: grift[0-3]															
048	RADTEMP: rtemp[0-11]															
060	TSP8: pad[0-19]															

Fields:

ACDBEAGRIDTEMP (10.6.0)

Attribute(s):

Brief: "ACD BEA Grid Interface Temperature"

Instance(s): acdbg

ACDPMTRAILTEMP (10.6.1)

Attribute(s):

Brief: "ADC PMT Rail Temperature"

Instance(s): acdpr

ACDSHELLTEMP (10.6.3)

Attribute(s):

Brief: "ADC Shell Temperature"

Instance(s): acdst

GRIDRADIFTEMP (10.6.21)

Attribute(s):

Brief: "Grid Radiator Interface Temperature"

Instance(s): grift

GRIDTEMP (10.6.22)

Attribute(s):

Brief: "Grid Temperature"

Instance(s): gridt

RADANHTRTEMP (10.6.25)

Attribute(s):

Brief: "Radiator Anitfreeze Heater Temperature"

Instance(s): rah

RADTEMP (10.6.26)

Attribute(s):

Brief: "Radiator Temperature"

Instance(s): rtemp

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.42 PduEnv4 (546/0x222)

Context:

Description:

"PDU Environmental Packet 4" Telemetry Packet

PDU Packet 4

Layout:

PDU Environmental Packet 4 (PduEnv4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x222										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	PDUTEMPWRREG: tempwr															
016	PDUEPUCRATEPWR: epupwr															
018	ACDPWRREG: acdpwr															
01A	TEM33V: temvolt[0-15]															
03A	TEMPSTEMP: temps[0-15]															
05A	EPUV: epuvolt[0-2]															
060	EPUTEMP: eputemp[0-2]															
066	TSP8: pad[0-13]															

Fields:

ACDPWRREG (10.6.2)

Attribute(s):

Brief: "PDU ADC Power Management Register"

Instance(s): acdpwr

EPUTEMP (10.6.19)

Attribute(s):

Brief: "EPU Temperature ADC value"

Instance(s): eputemp

EPUV (10.6.20)

Attribute(s):

Brief: "EPU Voltage ADC value"

Instance(s): epuvolt

PDUEPUCRATEPWR (10.6.23)

Attribute(s):

Brief: "PDU EPU Crate Power States"

Instance(s): epupwr

PDUTEMPWRREG (10.6.24)

Attribute(s):

Brief: "PDU TEM Power Management Register"

Instance(s): tempwr

TEM33V (10.6.28)

Attribute(s):

Brief: "TEM 3.3 Voltage ADC value"

Instance(s): temvolt

Describes a TEM 3.3V ADC value and status.

TEMPSTEP (10.6.31)

Attribute(s):

Brief: "TEM Power Supply Temperature ADC value"

Instance(s): temps

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.43 PduEnv5 (547/0x223)

Context:

Description:

"PDU Environmental Packet 5" Telemetry Packet

PDU Packet 5

Layout:

PDU Environmental Packet 5 (PduEnv5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x223										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TEMPCBTEMP: pcbt[0-15]															
034	CALBSPTEMP: bspt[0-15]															
054	TSP8: pad[0-31]															

Fields:

CALBSPTEMP (10.6.16)

Attribute(s):

Brief: "CAL Baseplate Temperature"

Instance(s): bspt

TEMPCBTEMP (10.6.30)

Attribute(s):

Brief: "TEM PCB Temperature"

Instance(s): pcbt

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

10.4.44 PduEnv6 (548/0x224)

Context:

Description:

"PDU Environmental Packet 6" Telemetry Packet

PDU Packet 6

Layout:

PDU Environmental Packet 6 (PduEnv6)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x224										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	VCHPDSHPTTEMP: vdi[0-11]															
02C	VCHPXLHPTTEMP: vxi[0-11]															
044	VCHPRSVRHTRTEMP: vrh[0-11]															
05C	TSP8: pad[0-23]															

Fields:

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): pad, spares

VCHPDSHPTEMP (10.6.39)

Attribute(s):

Brief: "VCHP-DSHP Interface Temperature"

Instance(s): vdi

VCHPRSVRHTRTEMP (10.6.40)

Attribute(s):

Brief: "VCHP Reservoir Heater Temperature"

Instance(s): vrh

VCHPXLHPTEMP (10.6.41)

Attribute(s):

Brief: "VCHP-XLHP Interface Temperature"

Instance(s): vxi

10.4.45 PduEnv7 (549/0x225)

Context:

Description:

"PDU Environmental Packet 7" Telemetry Packet

PDU Packet 7

Layout:

PDU Environmental Packet 7 (PduEnv7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x225										
002	SF		Sequence Count													

PDU Environmental Packet 7 (PduEnv7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	GRIDTEMP: gridt[0-11]															
02C	ACDSHELLTEMP: acdst[0-1]															
030	ACDPMTRAILTEMP: acdpr[0-3]															
038	ACDBEAGRIDTEMP: acdbg[0-1]															
03C	RADANHTRTEMP: rah[0-1]															
040	GRIDRADIFTEMP: grift[0-3]															
048	RADTEMP: rtemp[0-11]															
060	TSP8: pad[0-19]															

Fields:

ACDBEAGRIDTEMP (10.6.0)

Attribute(s):

Brief: "ACD BEA Grid Interface Temperature"

Instance(s): acdbg

ACDPMTRAILTEMP (10.6.1)

Attribute(s):

Brief: "ADC PMT Rail Temperature"

Instance(s): acdpr

ACDSHELLTEMP (10.6.3)

Attribute(s):

Brief: "ADC Shell Temperature"

Instance(s): acdst

GRIDRADIFTEMP (10.6.21)

Attribute(s):

Brief: "Grid Radiator Interface Temperature"

Instance(s): `grift`

GRIDTEMP (10.6.22)

Attribute(s):

Brief: "Grid Temperature"

Instance(s): `gridt`

RADANHTRTEMP (10.6.25)

Attribute(s):

Brief: "Radiator Anitfreeze Heater Temperature"

Instance(s): `rah`

RADTEMP (10.6.26)

Attribute(s):

Brief: "Radiator Temperature"

Instance(s): `rtemp`

TSP8 (10.7.56)

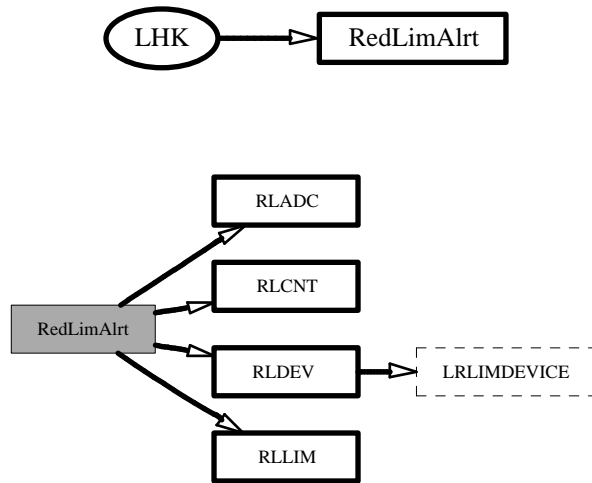
Attribute(s):

Brief: "Spare byte field"

Instance(s): `pad, spares`

10.4.46 RedLimAlrt (851/0x353)

Context:



Description:

"Red Limit Alert Packet" Telemetry Packet

This packet reports alert data related to an ADC limit threshold violation.

Layout:

Red Limit Alert Packet (RedLimAlrt)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x353										
002	SF		Sequence Count													
004	Packet Length=15															
006	Timestamp															
00E	RLDEV: dev															
010	RLADC: adc															
012	RLCNT: cnt															
014	RLLIM: lim															

Fields:

RLADC (10.7.42)

Attribute(s):

Brief: "Red Limit ADC Number"

Instance(s): adc

ACD number that exceeded its red limit.

RLCNT (10.7.43)

Attribute(s):

Brief: "Red Limit ADC Counts"

Instance(s): cnt

This field is used to report the raw ADC count value that exceeded the specified red limit.

RLDEV (10.7.44)

Attribute(s):

dsc: LRLIMDEVICE (10.9.8)

Brief: "Red Limit Device Opcode"

Instance(s): dev

Opcode specifying the device that exceeded a red limit.

RLLIM (10.7.45)

Attribute(s):

Brief: "Red Limit Threshold"

Instance(s): lim

This field reports the limit threshold that was used to evaluate the exceeded ADC value.

10.4.47 TemEnvPwr0 (528/0x210)

Context:

Description:

"TEM Power Packet 0" Telemetry Packet

Contains power specific ADC values for TEMs 0, 1, and 2.

Layout:

TEM Power Packet 0 (TemEnvPwr0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x210										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t0m0															
024	TMUX1: t0m1															
034	TMUX0: t1m0															
044	TMUX1: t1m1															
054	TMUX0: t2m0															
064	TMUX1: t2m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t0m0, t1m0, t2m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t0m1, t1m1, t2m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.48 TemEnvPwr1 (529/0x211)

Context:

Description:

"TEM Power Packet 1" Telemetry Packet

Contains power specific ADC values for TEMs 3,4, and 5.

Layout:

TEM Power Packet 1 (TemEnvPwr1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x211										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t3m0															
024	TMUX1: t3m1															
034	TMUX0: t4m0															
044	TMUX1: t4m1															
054	TMUX0: t5m0															
064	TMUX1: t5m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t3m0, t4m0, t5m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t3m1, t4m1, t5m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.49 TemEnvPwr 2 (530/0x212)

Context:

Description:

"TEM Power Packet 2" Telemetry Packet

Contains power specific ADC values for TEMs 6, 7, and 8.

Layout:

TEM Power Packet 2 (TemEnvPwr2) Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x212										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t6m0															
024	TMUX1: t6m1															
034	TMUX0: t7m0															
044	TMUX1: t7m1															
054	TMUX0: t8m0															
064	TMUX1: t8m1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t6m0, t7m0, t8m0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t6m1, t7m1, t8m1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.50 TemEnvPwr 3 (531/0x213)

Context:

Description:

"TEM Power Packet 3" Telemetry Packet

Contains power specific ADC values for TEMs 9, 10, and 11.

Layout:

TEM Power Packet 3 (TemEnvPwr3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x213										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: t9m0															
024	TMUX1: t9m1															
034	TMUX0: tAm0															
044	TMUX1: tAm1															
054	TMUX0: tBm0															
064	TMUX1: tBm1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): t9m0, tAm0, tBm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): t9m1, tAm1, tBm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.51 TemEnvPwr 4 (532/0x214)

Context:

Description:

"TEM Power Packet 4" Telemetry Packet

Contains power specific ADC values for TEMs 12, 13, and 14.

Layout:

TEM Power Packet 4 (TemEnvPwr4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x214										
002	SF		Sequence Count													

TEM Power Packet 4 (TemEnvPwr4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: tCm0															
024	TMUX1: tCm1															
034	TMUX0: tDm0															
044	TMUX1: tDm1															
054	TMUX0: tEm0															
064	TMUX1: tEm1															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): tCm0, tDm0, tEm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): tCm1, tDm1, tEm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.52 TemEnvPwr 5 (533/0x215)

Context:

Description:

"TEM Power Packet 5" Telemetry Packet

Contains powr specific ADC values for TEM 15.

Layout:

TEM Power Packet 5 (TemEnvPwr5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x215										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX0: tFm0															
024	TMUX1: tFm1															
034	TSP16: pad[0-31]															

Fields:

TMUX0 (10.5.8)

Attribute(s):

Brief: "TEM mux channel 0 environmental ADCs"

Instance(s): tFm0

Describes 8 ADC quantities for TEM mux channel 0.

TMUX1 (10.5.9)

Attribute(s):

Brief: "TEM mux channel 1 environmental ADCs"

Instance(s): tFm1

Contains 6 CAL and 2 TEM power ADC environmental values.

TSP16 (10.7.54)

Attribute(s):

Brief: "Spare 16 bit field"

Instance(s): pad

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.53 TemEnvTemp0 (534/0x216)

Context:

Description:

"TEM Temperature Packet 0" Telemetry Packet

Contains temperature specific ADC values for TEMs 0 and 1.

Layout:

TEM Temperature Packet 0 (TemEnvTemp0)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x216										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t0m2															
024	TMUX3: t0m3															
034	TMUX4: t0m4															
044	TMUX2: t1m0															
054	TMUX3: t1m1															
064	TMUX4: t1m2															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t0m2, t1m0

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t0m3, t1m1

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t0m4, t1m2

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.54 TemEnvTemp1 (535/0x217)

Context:

Description:

"TEM Temperature Packet 1" Telemetry Packet

Contains temperature specific ADC values for TEMs 2 and 3.

Layout:

TEM Temperature Packet 1 (TemEnvTemp1)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x217										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t2m2															
024	TMUX3: t2m3															
034	TMUX4: t2m4															
044	TMUX2: t3m2															
054	TMUX3: t3m3															
064	TMUX4: t3m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t2m2, t3m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t2m3, t3m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t2m4, t3m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.55 TemEnvTemp2 (536/0x218)

Context:

Description:

"TEM Temperature Packet 2" Telemetry Packet

Contains temperature specific ADC values for TEMs 4 and 5.

Layout:

TEM Temperature Packet 2 (TemEnvTemp2)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x218										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t4m2															
024	TMUX3: t4m3															
034	TMUX4: t4m4															
044	TMUX2: t5m2															
054	TMUX3: t5m3															
064	TMUX4: t5m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t4m2, t5m2

Contains 8 AFTE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t4m3, t5m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t4m4, t5m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.56 TemEnvTemp3 (537/0x219)

Context:

Description:

"TEM Temperature Packet 3" Telemetry Packet

Contains temperature specific ADC values for TEMs 6 and 7.

Layout:

TEM Temperature Packet 3 (TemEnvTemp3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x219										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															

TEM Temperature Packet 3 (TemEnvTemp3)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
00E	TSP8: spares[0-5]															
014	TMUX2: t6m2															
024	TMUX3: t6m3															
034	TMUX4: t6m4															
044	TMUX2: t7m2															
054	TMUX3: t7m3															
064	TMUX4: t7m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t6m2, t7m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t6m3, t7m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t6m4, t7m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.57 TemEnvTemp4 (538/0x21A)

Context:

Description:

"TEM Temperature Packet 4" Telemetry Packet

Contains temperature specific ADC values for TEMs 8 and 9.

Layout:

TEM Temperature Packet 4 (TemEnvTemp4)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21A										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: t8m2															
024	TMUX3: t8m3															
034	TMUX4: t8m4															
044	TMUX2: t9m2															
054	TMUX3: t9m3															
064	TMUX4: t9m4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): t8m2, t9m2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): t8m3, t9m3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): t8m4, t9m4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.58 TemEnvTemp5 (539/0x21B)

Context:

Description:

"TEM Temperature Packet 5" Telemetry Packet

Contains temperature specific ADC values for TEMs A and B.

Layout:

TEM Temperature Packet 5 (TemEnvTemp5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21B										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tAm2															
024	TMUX3: tAm3															
034	TMUX4: tAm4															

TEM Temperature Packet 5 (TemEnvTemp5)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
044	TMUX2: tBm2															
054	TMUX3: tBm3															
064	TMUX4: tBm4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): tAm2, tBm2

Contains 8 AFTE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): tAm3, tBm3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): tAm4, tBm4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.59 TemEnvTemp6 (540/0x21C)

Context:

Description:

"TEM Temperature Packet 6" Telemetry Packet

Contains temperature specific ADC values for TEMs C and D.

Layout:

TEM Temperature Packet 6 (TemEnvTemp6)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21C										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tCm2															
024	TMUX3: tCm3															
034	TMUX4: tCm4															
044	TMUX2: tDm2															
054	TMUX3: tDm3															
064	TMUX4: tDm4															

Fields:

TMUX2 (10.5.10)

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): tCm2, tDm2

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): tCm3, tDm3

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): tCm4, tDm4

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): spares

10.4.60 TemEnvTemp7 (541/0x21D)

Context:

Description:

"TEM Temperature Packet 7" Telemetry Packet

Contains temperature specific ADC values for TEMs E and F.

Layout:

TEM Temperature Packet 7 (TemEnvTemp7)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x21D										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	TSP8: spares[0-5]															
014	TMUX2: tEm3															
024	TMUX3: tEm4															
034	TMUX4: tEm5															
044	TMUX2: tFm2															
054	TMUX3: tFm3															
064	TMUX4: tFm4															

Fields:**TMUX2 (10.5.10)**

Attribute(s):

Brief: "TEM mux channel 2 environmental ADCs"

Instance(s): $tEm3$, $tFm2$

Contains 8 AFFE ADC temperature values.

TMUX3 (10.5.11)

Attribute(s):

Brief: "TEM mux channel 3 environmental ADCs"

Instance(s): $tEm4$, $tFm3$

Contains 8 TKR cable temperature ADC values.

TMUX4 (10.5.12)

Attribute(s):

Brief: "TEM mux channel 4 environmental ADCs"

Instance(s): $tEm5$, $tFm4$

Contains 8 TKR cable temperature ADC value and status.

TSP8 (10.7.56)

Attribute(s):

Brief: "Spare byte field"

Instance(s): *spares*

10.5 Telemetry Structs

10.5.0 AEMDAQENV (AEM DAQ Environmental) Telemetry Struct

Definition:

Alignment: 2 bytes
 Length: 64 bits (8 bytes)

Description:

AEM DAQ Environmental (AEMDAQENV)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	AEMFR33ISUM: sumv															
002	DABTEMP: dabt															
004	AEMFR28ISUM: sumi															
006	DAQ33V: dabv															

Fields:

AEMFR28ISUM (10.6.4)

Attribute(s):

Brief: "AEM FREE Board 28V Sum"

Instance(s): sumi

The sum of the high voltage (28V) currents measured over all FREE boards.

AEMFR33ISUM (10.6.5)

Attribute(s):

Brief: "AEM FREE Board 3.3 Sum"

Instance(s): sumv

The sum of the digital(3.3) currents of all FREE boards.

DABTEMP (10.6.17)

Attribute(s):

Brief: "DAQ Board Temperature"

Instance(s): dabt

The temperature of the DAQ board.

DAQ33V (10.6.18)

Attribute(s):

Brief: "DAQ Board 3.3 Voltage"

Instance(s): dabv

The digital (3.3) voltage of the DAQ board.

Used by:

DiagPduEnv0 (10.4.12)

10.5.1 AEMFENV (AEM Free Board Environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes

Length: 64 bits (8 bytes)

Description:

AEM Free Board Environmental ADCs (AEMFENV)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	AEMFRVDD: vdd															
002	AEMFRTEMP: temp															
004	AEMFRHV1: hv1															
006	AEMFRHV2: hv2															

Fields:

AEMFRHV1 (10.6.6)

Attribute(s):

Brief: "AEM Free Board HV1"

Instance(s): hv1

AEMFRHV2 (10.6.7)

Attribute(s):

Brief: "AEM Free Board HV2"

Instance(s): hv2

AEMFRTEMP (10.6.9)

Attribute(s):

Brief: "AEM Free board Temperature"

Instance(s): temp

AEMFRVDD (10.6.10)

Attribute(s):

Brief: "AEM VDD"

Instance(s): vdd

Used by:

AemEnv0 (10.4.0)

10.5.2 CMDCNTRS (Command Counters) Telemetry Struct

Definition:

Alignment: 4 bytes

Length: 128 bits (16 bytes)

Description:

Structure to hold per task command count information.

Command Counters (CMDCNTRS)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	TIMESEC: sec															
004	TIMESUBSEC: subsec															
008	CMDCNTS: sent															
00C	CMDDISPF: dispf															
00E	CMDEXEF: exef															

Fields:

CMDCNTS (10.7.3)

Attribute(s):

Brief: "Commands sent counter"

Instance(s): sent

Commands sent to task.

CMDDISPF (10.7.4)

Attribute(s):

Brief: "Command dispatch failure counter"

Instance(s): dispf

Commands failing task dispatch.

CMDEXEF (10.7.5)

Attribute(s):

Brief: "Command execution failure counter"

Instance(s): exef

Commands failing task execution

TIMESEC (10.7.48)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): sec

TIMESUBSEC (10.7.49)

Attribute(s):

Brief: "Timestamp subseconds"

Instance(s): subsec

Used by:

CmdCnt0 (10.4.1)

10.5.3 CPUMETR (CPU Metrics) Telemetry Struct

Definition:

Alignment: 2 bytes

Length: 16 bits (2 bytes)

Description:

Structure containing metrics for a single CPU.

CPU Metrics (CPUMETR)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	CPUJT: temp															

Fields:

CPUJT (10.7.6)

Attribute(s):

Brief: "CPU Junction Temperature"

Instance(s): temp

The CPU junction temperature, in degress Celcius.

Used by:

CpuMetr (10.4.3)

10.5.4 FILESTATS (FILE Upload Statistics) Telemetry Struct

Definition:

Alignment: 4 bytes

Length: 192 bits (24 bytes)

Description:

Describes the FILE upload current state.

FILE Upload Statistics (FILESTATS)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	FILESTATE: state															
004	FILESIZECUR: cursize															
008	FILEPKTCNT: pktent															
00C	FILERRCODE: errcode															
010	FILERRCNT: errcnt															
014	FILEIDCOM: comid															

Fields:

FILEIDCOM (10.7.11)

Attribute(s):

Brief: "FILE ID Commit"

Instance(s): `comid`

The file ID value for committing the file data to storage.

FILEPKTCNT (10.7.12)

Attribute(s):

Brief: "FILE Packet Count"

Instance(s): `pktcnt`

The number of vaild data packets received for the current file upload.

FILERRCNT (10.7.13)

Attribute(s):

Brief: "FILE Error Count"

Instance(s): `errcnt`

A count of the number of errors reported for the current file upload.

FILERRCODE (10.7.14)

Attribute(s):

Brief: "FILE Error Code"

Instance(s): `errcode`

The current file upload error indicator.

FILESIZECUR (10.7.15)

Attribute(s):

Brief: "File Size Current"

Instance(s): `cursize`

The number of data bytes received for the current file upload.

FILESTATE (10.7.16)

Attribute(s):

Brief: "FILE Upload State"

Instance(s): `state`

The current file upload state.

Used by:

`DiagFileStats (10.4.8)`

10.5.5 GEMLRS (GEM Low-Rate Science Counter) Telemetry Struct

Definition:

Alignment: 4 bytes

Length: 128 bits (16 bytes)

Description:

Contains 4 GEM low-rate science counter values.

GEM Low-Rate Science Counter (GEMLRS)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	GEMLRSLIVE: <code>live</code>															
004	GEMPRSCL: <code>presc</code>															
008	GEMLRSDISC: <code>disc</code>															
00C	GEMLRSSSENT: <code>sent</code>															

Fields:

GEMLRSDISC (10.7.17)

Attribute(s):

Brief: "GEM low-rate science discarded counter"

Instance(s): `disc`

Window turns discarded due to busy

GEMLRSLIVE (10.7.18)

Attribute(s):

Brief: "GEM low-rate science livetime counter"

Instance(s): live

1/deadtime statistics

GEMLRSENT (10.7.19)

Attribute(s):

Brief: "GEM low-rate science sent counter"

Instance(s): sent

Window turns which result in a sent message

GEMPRSCL (10.7.20)

Attribute(s):

Brief: "Low-rate science prescaled counter"

Instance(s): presc

Window turns discarded due to prescaling

Used by:

DiagLrs0 (10.4.9)

10.5.6 MEMSTATS (MEM Statistics) Telemetry Struct

Definition:

Alignment: 4 bytes
Length: 384 bits (48 bytes)

Description:

Contains statistics for the MEM task.

MEM Statistics (MEMSTATS)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	MLDSTAT: ldstat															
004	MLDACT: ldact															
008	MLDSTADR: ldstart															
00C	MLDBYTS: ldbytes															
010	MLDOFF: ldoffset															
014	MDPSTAT: dmpstat															
018	MDPACT: dmpact															
01C	MDPSTADR: dmpstart															
020	MDPBYTS: dmpbytes															
024	MDPADDR: dmpaddr															
028	MDPFCD: dmpfcode															
02C	MDPTXID: dmpxid															

Fields:

MDPACT (10.7.24)

Attribute(s):

Brief: "Memory dump active"

Instance(s): dmpact

Nonzero if dump is active.

MDPADDR (10.7.25)

Attribute(s):

Brief: "Memory dump address"

Instance(s): dmpaddr

Current dump address.

MDPBYTS (10.7.26)

Attribute(s):

Brief: "Memory dump bytes"

Instance(s): dmpbytes

Total number of bytes to dump.

MDPFCD (10.7.27)

Attribute(s):

Brief: "Memory dump function code"

Instance(s): `dmpfcode`

Function code for current dump.

MDPSTADR (10.7.28)

Attribute(s):

Brief: "Memory dump start address"

Instance(s): `dmpstart`

Starting dump address.

MDPSTAT (10.7.29)

Attribute(s):

Brief: "Memory dump status"

Instance(s): `dmpstat`

Status of most recent dump action.

MDPTXID (10.7.30)

Attribute(s):

Brief: "Memory dump transaction ID"

Instance(s): `dmpxid`

Transaction ID for current dump.

MLDACT (10.7.31)

Attribute(s):

Brief: "Memory load active flag"

Instance(s): ldact

Nonzero if load is active

MLDBYTS (10.7.32)

Attribute(s):

Brief: "Memory load total bytes"

Instance(s): ldbytes

Total number of bytes to load.

MLDOFF (10.7.33)

Attribute(s):

Brief: "Memory load offset"

Instance(s): ldoffset

Current load offset.

MLDSTADR (10.7.34)

Attribute(s):

Brief: "Starting memory load address"

Instance(s): ldstart

MLDSTAT (10.7.35)

Attribute(s):

Brief: "Status of most recent load action"

Instance(s): ldstat

Used by:

DiagMemStats0 (10.4.10)

10.5.7 RTSTATS (1553 Remote Terminal Statistics) Telemetry Struct

Definition:

Alignment: 4 bytes

Length: 320 bits (40 bytes)

Description:

Contains the 1553 RT driver statistics.

1553 Remote Terminal Statistics (RTSTATS)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	RTERR: err															
004	INTRCNT: intr															
008	CRXPCNT: cxp															
00C	CRXBCNT: cxb															
010	CTXPCNT: txp															
014	CTXBCNT: txb															
018	HKPCNT: hkp															
01C	HKBCNT: hkb															
020	TLMPCNT: t1mp															
024	TLMBCNT: t1mb															

Fields:

CRXBCNT (10.7.7)

Attribute(s):

Brief: "1553 Cmd Rx Byte Count"

Instance(s): cxb

A count of the number of CmdRx bytes received by the remote terminal

CRXPCNT (10.7.8)

Attribute(s):

Brief: "1553 Cmd Rx Packet Count"

Instance(s): cxp

A count of the number of CmdRx packets received by the remote terminal

CTXBCNT (10.7.9)

Attribute(s):

Brief: "1553 Cmd Tx Byte Count"

Instance(s): `txb`

A count of the number of CmdTx bytes sent by the remote terminal.

CTXPCNT (10.7.10)

Attribute(s):

Brief: "1553 Cmd Tx Packet Count"

Instance(s): `txp`

A count of the number of CmdTx packets sent by the remote terminal

HKBCNT (10.7.21)

Attribute(s):

Brief: "1553 Housekeeping Byte Count"

Instance(s): `hkb`

A count of the number of HKP bytes sent by the remote terminal

HKPCNT (10.7.22)

Attribute(s):

Brief: "1553 Housekeeping Packet Count"

Instance(s): `hkp`

A count of the number of HKP packets sent by the remote terminal

INTRCNT (10.7.23)

Attribute(s):

Brief: "1553 Interrupts"

Instance(s): `intr`

A count of the number of remote terminal device interrupts.

RTERR (10.7.46)

Attribute(s):

Brief: "1553 Error Count"

Instance(s): `err`

A count of the number of remote terminal errors.

TLMBCNT (10.7.50)

Attribute(s):

Brief: "1553 Telemetry Byte Count"

Instance(s): `tlmb`

A count of the number of Telem bytes sent by the remote terminal (not HKP).

TLMPCNT (10.7.51)

Attribute(s):

Brief: "1553 Telemetry Packet Count"

Instance(s): `tlmp`

A count of the number of Telem packets sent by the remote terminal (not HKP).

Used by:

`CpuMetr (10.4.3)`

10.5.8 TMUX0 (TEM mux channel 0 environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes

Length: 128 bits (16 bytes)

Description:

Describes 8 ADC quantities for TEM mux channel 0.

TEM mux channel 0 environmental ADCs (TMUX0)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	TKR25V: adc0															
002	TKR25I: adc1															
004	TKR15V: adc2															
006	TKR15I: adc3															
008	TKR25V: adc4															
00A	TKR25I: adc5															
00C	TKRBIASV: adc6															
00E	TKRBIASI: adc7															

Fields:

TKR15I (10.6.32)

Attribute(s):

Brief: "TKR 1.5 Current ADC value"

Instance(s): adc3

Describes a TKR 1.5I ADC value and status.

TKR15V (10.6.33)

Attribute(s):

Brief: "TKR 1.5 Voltage ADC value"

Instance(s): adc2

Describes a TKR 1.5V ADC value and status.

TKR25I (10.6.34)

Attribute(s):

Brief: "TKR 2.5 Current ADC value"

Instance(s): adc1, adc5

Bitfield describing a TKR 2.5I ADC value and status

TKR25V (10.6.35)

Attribute(s):

Brief: "TKR 2.5 Voltage ADC value"

Instance(s): adc0, adc4

Bitfield describing a TRK 2.5V ADC value and status.

TKRBIASI (10.6.36)

Attribute(s):

Brief: "TKR Bias Current ADC value"

Instance(s): adc7

Describes a TKR bias current ADC value and status.

TKRBIASV (10.6.37)

Attribute(s):

Brief: "TKR Bias Voltage ADC value"

Instance(s): adc6

Describes a TKR bias voltage ADC value and status.

Used by:

DiagTemEnvPwr0 (10.4.20)

10.5.9 TMUX1 (TEM mux channel 1 environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes

Length: 128 bits (16 bytes)

Description:

Contains 6 CAL and 2 TEM power ADC environmental values.

TEM mux channel 1 environmental ADCs (TMUX1)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	CAL33V: adc0															
002	CAL33I: adc1															
004	CAL33V: adc2															
006	CAL33I: adc3															
008	CALBIASV: adc4															
00A	CALBIASI: adc5															
00C	TEM33V: adc6															
00E	TEM33I: adc7															

Fields:

CAL33I (10.6.12)

Attribute(s):

Brief: "CAL 3.3 Current ADC value"

Instance(s): adc1, adc3

Describes a CAL 3.3I ADC value and status

CAL33V (10.6.13)

Attribute(s):

Brief: "CAL 3.3 Voltage ADC value"

Instance(s): adc0, adc2

Describes a CAL 3.3V ADC value and status

CALBIASI (10.6.14)

Attribute(s):

Brief: "CAL Bias Current ADC value"

Instance(s): adc5

Describes a CAL bias current ADC value and status

CALBIASV (10.6.15)

Attribute(s):

Brief: "CAL Bias Voltage ADC value"

Instance(s): adc4

Describes a CAL bias voltage ADC value and status

TEM33I (10.6.27)

Attribute(s):

Brief: "TEM 3.3 Current ADC value"

Instance(s): adc7

Describes a TEM 3.3 current ADC value and status.

TEM33V (10.6.28)

Attribute(s):

Brief: "TEM 3.3 Voltage ADC value"

Instance(s): adc6

Describes a TEM 3.3V ADC value and status.

Used by:

DiagTemEnvPwr0 (10.4.20)

10.5.10 TMUX2 (TEM mux channel 2 environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes
 Length: 128 bits (16 bytes)

Description:

Contains 8 AFEE ADC temperature values.

TEM mux channel 2 environmental ADCs (TMUX2)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	AFEETEMP: adcs[0-7]															

Fields:

AFEETEMP (10.6.11)

Attribute(s):

Brief: "CAL AFFE temperature ADC value"

Instance(s): `adcs`

Describes a CAL AFFE temperature ADC value and status.

Used by:

`DiagTemEnvTemp0 (10.4.26)`

10.5.11 TMUX3 (TEM mux channel 3 environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes

Length: 128 bits (16 bytes)

Description:

Contains 8 TKR cable temperature ADC values.

TEM mux channel 3 environmental ADCs (TMUX3)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	TKRCBLT: <code>adcs[0-7]</code>															

Fields:

TKRCBLT (10.6.38)

Attribute(s):

Brief: "TKR Cable Temperature ADC value"

Instance(s): `adcs`

Describes a TKR cable temperature ADC value and status.

Same as:

`TMUX4 (10.5.12)`

Used by:

`DiagTemEnvTemp0 (10.4.26)`

10.5.12 TMUX4 (TEM mux channel 4 environmental ADCs) Telemetry Struct

Definition:

Alignment: 2 bytes
 Length: 128 bits (16 bytes)

Description:

Contains 8 TKR cable temperature ADC value and status.

TEM mux channel 4 environmental ADCs (TMUX4)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	TKRCBLT: adcs[0-7]															

Fields:

TKRCBLT (10.6.38)

Attribute(s):

Brief: "TKR Cable Temperature ADC value"

Instance(s): adcs

Describes a TKR cable temperature ADC value and status.

Same as:

TMUX3 (10.5.11)

Used by:

DiagTemEnvTemp0 (10.4.26)

10.6 Telemetry Bitfields

10.6.0 ACDBEAGRIDTEMP (ACD BEA Grid Interface Temperature) Telemetry Bit-field

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.1 ACDPMTRAILTEMP (ADC PMT Rail Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LAPMTRTEMPADCLIM (10.10.1)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39),

VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.2 ACDPWRREG (PDU ADC Power Management Register) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	12	13	TSP13 spare
13	13	1	PDUACDCNVT cnvt
14	14	1	PDUACDPWRSUP sup
15	15	1	PDUACDPWRST acd

Fields:**PDUACDCNVT (10.7.36)**

Attribute(s):
 dsc: LAPDUPWRCNVTSTAT (10.9.1)

Brief: "PDU ACD Power Converter Source"

Instance(s): cnvt

PDUACDPWRST (10.7.37)

Attribute(s):
 dsc: LAPDUPWRSTATES (10.9.2)

Brief: "PDU ACD Power State"

Instance(s): acd

PDUACDPWRSUP (10.7.38)

Attribute(s):
 dsc: LAPDUPWRSUPSTAT (10.9.3)

Brief: "PDU ACD Power Supply Source"

Instance(s): sup

TSP13 (10.7.53)

Attribute(s):

Brief: "Spare 13 bit field"

Instance(s): spare

Spare 13 bits

Used by:

DiagPduEnv0 (10.4.12)

10.6.3 ACDSHELLTEMP (ADC Shell Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LASHLTEMPADCLIM (10.10.2)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.4 AEMFR28ISUM (AEM FREE Board 28V Sum) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

The sum of the high voltage (28V) currents measured over all FREE boards.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

AEMDAQENV (10.5.0)

10.6.5 AEMFR33ISUM (AEM FREE Board 3.3 Sum) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

The sum of the digital(3.3) currents of all FREE boards.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

AEMDAQENV (10.5.0)

10.6.6 AEMFRHV1 (AEM Free Board HV1) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
lim: LDAEMFRHV1ADCLIM (10.10.9)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

AEMFRENV (10.5.1)

10.6.7 AEMFRHV2 (AEM Free Board HV2) Telemetry Bitfield

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LDAEMFRHV2ADCLIM (10.10.10)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

AEMFRENV (10.5.1)

10.6.8 AEMFRPWRREG (AEM FREE board power status register) Telemetry Bitfield**Definition:**

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Contains the status of the power supplied by the AEM to its FREE boards.

Start	Stop	Size	Item Type and Name
0	3	4	TSP4 spare
4	4	1	AEMFRPWRST free11
5	5	1	AEMFRPWRST free10
6	6	1	AEMFRPWRST free9
7	7	1	AEMFRPWRST free8
8	8	1	AEMFRPWRST free7
9	9	1	AEMFRPWRST free6
10	10	1	AEMFRPWRST free5
11	11	1	AEMFRPWRST free4
12	12	1	AEMFRPWRST free3
13	13	1	AEMFRPWRST free2
14	14	1	AEMFRPWRST free1
15	15	1	AEMFRPWRST free0

Fields:

AEMFRPWRST (10.7.2)

Attribute(s):
 dsc: LAEMFRPWRSTATES (10.9.0)

Brief: "AEM FREE Board Power State"

Instance(s): free0, free1, free10, free11, free2, free3, free4, free5, free6, free7, free8, free9

Describes the AEM free board power status.

TSP4 (10.7.55)

Attribute(s):

Brief: "Spare 4 bits"

Instance(s): spare

Spare 4 bits

Used by:

AemEnv0 (10.4.0)

10.6.9 AEMFRTEMP (AEM Free board Temperature) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LDAEMFRTMPADCLIM (10.10.11)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

AEMFRENV (10.5.1)

10.6.10 AEMFRVDD (AEM VDD) Telemetry Bitfield

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LDAEMFRVDDADCLIM (10.10.12)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDEPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

AEMFRENV (10.5.1)

10.6.11 AFEETEMP (CAL AFFE temperature ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a CAL AFFE temperature ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LCAFETADCLIM (10.10.5)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3),
 AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2
 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), CAL33I (10.6.12), CAL33V
 (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP
 (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP
 (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP
 (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP
 (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35),
 TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP
 (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

TMUX2 (10.5.10)

10.6.12 CAL33I (CAL 3.3 Current ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a CAL 3.3I ADC value and status

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LC33IADCLIM (10.10.3)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX1 (10.5.9)

10.6.13 CAL33V (CAL 3.3 Voltage ADC value) Telemetry Bitfield**Definition:**

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Describes a CAL 3.3V ADC value and status

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LC33VADCLIM (10.10.4)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX1 (10.5.9)

10.6.14 CALBIASI (CAL Bias Current ADC value) Telemetry Bitfield**Definition:**

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Describes a CAL bias current ADC value and status

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LCBIASIADCLIM (10.10.7)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX1 (10.5.9)

10.6.15 CALBIASV (CAL Bias Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a CAL bias voltage ADC value and status

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LCBIASVADCLIM (10.10.8)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX1 (10.5.9)

10.6.16 CALBSPTEMP (CAL Baseplate Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LCBASPLADCLIM (10.10.6)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP

(10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTMP (10.6.41)

Used by:

DiagPduEnv1 (10.4.13)

10.6.17 DABTEMP (DAQ Board Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

The temperature of the DAQ board.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35),

TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

AEMDAQENV (10.5.0)

10.6.18 DAQ33V (DAQ Board 3.3 Voltage) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

The digital (3.3) voltage of the DAQ board.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP

(10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

AEMDAQENV (10.5.0)

10.6.19 EPUTEMP (EPU Temperature ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LDEPUTEMPADCLIM (10.10.13)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUV (10.6.20), GRIDRADIFTEMP

(10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv0 (10.4.12)

10.6.20 EPUV (EPU Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LDEPUVADCLIM (10.10.14)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I

(10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv0 (10.4.12)

10.6.21 GRIDRADIFTEMP (Grid Radiator Interface Temperature) Telemetry Bit-field**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LMGRDRADIFADCLIM (10.10.19)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCH-PRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.22 GRIDTEMP (Grid Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LMGRIDTEMPADCLIM (10.10.20)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.23 PDUEPUCRATEPWR (PDU EPU Crate Power States) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	9	10	TSP10 spare0
10	10	1	PDUEPUCVTST epu2cvt
11	11	1	PDUEPUCVTST epulcvt
12	12	1	PDUEPUCVTST epu0cvt
13	13	1	PDUEPUPWRST epu2pwr
14	14	1	PDUEPUPWRST epulpwr
15	15	1	PDUEPUPWRST epu0pwr

Fields:

PDUEPUCVTST (10.7.39)

Attribute(s):
 dsc: LDPDUEPUCNVT (10.9.4)

Brief: "PDU EPU Converter State"

Instance(s): epu0cvt, epulcvt, epu2cvt

PDUEPUPWRST (10.7.40)

Attribute(s):
 dsc: LDPDUEPUPWRST (10.9.5)

Brief: "PDU EPU Crate Power State"

Instance(s): epu0pwr, epu1pwr, epu2pwr

TSP10 (10.7.52)

Attribute(s):

Brief: "Spare 10 bits"

Instance(s): spare0

Used by:

DiagPduEnv0 (10.4.12)

10.6.24 PDUTEMPWRREG (PDU TEM Power Management Register) Telemetry Bit-field

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	0	1	PDUTEMPWRST temf
1	1	1	PDUTEMPWRST teme
2	2	1	PDUTEMPWRST temd
3	3	1	PDUTEMPWRST temc
4	4	1	PDUTEMPWRST temb
5	5	1	PDUTEMPWRST tema
6	6	1	PDUTEMPWRST tem9
7	7	1	PDUTEMPWRST tem8
8	8	1	PDUTEMPWRST tem7
9	9	1	PDUTEMPWRST tem6
10	10	1	PDUTEMPWRST tem5
11	11	1	PDUTEMPWRST tem4
12	12	1	PDUTEMPWRST tem3
13	13	1	PDUTEMPWRST tem2
14	14	1	PDUTEMPWRST tem1
15	15	1	PDUTEMPWRST tem0

Fields:

PDUTEMPWRST (10.7.41)

Attribute(s):
 dsc: LDPDUTEMPWRST (10.9.6)

Brief: "PDU TEM Power State"

Instance(s): tem0, tem1, tem2, tem3, tem4, tem5, tem6, tem7, tem8, tem9, tema, temb, temc, temd, teme, temf

Used by:

DiagPduEnv0 (10.4.12)

10.6.25 RADANHTRTEMP (Radiator Anitfreeze Heater Temperature) Telemetry Bit-field

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LMRADAFHTRADCLIM (10.10.21)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I

(10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTTEMP (10.6.39), VCH-PRSVRHTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.26 RADTEMP (Radiator Temperature) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LMRADTEMPADCLIM (10.10.22)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv3 (10.4.15)

10.6.27 TEM33I (TEM 3.3 Current ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a TEM 3.3 current ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LDTEM33IADCLIM (10.10.15)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

TMUX1 (10.5.9)

10.6.28 TEM33V (TEM 3.3 Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a TEM 3.3V ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 alg: LDTEMVADCCNV (10.8.0)

lim: LDTEM33VADCLIM (10.10.16)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv0 (10.4.12)

10.6.29 TEMDEADTIMEREG (TEM Deadtime Register Bitfield) Telemetry Bitfield

Definition:

Alignment: 4 bytes
 C type: unsigned int
 Length: 32 bits (4 bytes)

Description:

Describes the TEM dead time low-rate science counter register.

Start	Stop	Size	Item Type and Name
0	23	24	TEMDEADTIME deadtime

Fields:

TEMDEADTIME (10.7.47)

Attribute(s):

Brief: "TEM Deadtime Low-rate Science Counter"

Instance(s): deadtime

This register counts the deadtime incurred by specific trigger primitives.

Used by:

DiagLrs0 (10.4.9)

10.6.30 TEMPCBTEMP (TEM PCB Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LDTEMPCBTADCLIM (10.10.17)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3),
 AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2
 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I
 (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP
 (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20),
 GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP
 (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPSTEMP
 (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35),
 TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP

(10.6.39), VCHPRSVRHRTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv1 (10.4.13)

10.6.31 TEMPSTEP (TEM Power Supply Temperature ADC value) Telemetry Bit-field**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LDTEMPSTADCLIM (10.10.18)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP

(10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

DiagPduEnv0 (10.4.12)

10.6.32 TKR15I (TKR 1.5 Current ADC value) Telemetry Bitfield**Definition:**

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a TKR 1.5I ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LT15IADCLIM (10.10.26)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I

(10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSH-PTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.33 TKR15V (TKR 1.5 Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a TKR 1.5V ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LT15VADCLIM (10.10.27)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSH-PTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.34 TKR25I (TKR 2.5 Current ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield describing a TKR 2.5I ADC value and status

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LT25IADCLIM (10.10.28)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.35 TKR25V (TKR 2.5 Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield describing a TRK 2.5V ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LT25VADCLIM (10.10.29)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDCMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.36 TKRBIASI (TKR Bias Current ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Describes a TKR bias current ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
lim: LTBIASIADCLIM (10.10.30)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.37 TKRBIASV (TKR Bias Voltage ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Describes a TKR bias voltage ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LTBIASVADCLIM (10.10.31)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDSEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX0 (10.5.8)

10.6.38 TKRCBLT (TKR Cable Temperature ADC value) Telemetry Bitfield

Definition:

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Describes a TKR cable temperature ADC value and status.

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LTCBLTADCLIM (10.10.32)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), VCHPDSHPTEMP (10.6.39), VCHPRSVRHRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

TMUX3 (10.5.11), TMUX4 (10.5.12)

10.6.39 VCHPDSHPTEMP (VCHP-DSHP Interface Temperature) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:

ADCS (10.7.0)

Attribute(s):
 dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):
 lim: LMVCHPDSHPADCLIM (10.10.23)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3),
 AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2
 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I
 (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP
 (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20),
 GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP
 (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP
 (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I
 (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT
 (10.6.38), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv2 (10.4.14)

10.6.40 VCHPRSVRHTRTEMP (VCHP Reservoir Heater Temperature) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LMVCHPRSVTADCLIM (10.10.24)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPXLHPTEMP (10.6.41)

Used by:

DiagPduEnv2 (10.4.14)

10.6.41 VCHPXLHPTEMP (VCHP-XLHP Interface Temperature) Telemetry Bitfield**Definition:**

Alignment: 2 bytes

C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
-------	------	------	--------------------

0	3	4	ADCS stat
4	15	12	ADCV val

Fields:**ADCS (10.7.0)**

Attribute(s):

dsc: LHKSTATUSBITS (10.9.7)

Brief: "ADC status bits"

Instance(s): stat

A 4 bit value representing an ADC read/evaluation status.

ADCV (10.7.1)

Attribute(s):

lim: LMVCHPXLHPADCLIM (10.10.25)

Brief: "ADC raw value"

Instance(s): val

A 12 bit raw ADC value.

Same as:

ACDBEAGRIDTEMP (10.6.0), ACDPMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), AEMFR28ISUM (10.6.4), AEMFR33ISUM (10.6.5), AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), AFEETEMP (10.6.11), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), CALBSPTEMP (10.6.16), DABTEMP (10.6.17), DAQ33V (10.6.18), EPUTEMP (10.6.19), EPUV (10.6.20), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), PDUADC (???), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), TEM33I (10.6.27), TEM33V (10.6.28), TEMPCBTEMP (10.6.30), TEMPSTEMP (10.6.31), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), TKRCBLT (10.6.38), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40)

Used by:

DiagPduEnv2 (10.4.14)

10.7 Telemetry Fields

10.7.0 ADCS (ADC status bits) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 4 bits

Description:

A 4 bit value representing an ADC read/evaluation status.

Used by:

AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10)

10.7.1 ADCV (ADC raw value) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 12 bits

Description:

A 12 bit raw ADC value.

Used by:

AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10)

10.7.2 AEMFRPWRST (AEM FREE Board Power State) Telemetry Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 1 bit

Description:

Describes the AEM free board power status.

Used by:

AEMFRPWRREG (10.6.8)

10.7.3 CMDCNTS (Commands sent counter) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Commands sent to task.

Used by:

CMDCNTRS (10.5.2)

10.7.4 CMDDISPF (Command dispatch failure counter) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Commands failing task dispatch.

Used by:

CMDCNTRS (10.5.2)

10.7.5 CMDEXEF (Command execution failure counter) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Commands failing task execution

Used by:

CMDCNTRS (10.5.2)

10.7.6 CPUJT (CPU Junction Temperature) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

The CPU junction temperature, in degrees Celcius.

Used by:

CPUMETR (10.5.3)

10.7.7 CRXBCNT (1553 Cmd Rx Byte Count) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of CmdRx bytes received by the remote terminal

Used by:

RTSTATS (10.5.7)

10.7.8 CRXPCNT (1553 Cmd Rx Packet Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of CmdRx packets received by the remote terminal

Used by:

RTSTATS (10.5.7)

10.7.9 CTXBCNT (1553 Cmd Tx Byte Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of CmdTx bytes sent by the remote terminal.

Used by:

RTSTATS (10.5.7)

10.7.10 CTXPCNT (1553 Cmd Tx Packet Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of CmdTx packets sent by the remote terminal

Used by:

RTSTATS (10.5.7)

10.7.11 FILEIDCOM (FILE ID Commit) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The file ID value for committing the file data to storage.

Used by:

FILESTATS (10.5.4)

10.7.12 FILEPKTCNT (FILE Packet Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The number of valid data packets received for the current file upload.

Used by:

FILESTATS (10.5.4)

10.7.13 FILEERRCNT (FILE Error Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of errors reported for the current file upload.

Used by:

FILESTATS (10.5.4)

10.7.14 FILEERRCODE (FILE Error Code) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The current file upload error indicator.

Used by:

FILESTATS (10.5.4)

10.7.15 FILESIZECUR (File Size Current) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The number of data bytes received for the current file upload.

Used by:

FILESTATS (10.5.4)

10.7.16 FILESTATE (FILE Upload State) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

The current file upload state.

Used by:

FILESTATS (10.5.4)

10.7.17 GEMLRSDISC (GEM low-rate science discarded counter) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Window turns discarded due to busy

Used by:

GEMLRS (10.5.5)

10.7.18 GEMLRSLIVE (GEM low-rate science livetime counter) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

1/deadtime statistics

Used by:

GEMLR5 (10.5.5)

10.7.19 GEMLR5SENT (GEM low-rate science sent counter) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Window turns which result in a sent message

Used by:

GEMLR5 (10.5.5)

10.7.20 GEMPR5CL (Low-rate science prescaled counter) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Window turns discarded due to prescaling

Used by:

GEMLR5 (10.5.5)

10.7.21 HKBCNT (1553 Housekeeping Byte Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of HKP bytes sent by the remote terminal

Used by:

RTSTATS (10.5.7)

10.7.22 HKPCNT (1553 Housekeeping Packet Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of HKP packets sent by the remote terminal

Used by:

RTSTATS (10.5.7)

10.7.23 INTRCNT (1553 Interrupts) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of remote terminal device interrupts.

Used by:

RTSTATS (10.5.7)

10.7.24 MDPACT (Memory dump active) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Nonzero if dump is active.

Used by:

MEMSTATS (10.5.6)

10.7.25 MDPADDR (Memory dump address) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Current dump address.

Used by:

MEMSTATS (10.5.6)

10.7.26 MDPBYTES (Memory dump bytes) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Total number of bytes to dump.

Used by:

MEMSTATS (10.5.6)

10.7.27 MDPFCD (Memory dump function code) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Function code for current dump.

Used by:

MEMSTATS (10.5.6)

10.7.28 MDPSTADR (Memory dump start address) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Starting dump address.

Used by:

MEMSTATS (10.5.6)

10.7.29 MDPSTAT (Memory dump status) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Status of most recent dump action.

Used by:

MEMSTATS (10.5.6)

10.7.30 MDPTXID (Memory dump transaction ID) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Transaction ID for current dump.

Used by:

MEMSTATS (10.5.6)

10.7.31 MLDACT (Memory load active flag) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Nonzero if load is active

Used by:

MEMSTATS (10.5.6)

10.7.32 MLDBYTS (Memory load total bytes) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Total number of bytes to load.

Used by:

MEMSTATS (10.5.6)

10.7.33 MLDOFF (Memory load offset) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Current load offset.

Used by:

MEMSTATS (10.5.6)

10.7.34 MLDSTADR (Starting memory load address) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

MEMSTATS (10.5.6)

10.7.35 MLDSTAT (Status of most recent load action) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

MEMSTATS (10.5.6)

10.7.36 PDUACDCNVT (PDU ACD Power Converter Source) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 1 bit

Description:**Used by:**

ACDPWRREG (10.6.2)

10.7.37 PDUACDPWRST (PDU ACD Power State) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 1 bit

Description:**Used by:**

ACDPWRREG (10.6.2)

10.7.38 PDUACDPWRSUP (PDU ACD Power Supply Source) Telemetry Field**Definition:**

Alignment: 1 byte
C type: char
Length: 1 bit

Description:**Used by:**

ACDPWRREG (10.6.2)

10.7.39 PDUEPUCVTST (PDU EPU Converter State) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 1 bit

Description:**Used by:**

PDUEPUCRATEPWR (10.6.23)

10.7.40 PDUEPUPWRST (PDU EPU Crate Power State) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 1 bit

Description:**Used by:**

PDUEPUCRATEPWR (10.6.23)

10.7.41 PDUTEMPWRST (PDU TEM Power State) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 1 bit

Description:**Used by:**

PDUTEMPWRREG (10.6.24)

10.7.42 RLADC (Red Limit ADC Number) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

ADC number that exceeded its red limit.

Used by:

RedLimAlrt (10.4.46)

10.7.43 RLCNT (Red Limit ADC Counts) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

This field is used to report the raw ADC count value that exceeded the specified red limit.

Used by:

RedLimAlrt (10.4.46)

10.7.44 RLDEV (Red Limit Device Opcode) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short

Length: 16 bits (2 bytes)

Description:

Opcode specifying the device that exceeded a red limit.

Used by:

RedLimAlrt (10.4.46)

10.7.45 RLLIM (Red Limit Threshold) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

This field reports the limit threshold that was used to evaluate the exceeded ADC value.

Used by:

RedLimAlrt (10.4.46)

10.7.46 RTERR (1553 Error Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of remote terminal errors.

Used by:

RTSTATS (10.5.7)

10.7.47 TEMDEADTIME (TEM Deadtime Low-rate Science Counter) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 24 bits

Description:

This register counts the deadtime incurred by specific trigger primitives.

Used by:

TEMDEADTIMEREG (10.6.29)

10.7.48 TIMESEC (Timestamp seconds) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

CMDCNTRS (10.5.2)

10.7.49 TIMESUBSEC (Timestamp subseconds) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

CMDCNTRS (10.5.2)

10.7.50 TLMBCNT (1553 Telemetry Byte Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of Telem bytes sent by the remote terminal (not HKP).

Used by:

RTSTATS (10.5.7)

10.7.51 TLMPCNT (1553 Telemetry Packet Count) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

A count of the number of Telem packets sent by the remote terminal (not HKP).

Used by:

RTSTATS (10.5.7)

10.7.52 TSP10 (Spare 10 bits) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 10 bits

Description:**Used by:**

PDUEPUCRATEPWR (10.6.23)

10.7.53 TSP13 (Spare 13 bit field) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 13 bits

Description:

Spare 13 bits

Used by:

ACDPWRREG (10.6.2)

10.7.54 TSP16 (Spare 16 bit field) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

CmdCnt0 (10.4.1)

10.7.55 TSP4 (Spare 4 bits) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 4 bits

Description:

Spare 4 bits

Used by:

AEMFRPWRREG (10.6.8)

10.7.56 TSP8 (Spare byte field) Telemetry Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Used by:

AemEnv0 (10.4.0)

10.8 Algorithms

10.8.0 LDTEMVADCCNV (TEM Voltage Conversion) Algorithm

ITOS Mnemonic: LDTEMVADCCNV

Description:

Definition:

C0	0.00000000	C4	0.00000000
C1	0.00122100	C5	0.00000000
C2	0.00000000	C6	0.00000000
C3	0.00000000	C7	0.00000000

Used by:

TEM33V (10.6.28)

10.9 Discretes

10.9.0 LAEMFRPWRSTATES (AEM FREE Board Power States) Discrete

ITOS Mnemonic: LAEMFRPWRSTATES

Description:

Converts AEM FREE board power status values to ON/OFF discrete states.

Definition:

- 0 AEM Free Board Off State (AEMFRBRDOFF)
Denotes the OFF power state for an AEM free board
- 1 AEM FREE Board On State (AEMFRBRDON)
Denotes the ON power state for an AEM FREE board.

Used by:

AEMFRPWRREG (10.6.8)

10.9.1 LAPDUPWRCNVTSTAT (ACD PDU Power Converter State) Discrete

ITOS Mnemonic: LAPDUPWRCNVTSTAT

Description:

Definition:

- 0 ACD PDU Converter Primary (LAPDUCNVTPRI)
- 1 ACD PDU Power Converter Redundant (LAPDUCNVTRED)

Used by:

ACDPWRREG (10.6.2)

10.9.2 LAPDUPWRSTATES (ACD PDU Power States) Discrete

ITOS Mnemonic: LAPDUPWRSTATES

Description:

Definition:

- 0 ACD PDU Power Off State (LAPDUPWROFFSTATE)
- 1 ACD PDU Power On State (LAPDUPWRONSTATE)

Used by:

ACDPWRREG (10.6.2)

10.9.3 LAPDUPWRSUPSTAT (ACD PDU Power Supply Sources) Discrete

ITOS Mnemonic: LAPDUPWRSUPSTAT

Description:**Definition:**

- 0 ACD PDU Power Supply Primary (LAPDUPWRSUPPRI)
- 1 ACD PDU Power Supply Redundant (LAPDUPWRSUPRED)

Used by:

ACDPWRREG (10.6.2)

10.9.4 LDPDUEPUCNVT (PDU EPU Converter) Discrete

ITOS Mnemonic: LDPDUEPUCNVT

Description:**Definition:**

- 0 PDU EPU Converter Status Primary (LDPDUEPUCVTPRI)
- 1 PDU EPU Converter Status Redundant (LDPDUEPUCVTRED)

Used by:

PDUEPUCRATEPWR (10.6.23)

10.9.5 LDPDUEPUPWRST (EPU Power States) Discrete

ITOS Mnemonic: LDPDUEPUPWRST

Description:**Definition:**

- 0 PDU EPU Power Off State (LDPDUEPUPWROFF)
- 1 PDU EPU Power On State (LDPDUEPUPWRON)

Used by:

PDUEPUCRATEPWR (10.6.23)

10.9.6 LDPDUTEMPWRST (PDU TEM Power State) Discrete

ITOS Mnemonic: LDPDUTEMPWRST

Description:**Definition:**

- 0 PDU TEM Power Off (LDPDUTEMPWROFF)
- 1 PDU TEM Power On State (LDPDUTEMPWRON)

Used by:

PDUTEMPWRREG (10.6.24)

10.9.7 LHKSTATUSBITS (ADC status bit conversions) Discrete

ITOS Mnemonic: LHKSTATUSBITS

Description:

Describes the discrete conversion of a 4 bit status value.

Definition:

- 0 Data OK status (LHKSTATOK)
Status indicating measurements was evaluated as OK.
- 1 Status Undefined (LHKSTATUNDF)
Indicates absence of data due to acquisition timeout or other failure.
- 2 Status Masked (LHKSTATMSK)
Indicates no evaluation status because value was masked as disabled.
- 3 ADC red limit status (LHKREDSTAT)
Status indicating an ADC red limit threshold violation.

Used by:

AEMFRHV1 (10.6.6), AEMFRHV2 (10.6.7), AEMFRTEMP (10.6.9), AEMFRVDD (10.6.10), EPUTEMP (10.6.19), EPUV (10.6.20), TEM33V (10.6.28), TEMPSTEMP (10.6.31), CALB-SPTEMP (10.6.16), TEMPCBTEMP (10.6.30), VCHPDSHPTEMP (10.6.39), VCHPRSVRHTRTEMP (10.6.40), VCHPXLHPTEMP (10.6.41), ACDBEAGRIDTEMP (10.6.0), ACDBMTRAILTEMP (10.6.1), ACDSHELLTEMP (10.6.3), GRIDRADIFTEMP (10.6.21), GRIDTEMP (10.6.22), RADANHTRTEMP (10.6.25), RADTEMP (10.6.26), CAL33I (10.6.12), CAL33V (10.6.13), CALBIASI (10.6.14), CALBIASV (10.6.15), TEM33I (10.6.27), TKR15I (10.6.32), TKR15V (10.6.33), TKR25I (10.6.34), TKR25V (10.6.35), TKRBIASI (10.6.36), TKRBIASV (10.6.37), AFEETEMP (10.6.11), TKRCBLT (10.6.38)

10.9.8 LRLIMDEVICE (Device Opcodes for Red Limit Alerts) Discrete

ITOS Mnemonic: LRLIMDEVICE

Description:

Enumerates the device opcode that exceeded a red limit.

Definition:

- 0 AEM Free Board 0 (AEMFR0)
- 1 AEM Free Board 1 (AEMFR1)
- 2 AEM Free Board 2 (AEMFR2)
- 3 AEM Free Board 3 (AEMFR3)
- 4 AEM Free Board 4 (AEMFR4)

- 5 AEM Free Board 5 (AEMFR5)
- 6 AEM Free Board 6 (AEMFR6)
- 7 AEM Free Board 7 (AEMFR7)
- 8 AEM Free Board 8 (AEMFR8)
- 9 AEM Free Board 9 (AEMFR9)
- 10 AEM Free Board 10 (AEMFR10)
- 11 AEM Free Board 11 (AEMFR11)
- 12 AEM DAB (AEMDAB)

Used by:

RedLimAlrt (10.4.46)

10.10 Limit Sets

10.10.0 LABEAGTEMPADCLIM (ACD BEA Grid Interface Temperature Limits) Limit

ITOS Mnemonic: LABEAGTEMPADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

???

10.10.1 LAPMTRTEMPADCLIM (ACD PMT Rail Temperature Limits) Limit

ITOS Mnemonic: LAPMTRTEMPADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

ACDPMTRAILTEMP (10.6.1)

10.10.2 LASHLTEMPADCLIM (ACD Shell Temperature Limits) Limit

ITOS Mnemonic: LASHLTEMPADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

ACDSHELLTEMP (10.6.3)

10.10.3 LC33IADCLIM (CAL 3.3I ADC limits) Limit

ITOS Mnemonic: LC33IADCLIM

Description:

Describes the CAL 3.3 current ADC limit set

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

CAL33I (10.6.12)

10.10.4 LC33VADCLIM (CAL 3.3V ADC limits) Limit

ITOS Mnemonic: LC33VADCLIM

Description:

Describes the CAL 3.3 volt adc limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

CAL33V (10.6.13)

10.10.5 LCAFETADCLIM (CAL AFFE temperature limits) Limit

ITOS Mnemonic: LCAFETADCLIM

Description:

Describes the CAL AFFE temperature limit set

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

AFEETEMP (10.6.11)

10.10.6 LCBASPLADCLIM (CAL Baseplate Temperature Limits) Limit

ITOS Mnemonic: LCBASPLADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

CALBSPTEMP (10.6.16)

10.10.7 LCBIASIADCLIM (CAL bias current limits) Limit

ITOS Mnemonic: LCBIASIADCLIM

Description:

Describes the CAL bias current ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

CALBIASI (10.6.14)

10.10.8 LCBIASVADCLIM (CAL bias voltage limits) Limit

ITOS Mnemonic: LCBIASVADCLIM

Description:

Describes the CAL bias voltage ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

CALBIASV (10.6.15)

10.10.9 LDAEMFRHV1ADCLIM (AEM Free Board HV1 Limits) Limit

ITOS Mnemonic: LDAEMFRHV1ADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047

Yellow alert 0 - 2047

Used by:

AEMFRHV1 (10.6.6)

10.10.10 LDAEMFRHV2ADCLIM (AEM Free Board HV2 Limits) Limit

ITOS Mnemonic: LDAEMFRHV2ADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

AEMFRHV2 (10.6.7)

10.10.11 LDAEMFRTMPADCLIM (AEM Free Board Temperature Limits) Limit

ITOS Mnemonic: LDAEMFRTMPADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

AEMFRTEMP (10.6.9)

10.10.12 LDAEMFRVDDADCLIM (AEM Free Board VDD Limits) Limit

ITOS Mnemonic: LDAEMFRVDDADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

AEMFRVDD (10.6.10)

10.10.13 LDEPUTEMPADCLIM (EPU Temperature ADC Limits) Limit

ITOS Mnemonic: LDEPUTEMPADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

EPUTEMP (10.6.19)

10.10.14 LDEPUVADCLIM (EPU Voltage ADC Limits) Limit

ITOS Mnemonic: LDEPUVADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

EPUV (10.6.20)

10.10.15 LDTEM33IADCLIM (TEM 3.3I digital limits) Limit

ITOS Mnemonic: LDTEM33IADCLIM

Description:

Describes the TEM 3.3 current ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TEM33I (10.6.27)

10.10.16 LDTEM33VADCLIM (TEM digital 3.3V limits) Limit

ITOS Mnemonic: LDTEM33VADCLIM

Description:

Describes the TEM 3.3V digital ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TEM33V (10.6.28)

10.10.17 LDTEMPCBTADCLIM (TEM PCB Temperature Limits) Limit

ITOS Mnemonic: LDTEMPCBTADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TEMPCBTEMP (10.6.30)

10.10.18 LDTEMPSTADCLIM (TEM Power Supply Temperature Limits) Limit

ITOS Mnemonic: LDTEMPSTADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TEMPSTEMP (10.6.31)

10.10.19 LMGRDRADIFADCLIM (Grid Radiator Interface Temperature Limits) Limit

ITOS Mnemonic: LMGRDRADIFADCLIM

Description:**Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

GRIDRADIFTEMP (10.6.21)

10.10.20 LMGRIDTEMPADCLIM (Grid Temperature ADC Limits) Limit**ITOS Mnemonic:** LMGRIDTEMPADCLIM**Description:****Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2048
Yellow alert	0 - 2047

Used by:

GRIDTEMP (10.6.22)

10.10.21 LMRADAFHTRADCLIM (Radiator Antifreeze Heater Temperature Limits) Limit**ITOS Mnemonic:** LMRADAFHTRADCLIM**Description:****Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

RADANHTRTEMP (10.6.25)

10.10.22 LMRADTEMPADCLIM (Radiator Temperature Limits) Limit**ITOS Mnemonic:** LMRADTEMPADCLIM**Description:****Definition:**

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

RADTEMP (10.6.26)

10.10.23 LMVCHPDSHPADCLIM (VCHP-DSHP Interface Temperature Limits) Limit

ITOS Mnemonic: LMVCHPDSHPADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

VCHPDSHPTEMP (10.6.39)

10.10.24 LMVCHPRSVTADCLIM (VCHP Reservoir Heater Temperature Limits) Limit

ITOS Mnemonic: LMVCHPRSVTADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

VCHPRSVRHTRTEMP (10.6.40)

10.10.25 LMVCHPXLHPADCLIM (VCHP-XLHP Interface Temperature Limits) Limit

ITOS Mnemonic: LMVCHPXLHPADCLIM

Description:

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

VCHPXLHPTEMP (10.6.41)

10.10.26 LT15IADCLIM (TKR 1.5I ADC limits) Limit

ITOS Mnemonic: LT15IADCLIM

Description:

Describes the TKR 1.5I ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKR15I (10.6.32)

10.10.27 LT15VADCLIM (TKR 1.5V ADC Limits) Limit

ITOS Mnemonic: LT15VADCLIM

Description:

Describes the limit set for a TKR 1.5 volt ADC value.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKR15V (10.6.33)

10.10.28 LT25IADCLIM (TKR 2.5I ADC limits) Limit

ITOS Mnemonic: LT25IADCLIM

Description:

Describes the TKR 2.5I ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKR25I (10.6.34)

10.10.29 LT25VADCLIM (TKR 2.5V ADC limits) Limit

ITOS Mnemonic: LT25VADCLIM

Description:

Describes the limits for a TKR 2.5 volt ADC value.

Definition:

Inversion flag	F
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Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKR25V (10.6.35)

10.10.30 LTBIASADCLIM (TKR bias current ADC limits) Limit**ITOS Mnemonic:** LTBIASADCLIM**Description:**

Describes the limit set for a TKR bias current ADC value.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKRBIASI (10.6.36)

10.10.31 LTBIASVADCLIM (TKR bias voltage ADC limits) Limit**ITOS Mnemonic:** LTBIASVADCLIM**Description:**

Describes the limit set for a TKR bias voltage ADC value.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKRBIASV (10.6.37)

10.10.32 LTCBLTADCLIM (TKR cable temperature limits) Limit**ITOS Mnemonic:** LTCBLTADCLIM**Description:**

Describes the TKR cable temperature ADC limit set.

Definition:

Inversion flag	F
Limit switch	none
Red alert	0 - 2047
Yellow alert	0 - 2047

Used by:

TKRCBLT (10.6.38)

11 LMC Package

11.0 Overview

The LMC package handles the LAT multiplexed counters.

11.1 Command Packets

ITOS Mnemonic: LMCACDTILEALL

11.1.0 acd_tile_all (1692/0x69C:3)

Context:

Description:

"ACD Tile Counters (All)" Telecommand Packet

Starts collection of all ACD tile counters.

Layout:

ACD Tile Counters (All) (acd_tile_all)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x69C:3										
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=3														
008	interval: intv															
00A	count: cnt															
00C	Packet Checksum															

Fields:

count (11.2.1)

Attribute(s):

Brief: "Sample count"

Instance(s): cnt

interval (11.2.3)

Attribute(s):

Brief: "Sample interval in milliseconds"

Instance(s): intv

Time between read of counters in a duration.

ITOS Mnemonic: LMCACDTILEPAIR

11.1.1 acd_tile_pair (1692/0x69C:2)

Context:

Description:

"ACD Tile Counter (Pair)" Telecommand Packet

Starts collection of a pair of ACD tile counters.

Layout:

ACD Tile Counter (Pair) (acd_tile_pair)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x69C:2										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=2														
008	interval: intv															
00A	count: cnt															
00C	tile_num: tile_0															
00E	tile_num: tile_1															
010	Packet Checksum															

Fields:

count (11.2.1)

Attribute(s):

Brief: "Sample count"

Instance(s): cnt

interval (11.2.3)

Attribute(s):

Brief: "Sample interval in milliseconds"

Instance(s): intv

Time between read of counters in a duration.

tile_num (11.2.5)

Attribute(s):

Brief: "ACD Tile ID"

Instance(s): tile_0, tile_1

ITOS Mnemonic: LMCCALLRS

11.1.2 cal_lrs (1692/0x69C:0)

Context:

Description:

"CAL Low Rate Science Counters" Telecommand Packet

Start collection of CAL low rate science counter data

Layout:

CAL Low Rate Science Counters (cal_lrs)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x69C:0										
002	SF=3		Sequence Count													
004	Packet Length=13															
006	0	Function Code=0														
008	interval: intv															
00A	count: cnt															
00C	cal_mask: cal_mask															
010	tem_mask: tem_mask															
012	Packet Checksum															

Fields:

cal_mask (11.2.0)

Attribute(s):

Brief: "CAL LRS Mask"

Instance(s): cal_mask

count (11.2.1)

Attribute(s):

Brief: "Sample count"

Instance(s): cnt

interval (11.2.3)

Attribute(s):

Brief: "Sample interval in milliseconds"

Instance(s): intv

Time between read of counters in a duration.

tem_mask (11.2.4)

Attribute(s):

Brief: "TEM device mask"

Instance(s): tem_mask

ITOS Mnemonic: LMCSTOPCOUNT

11.1.3 stop_count (1692/0x69C:4)

Context:

Description:

"Stop Active Counter" Telecommand Packet

Stop the active counter

Layout:

Stop Active Counter (stop_count)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x69C:4										
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=4														
008	counter_opcode: opcode															
00C	Packet Checksum															

Fields:

counter_opcode (11.2.2)

Attribute(s):

Brief: "Counter type opcode"

Instance(s): opcode

Designates the counter type CAL, TKR, or ACD

ITOS Mnemonic: LMCTKRRLRS

11.1.4 tkr_lrs (1692/0x69C:1)

Context:

Description:

"TKR Low Rate Science Counters" Telecommand Packet

Starts collection of TKR 3-in-a-row counters.

Layout:

TKR Low Rate Science Counters (tkr_lrs)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x69C:1										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=1														
008	interval: intv															
00A	count: cnt															
00C	tkr_mask: tkr_mask															
00E	tem_mask: tem_mask															
010	Packet Checksum															

Fields:

count (11.2.1)

Attribute(s):

Brief: "Sample count"

Instance(s): cnt

`interval` (11.2.3)

Attribute(s):

Brief: "Sample interval in milliseconds"

Instance(s): `intv`

Time between read of counters in a duration.

`tem_mask` (11.2.4)

Attribute(s):

Brief: "TEM device mask"

Instance(s): `tem_mask`

`tkr_mask` (11.2.6)

Attribute(s):

Brief: "TKR LRS Mask"

Instance(s): `tkr_mask`

11.2 Command Fields

11.2.0 `cal_mask` (CAL LRS Mask) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

`cal_lrs` (11.1.2)

11.2.1 `count` (Sample count) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

`acd_tile_all` (11.1.0)

11.2.2 `counter_opcode` (Counter type opcode) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Designates the counter type CAL, TKR, or ACD

Used by:

`stop_count` (11.1.3)

11.2.3 `interval` (Sample interval in milliseconds) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Time between read of counters in a duration.

Used by:`acd_tile_all (11.1.0)`**11.2.4 tem_mask (TEM device mask) Telecommand Field****Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**`cal_lrs (11.1.2)`**11.2.5 tile_num (ACD Tile ID) Telecommand Field****Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**`acd_tile_pair (11.1.1)`**11.2.6 tkr_mask (TKR LRS Mask) Telecommand Field****Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**`tkr_lrs (11.1.4)`

11.3 Telemetry Packets

11.3.0 acd_cnt (707/0x2C3)

Context:

Description:

"ACD Tile Counters" Telemetry Packet

Layout:

ACD Tile Counters (acd_cnt)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x2C3										
002	SF		Sequence Count													
004	Packet Length=333															
006	Timestamp															
00E	spare16: spare															
010	tile_counter: cntrs[0-26]															

Fields:

spare16 (**11.5.4**)

Attribute(s):

Brief: "Spare 16 bits"

Instance(s): spare

tile_counter (**11.4.1**)

Attribute(s):

Brief: "ADC Tile Counter Structure"

Instance(s): cntrs

11.3.1 cal_cnt (705/0x2C1)

Context:

Description:

"CAL Low Rate Science Counters" Telemetry Packet

Layout:

CAL Low Rate Science Counters (cal_cnt)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x2C1										
002	SF		Sequence Count													
004	Packet Length=141															
006	Timestamp															
00E	dev_mask: dmsk															
010	lrs_mask: lmsk															
014	cal_counter: cntrs[0-15]															

Fields:

cal_counter (11.4.0)

Attribute(s):

Brief: "CAL LRS Counter Structure"

Instance(s): cntrs

dev_mask (11.5.1)

Attribute(s):

Brief: "TEM mask"

Instance(s): dmsk

lrs_mask (11.5.3)

Attribute(s):

Brief: "Low Rate Science Mask"

Instance(s): lmsk

11.3.2 tkr_cnt (706/0x2C2)

Context:

Description:

"TKR Low Rate Science Counters" Telemetry Packet

Layout:

TKR Low Rate Science Counters (tkr_cnt)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x2C2										
002	SF		Sequence Count													
004	Packet Length=269															
006	Timestamp															
00E	dev_mask: dmsk															
010	lrs_mask: lmsk															
014	tkr_counter: cntrs[0-31]															

Fields:

dev_mask (11.5.1)

Attribute(s):

Brief: "TEM mask"

Instance(s): dmsk

lrs_mask (11.5.3)

Attribute(s):

Brief: "Low Rate Science Mask"

Instance(s): lmsk

tkr_counter (11.4.2)

Attribute(s):

Brief: "TKR LRS Counter Structure"

Instance(s): cntrs

11.4 Telemetry Structs

11.4.0 `cal_counter` (CAL LRS Counter Structure) Telemetry Struct

Definition:

Alignment: 4 bytes
 Length: 64 bits (8 bytes)

Description:

CAL LRS Counter Structure (<code>cal_counter</code>)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	dtime: dt															
004	counter: cnt															

Fields:

`counter` (11.5.0)

Attribute(s):

Brief: "Counter data"

Instance(s): cnt

Variable data structure

`dtime` (11.5.2)

Attribute(s):

Brief: "Delta timestamp"

Instance(s): dt

Same as:

`tkr_counter` (11.4.2)

Used by:

`cal_cnt` (11.3.1)

11.4.1 `tile_counter` (ADC Tile Counter Structure) Telemetry Struct

Definition:

Alignment: 4 bytes
 Length: 96 bits (12 bytes)

Description:

ADC Tile Counter Structure (tile_counter)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	tile_id: tile_0															
002	tile_id: tile_1															
004	dtime: dt															
008	counter: cnt															

Fields:

counter (11.5.0)

Attribute(s):

Brief: "Counter data"

Instance(s): cnt

Variable data structure

dtime (11.5.2)

Attribute(s):

Brief: "Delta timestamp"

Instance(s): dt

tile_id (11.5.5)

Attribute(s):

Brief: "ACD Tile ID"

Instance(s): tile_0, tile_1

Used by:

acd_cnt (11.3.0)

11.4.2 tkr_counter (TKR LRS Counter Structure) Telemetry Struct

Definition:

Alignment: 4 bytes

Length: 64 bits (8 bytes)

Description:

TKR LRS Counter Structure (tkr_counter)																
Telemetry Field Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	dtime: dt															
004	counter: cnt															

Fields:

counter (11.5.0)

Attribute(s):

Brief: "Counter data"

Instance(s): cnt

Variable data structure

dtime (11.5.2)

Attribute(s):

Brief: "Delta timestamp"

Instance(s): dt

Same as:

cal_counter (11.4.0)

Used by:

tkr_cnt (11.3.2)

11.5 Telemetry Fields

11.5.0 counter (Counter data) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Variable data structure

Used by:

`tile_counter` (11.4.1)

11.5.1 dev_mask (TEM mask) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

`cal_cnt` (11.3.1)

11.5.2 dtime (Delta timestamp) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

`tile_counter` (11.4.1)

11.5.3 lrs_mask (Low Rate Science Mask) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Used by:

cal_cnt (11.3.1)

11.5.4 spare16 (Spare 16 bits) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

acd_cnt (11.3.0)

11.5.5 tile_id (ACD Tile ID) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

tile_counter (11.4.1)

12 LSM Package

12.0 Overview

The LSM package processes the seven telecommands per second that the spacecraft sends the LAT continuously to inform the LAT of things like orbital position, time, etc. LSM runs in its own task.

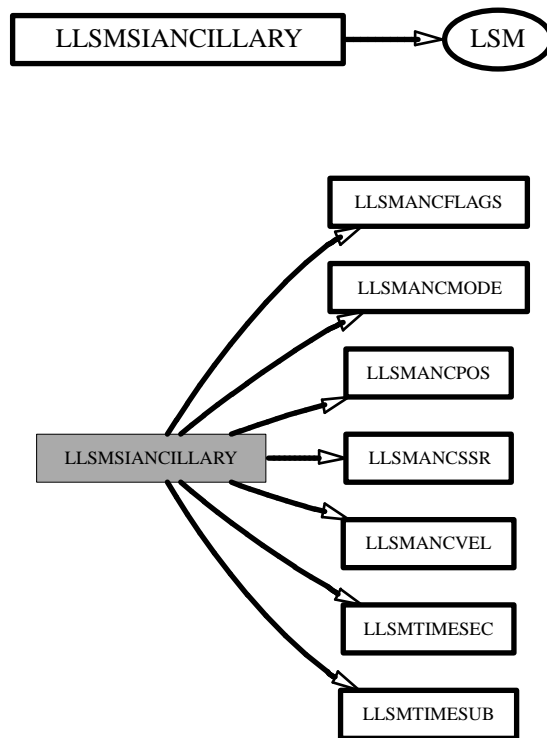
The package supports the following functions:

- Wall clock time services (GPS)

12.1 Command Packets

12.1.0 LLSMSIANCILLARY (1793/0x701:2)

Context:



Description:

"SC Ancillary Broadcast Message" Telecommand Packet

Layout:

SC Ancillary Broadcast Message (LLSMSIANCILLARY)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x701:2										
002	SF=3		Sequence Count													

SC Ancillary Broadcast Message (LLSMSIANCILLARY)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
004	Packet Length=39															
006	0	Function Code=2														
008	LLSMTIMESEC: <i>sec</i>															
00C	LLSMTIMESUB: <i>sub</i>															
010	LLSMANCPoS: <i>pos</i> [0-2]															
01C	LLSMANCVEL: <i>vel</i> [0-2]															
028	LLSMANCMODE: <i>mode</i>							LLSMANCSSR: <i>ssr</i>								
02A	LLSMANCFLAGS: <i>flags</i>															
02C	Packet Checksum															

Fields:

LLSMANCFLAGS (12.2.0)

Attribute(s):

Brief: "Ancillary SC flags"

Instance(s): *flags*

LLSMANCMODE (12.2.1)

Attribute(s):

Brief: "Ancillary GNC mode"

Instance(s): *mode*

LLSMANCPoS (12.2.2)

Attribute(s):

Brief: "Ancillary position element"

Instance(s): *pos*

LLSMANCSSR (12.2.3)

Attribute(s):

Brief: "Ancillary SSR usage"

Instance(s): *ssr*

LLSMANCVEL (12.2.4)

Attribute(s):

Brief: "Ancillary velocity element"

Instance(s): vel

LLSMTIMESEC (12.2.8)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): sec

LLSMTIMESUB (12.2.9)

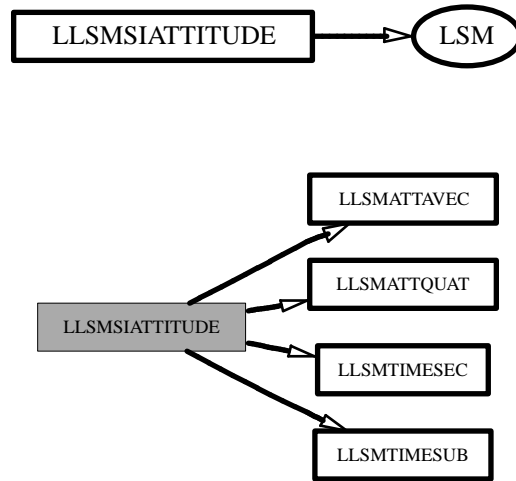
Attribute(s):

Brief: "Timestamp microseconds"

Instance(s): sub

12.1.1 LLSMSIATTITUDE (1793/0x701:1)

Context:



Description:

"SC Attitude Broadcast Message" Telecommand Packet

The SC sends this message 5 times a second on the CTDB bus. It contains information about the SC-J2000 attitude.

Layout:

SC Attitude Broadcast Message (LLSMSIATTITUDE)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x701:1										
002	SF=3		Sequence Count													
004	Packet Length=55															
006	0	Function Code=1														
008	LLSMTIMESEC: sec															
00C	LLSMTIMESUB: sub															
010	LLSMATTQUAT: quat[0-3]															
030	LLSMATTAVEC: avel[0-2]															
03C	Packet Checksum															

Fields:

LLSMATTAVEC (12.2.5)

Attribute(s):

Brief: "Attitude angular velocity element"

Instance(s): ave1

LLSMATTQUAT (12.2.6)

Attribute(s):

Brief: "Attitude quaternion element"

Instance(s): quat

LLSMTIMESEC (12.2.8)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): sec

LLSMTIMESUB (12.2.9)

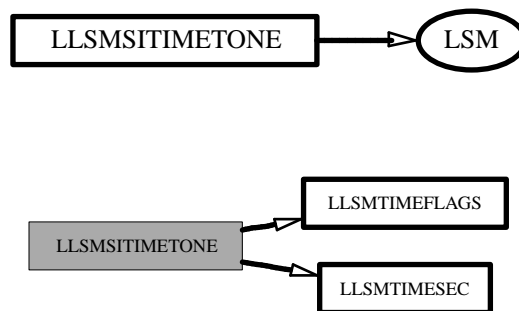
Attribute(s):

Brief: "Timestamp microseconds"

Instance(s): sub

12.1.2 LLSMSITIMETONE (1793/0x701:3)

Context:



Description:

"SC Timetone Broadcast Message" Telecommand Packet

Layout:

SC Timetone Broadcast Message (LLSMSITIMETONE)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x701:3										
002	SF=3		Sequence Count													
004	Packet Length=9															
006	0	Function Code=3														
008	LLSMTIMESEC: <i>sec</i>															
00C	LLSMTIMEFLAGS: <i>flags</i>															
00E	Packet Checksum															

Fields:

LLSMTIMEFLAGS (12.2.7)

Attribute(s):

Brief: "Timetone SC flags"

Instance(s): *flags*

LLSMTIMESEC (12.2.8)

Attribute(s):

Brief: "Timestamp seconds"

Instance(s): *sec*

12.2 Command Fields

12.2.0 LLSMANCFLAGS (Ancillary SC flags) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

12.2.1 LLSMANCMODE (Ancillary GNC mode) Telecommand Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

12.2.2 LLSMANCPOS (Ancillary position element) Telecommand Field

Definition:

Alignment: 4 bytes
C type: float
Length: 32 bits (4 bytes)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

12.2.3 LLSMANCSSR (Ancillary SSR usage) Telecommand Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Used by:

LLSMSIANCILLARY (12.1.0)

12.2.4 LLSMANCVEL (Ancillary velocity element) Telecommand Field**Definition:**

Alignment: 4 bytes
C type: float
Length: 32 bits (4 bytes)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

12.2.5 LLSMATTAVEC (Attitude angular velocity element) Telecommand Field**Definition:**

Alignment: 4 bytes
C type: float
Length: 32 bits (4 bytes)

Description:**Used by:**

LLSMSIATTITUDE (12.1.1)

12.2.6 LLSMATTQUAT (Attitude quaternion element) Telecommand Field**Definition:**

Alignment: 8 bytes
C type: double
Length: 64 bits (8 bytes)

Description:**Used by:**

LLSMSIATTITUDE (12.1.1)

12.2.7 LLSMTIMEFLAGS (Timetone SC flags) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Used by:

LLSMSITIMETONE (12.1.2)

12.2.8 LLSMTIMESEC (Timestamp seconds) Telecommand Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

12.2.9 LLSMTIMESUB (Timestamp microseconds) Telecommand Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

LLSMSIANCILLARY (12.1.0)

13 LTC Package

13.0 Overview

The LTC package provides the LAT thermal control mechanism. It reads temperatures from within the instrument, and on that basis, decides how much heat to dump. LTC runs as its own task.

13.1 Command Packets

ITOS Mnemonic: LTCHtrOnOffCt1

13.1.0 HtrOnOffCt1 (1605/0x645:5)

Context:

Description:

"Set heater to always on, or off or automatic control." Telecommand Packet

Sets a specified heater to on, or off or automatic control.

Layout:

Set heater to always on, or off or automatic control. (HtrOnOffCt1)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:5										
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=5														
008	WORD16: HtrNum															
00A	WORD16: OnOffCt1															
00C	Packet Checksum															

Fields:

WORD16 (13.2.2)

Attribute(s):

Brief: "Unsigned 16-bit word"

Instance(s): HtrNum, OnOffCt1

ITOS Mnemonic: LTCReStart

13.1.1 ReStart (1605/0x645:1)

Context:

Description:

"Restart and initialize Thermal Control" Telecommand Packet

Restart thermal control by reading configuration files and initializing. Depending on paramter may start active control or passive operation.

Layout:

Restart and initialize Thermal Control (ReStart)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:1										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=1														
008	FileId: cnfgFileId															
00C	FileId: snsrFileId															
010	Packet Checksum															

Fields:

FileId (13.2.1)

Attribute(s):

Brief: "File identification number"

Instance(s): cnfgFileId, snsrFileId

ITOS Mnemonic: LTCSetMode

13.1.2 SetMode (1605/0x645:4)

Context:

Description:

"Set thermal control mode to active or passive." Telecommand Packet

Sets thermal control processing to active or processing. Active is normal control by turning on or off heat pipe reservoir heaters to keep temperature within specified limits. Passive does all normal control processing, but does not send commands to heaters.

Layout:

Set thermal control mode to active or passive. (SetMode)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:4										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=4														
008	WORD16: ActiveOrPassive															
00A	Packet Checksum															

Fields:

WORD16 (13.2.2)

Attribute(s):

Brief: "Unsigned 16-bit word"

Instance(s): ActiveOrPassive

ITOS Mnemonic: LTCSetParam

13.1.3 SetParam (1605/0x645:6)

Context:

Description:

"Set control parameters to new values." Telecommand Packet

Sets reservoir and RIT temperature control limits to new values for all or a specified heat pipe. New values are used immediately.

Layout:

Set control parameters to new values. (SetParam)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:6										
002	SF=3		Sequence Count													
004	Packet Length=27															
006	0	Function Code=6														
008	WORD16: HtPipeSel															
00C	FLOAT: ResLoLimit															
010	FLOAT: ResHiLimit															
014	FLOAT: RitLoLimit															

Set control parameters to new values. (SetParam)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
018	FLOAT: RitHiLimit															
01C	FLOAT: RitDbDelta															
020	Packet Checksum															

Fields:

FLOAT (13.2.0)

Attribute(s):

Brief: "32-bit real number."

Instance(s): ResHiLimit, ResLoLimit, RitDbDelta, RitHiLimit, RitLoLimit

WORD16 (13.2.2)

Attribute(s):

Brief: "Unsigned 16-bit word"

Instance(s): HtPipeSel

ITOS Mnemonic: LTCSetTlmFreq

13.1.4 setTlmFreq (1605/0x645:7)

Context:

Description:

"Set LTC telemetry frequency, 0 is off." Telecommand Packet

Layout:

Set LTC telemetry frequency, 0 is off. (SetTlmFreq)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:7										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=7														
008	WORD16: TlmFreq															
00A	Packet Checksum															

Fields:

WORD16 (13.2.2)

Attribute(s):

Brief: "Unsigned 16-bit word"

Instance(s): TlmFreq

ITOS Mnemonic: LTCStart

13.1.5 start (1605/0x645:2)

Context:

Description:

"Start control" Telecommand Packet

Start active or passive control.

Layout:

Start control (Start)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:2										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=2														
008	WORD16: ActiveOrPassive															
00A	Packet Checksum															

Fields:

WORD16 (13.2.2)

Attribute(s):

Brief: "Unsigned 16-bit word"

Instance(s): ActiveOrPassive

ITOS Mnemonic: LTCStop

13.1.6 stop (1605/0x645:3)

Context:

Description:

"Terminate Thermal Control processing" Telecommand Packet

Terminates thermal control processing tasks, but message processing remains.

Layout:

Terminate Thermal Control processing (Stop)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x645:3										
002	SF=3		Sequence Count													
004	Packet Length=3															
006	0	Function Code=3														

13.2 Command Fields

13.2.0 FLOAT (32-bit real number.) Telecommand Field

Definition:

Alignment: 4 bytes
C type: float
Length: 32 bits (4 bytes)

Description:**Used by:**

SetParam (13.1.3)

13.2.1 FileId (File identification number) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:**Used by:**

ReStart (13.1.1)

13.2.2 WORD16 (Unsigned 16-bit word) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

HtrOnOffCtl (13.1.0)

13.3 Telemetry Packets

13.3.0 DiagLTC (700/0x2BC)

Context:

Description:

"LAT Thermal Control diagnostic telemetry" Telemetry Packet

Layout:

LAT Thermal Control diagnostic telemetry (DiagLTC) Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x2BC										
002	SF		Sequence Count													
004	Packet Length=240															
006	Timestamp															
00E	ResRitSnrSel: snsrSel[0-11]															
026	ResRitStatus: snsrStatus[0-11]															
032	ActiveHtPipe: actvHp															
034	RawAdcStatVal: rawAdc[0-71]															
0C4	TempCelsius: temps[0-23]															
0F4	HeaterCmdMask: htrCmd															

Fields:

ActiveHtPipe (13.5.0)

Attribute(s):

Brief: "Mask for active heat pipes"

Instance(s): actvHp

1 - Active 0 - Not active (used)

HeaterCmdMask (13.5.1)

Attribute(s):

Brief: "Command mask for reservoir heaters"

Instance(s): htrCmd

1 - turn on, and 0 turn off. This is opposite of the Heater Control Register.

RawAdcStatVal (13.5.2)

Attribute(s):

Brief: "Raw ADC Status and Value"

Instance(s): rawAdc

Upper 4 bits status Lower 12 bits raw value as read from PDU.

ResRitSnsrSel (13.4.0)

Attribute(s):

Brief: "Selected RSVR and RIT sensors"

Instance(s): snsrSel

ResRitStatus (13.4.1)

Attribute(s):

Brief: "Heat pipe RIT and reservoir sensors status"

Instance(s): snsrStatus

TempCelsius (13.5.6)

Attribute(s):

Brief: "Temperature converted to celsius."

Instance(s): temps

Fixed point scaled by 8 bits (256).

13.4 Telemetry Bitfields

13.4.0 ResRitSnsrSel (Selected RSVR and RIT sensors) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	SensorHpNum resHpNum
4	7	4	SensorType resType
8	11	4	SensorHpNum ritHpNum
12	15	4	SensorType ritType

Fields:

SensorHpNum (13.5.3)

Attribute(s):

Brief: "Specifies connected HP number for sensor"

Instance(s): resHpNum, ritHpNum

SensorType (13.5.5)

Attribute(s):

Brief: "Specifies Sensor Type"

Instance(s): resType, ritType

0-DSHP, 1-DSHP Redundant, 2-XLHP, 3-XLHP Redundant, 4-XLHP, 5-XLHP Redundant

Used by:

DiagLTC (13.3.0)

13.4.1 ResRitStatus (Heat pipe RIT and reservoir sensors status) Telemetry Bitfield

Definition:

Alignment: 1 byte
 C type: unsigned char
 Length: 8 bits (1 byte)

Description:

Start	Stop	Size	Item Type and Name
0	3	4	SensorStatus ritStatus
4	7	4	SensorStatus resStatus

Fields:

SensorStatus (13.5.4)

Attribute(s):

Brief: "Status for HP sensors"

Instance(s): resStatus, ritStatus

0-NOT_READ, 1-READ_FAIL, 2-GOOD, 3-BROKEN Use for RIT and reservoir sensor status for each heat pipe.

Used by:

DiagLTC (13.3.0)

13.5 Telemetry Fields

13.5.0 ActiveHtPipe (Mask for active heat pipes) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

1 - Active 0 - Not active (used)

Used by:

DiagLTC (13.3.0)

13.5.1 HeaterCmdMask (Command mask for reservoir heaters) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

1 - turn on, and 0 turn off. This is opposite of the Heater Control Register.

Used by:

DiagLTC (13.3.0)

13.5.2 RawAdcStatVal (Raw ADC Status and Value) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Upper 4 bits status Lower 12 bits raw value as read from PDU.

Used by:

DiagLTC (13.3.0)

13.5.3 SensorHpNum (Specifies connected HP number for sensor) Telemetry Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 4 bits

Description:**Used by:**

ResRitSnsrSel (13.4.0)

13.5.4 sensorStatus (Status for HP sensors) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 4 bits

Description:

0-NOT_READ, 1-READ_FAIL, 2-GOOD, 3-BROKEN Use for RIT and reservoir sensor status for each heat pipe.

Used by:

ResRitStatus (13.4.1)

13.5.5 sensorType (Specifies Sensor Type) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 4 bits

Description:

0-DSHP, 1-DSHP Redundant, 2-XLHP, 3-XLHP Redundant, 4-XLHP, 5-XLHP Redundant

Used by:

ResRitSnsrSel (13.4.0)

13.5.6 TempCelsius (Temperature converted to celsius.) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: short
Length: 16 bits (2 bytes)

Description:

Fixed point scaled by 8 bits (256).

Used by:

DiagLTC (13.3.0)

14 MEM Package

14.0 Overview

The MEM package contains routines that are specific to the Memory Dump/Load facility.

14.1 Command Packets

ITOS Mnemonic: LMEMDUMPCANCEL

14.1.0 LMEMDUMPCANCEL (1604/0x644:1)

Context:

Description:

"Memory Dump Cancel" Telecommand Packet

Cancel a memory dump operation.

Layout:

Memory Dump Cancel (LMEMDUMPCANCEL)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:1										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=1														
008	CIDBF: idents															
00A	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

ITOS Mnemonic: LMEMDUMPMEM

14.1.1 LMEMDUMPMEM (1604/0x644:0)

Context:

Description:

"Memory Data Dump" Telecommand Packet

Dump data from a region of memory.

Layout:

Memory Data Dump (LMEMDUMPMEM)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:0										
002	SF=3		Sequence Count													
004	Packet Length=15															
006	0	Function Code=0														
008	CIDBF: <i>idents</i>															
00A	CPAD16: <i>pad</i>															
00C	CADDR32: <i>addr</i>															
010	CSIZE32: <i>size</i>															
014	Packet Checksum															

Fields:

CADDR32 (14.2.0)

Attribute(s):

Brief: "32-Bit Address/Offset Bitfield"

Instance(s): *addr*

Bitfield containing the full 32 bits of the starting address or offset.

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): *idents*

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CPAD16 (14.3.6)

Attribute(s):

Brief: "16-bit padding"

Instance(s): pad

Explicit padding of 16 bits.

CSIZE32 (14.2.3)

Attribute(s):

Brief: "32-Bit Word Count Bitfield"

Instance(s): size

Bitfield containing the full 32-bit word count value.

ITOS Mnemonic: LMEMDUMPNEXT

14.1.2 LMEMDUMPNEXT (1604/0x644:100)

Context:

Description:

"Send Next Dump Packet" Telecommand Packet

Send the next chunk of memory dump data.

Layout:

Send Next Dump Packet (LMEMDUMPNEXT)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:100										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=100														
008	CIDBF: idents															
00A	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): `idents`

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

ITOS Mnemonic: `LMEMDUMPPCI`

14.1.3 LMEMDUMPPCI (1604/0x644:2)

Context:

Description:

"PCI Device Header Dump" Telecommand Packet

Dump data from a PCI device header.

Layout:

PCI Device Header Dump (LMEMDUMPPCI)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=1	SH	APID=0x644:2											
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=2														
008	CIDBF: <code>idents</code>															
00A	CPCIADDRBF: <code>addr</code>															
00C	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): `idents`

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CPCIADDRBF (14.2.2)

Attribute(s):

Brief: "PCI Device Header Address Bitfield"

Instance(s): addr

Bitfield containing PCI device header address.

ITOS Mnemonic: LMEMDUMPPPOOL

14.1.4 LMEMDUMPPPOOL (1604/0x644:7)

Context:

Description:

"Memory Pool Status Dump" Telecommand Packet

Dump the statistics for a memory pool.

Layout:

Memory Pool Status Dump (LMEMDUMPPPOOL)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=1	SH	APID=0x644:7											
002	SF=3		Sequence Count													
004	Packet Length=7															
006	0	Function Code=7														
008	CIDBF: idents															
00A	CPOOLID: poolID															
00C	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CPOOLID (14.3.12)

Attribute(s):

Brief: "Memory Pool ID"

Instance(s): poolID

Identifier for the memory pool for which statistics should be dumped.

ITOS Mnemonic: LMEMDUMPREG

14.1.5 LMEMDUMPREG (1604/0x644:3)

Context:

Description:

"Processor Register Dump" Telecommand Packet

Dump CPU register values.

Layout:

Processor Register Dump (LMEMDUMPREG)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=1	SH	APID=0x644:3											
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=3														
008	CIDBF: idents															
00A	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

ITOS Mnemonic: LMEMDUMPSYMREL

14.1.6 LMEMDUMPSYMREL (1604/0x644:9)

Context:

Description:

"Memory Dump Symbol Relative" Telecommand Packet

Dump memory data starting at an offset relative to a symbol.

Layout:

Memory Dump Symbol Relative (LMEMDUMPSYMREL)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:9										
002	SF=3		Sequence Count													
004	Packet Length=55															
006	0	Function Code=9														
008	CIDBF: idents															
00A	CPAD16: pad1															
00C	CADDR32: offset															
010	CSIZE32: size															
014	CNAME SIZE: nameSize							CPAD8: pad2								
016	CPAD16: pad3															
018	CNAMECHAR: name[0-35]															
03C	Packet Checksum															

Fields:

CADDR32 (14.2.0)

Attribute(s):

Brief: "32-Bit Address/Offset Bitfield"

Instance(s): offset

Bitfield containing the full 32 bits of the starting address or offset.

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): `idents`

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CNAMECHAR (14.3.4)

Attribute(s):

Brief: "Symbol Name Character"

Instance(s): `name`

Character within a symbol name.

CNAMESIZE (14.3.5)

Attribute(s):

Brief: "Symbol Name Length"

Instance(s): `nameSize`

Length of symbol name, in bytes.

CPAD16 (14.3.6)

Attribute(s):

Brief: "16-bit padding"

Instance(s): `pad1, pad3`

Explicit padding of 16 bits.

CPAD8 (14.3.7)

Attribute(s):

Brief: "8-bit padding"

Instance(s): `pad2`

Explicit padding of 8 bits.

CSIZE32 (14.2.3)

Attribute(s):

Brief: "32-Bit Word Count Bitfield"

Instance(s): *size*

Bitfield containing the full 32-bit word count value.

ITOS Mnemonic: LMEMDUMPSYMVAL

14.1.7 LMEMDUMPSYMVAL (1604/0x644:8)

Context:

Description:

"Memory Symbol Lookup" Telecommand Packet

Dump the value of a symbol.

Layout:

Memory Symbol Lookup (LMEMDUMPSYMVAL) Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0		T=1	SH	APID=0x644:8											
002	SF=3		Sequence Count													
004	Packet Length=55															
006	0	Function Code=8														
008	CIDBF: <i>idents</i>															
00A	CNAME SIZE: <i>nameSize</i>							CPAD8: <i>pad</i>								
00C	CNAMECHAR: <i>name[0-47]</i>															
03C	Packet Checksum															

Fields:

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): *idents*

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CNAMECHAR (14.3.4)

Attribute(s):

Brief: "Symbol Name Character"

Instance(s): name

Character within a symbol name.

CNAME SIZE (14.3.5)

Attribute(s):

Brief: "Symbol Name Length"

Instance(s): nameSize

Length of symbol name, in bytes.

CPAD8 (14.3.7)

Attribute(s):

Brief: "8-bit padding"

Instance(s): pad

Explicit padding of 8 bits.

ITOS Mnemonic: LMEMLOADMEM

14.1.8 LMEMLOADMEM (1604/0x644:4)

Context:

Description:

"Memory Write" Telecommand Packet

Load data to a region in memory.

Layout:

Memory Write (LMEMLOADMEM) Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:4										
002	SF=3		Sequence Count													
004	Packet Length=55															

Memory Write (LMEMLOADMEM)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
006	0	Function Code=4														
008	CIDBF: idents															
00A	CSIZE16: wordCount															
00C	CADDR32: addr															
010	CDATA16: data[0-21]															
03C	Packet Checksum															

Fields:

CADDR32 (14.2.0)

Attribute(s):

Brief: "32-Bit Address/Offset Bitfield"

Instance(s): addr

Bitfield containing the full 32 bits of the starting address or offset.

CDATA16 (14.3.2)

Attribute(s):

Brief: "16-Bit Data Value"

Instance(s): data

16-bit data value.

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CSIZE16 (14.3.13)

Attribute(s):

Brief: "16-Bit Word count"

Instance(s): wordCount

Number of 32-bit words to load/dump.

ITOS Mnemonic: LMEMLOADPCI

14.1.9 LMEMLOADPCI (1604/0x644:5)

Context:

Description:

"PCI Device Header Write" Telecommand Packet

Load data to a PCI device header.

Layout:

PCI Device Header Write (LMEMLOADPCI)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:5										
002	SF=3		Sequence Count													
004	Packet Length=9															
006	0	Function Code=5														
008	CIDBF: idents															
00A	CPCIADDRBF: addr															
00C	CDATA16: data															
00E	Packet Checksum															

Fields:

CDATA16 (14.3.2)

Attribute(s):

Brief: "16-Bit Data Value"

Instance(s): data

16-bit data value.

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): `idents`

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CPCIADDRBF (14.2.2)

Attribute(s):

Brief: "PCI Device Header Address Bitfield"

Instance(s): `addr`

Bitfield containing PCI device header address.

ITOS Mnemonic: `LMEMLOADREG`

14.1.10 LMEMLOADREG (1604/0x644:6)

Context:

Description:

"Processor Register Write" Telecommand Packet

Load data to CPU registers.

Layout:

Processor Register Write (LMEMLOADREG)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x644:6										
002	SF=3		Sequence Count													
004	Packet Length=55															
006	0	Function Code=6														
008	CIDBF: <code>idents</code>															
00A	CSIZE16: <code>wordCount</code>															
00C	CADDR32: <code>offset</code>															
010	CDATA16: <code>data[0-21]</code>															
03C	Packet Checksum															

Fields:

CADDR32 (14.2.0)

Attribute(s):

Brief: "32-Bit Address/Offset Bitfield"

Instance(s): `offset`

Bitfield containing the full 32 bits of the starting address or offset.

CDATA16 (14.3.2)

Attribute(s):

Brief: "16-Bit Data Value"

Instance(s): `data`

16-bit data value.

CIDBF (14.2.1)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): `idents`

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

CSIZE16 (14.3.13)

Attribute(s):

Brief: "16-Bit Word count"

Instance(s): `wordCount`

Number of 32-bit words to load/dump.

14.2 Command Bitfields

14.2.0 CADDR32 (32-Bit Address/Offset Bitfield) Telecommand Bitfield

Definition:

Alignment: 4 bytes
 C type: unsigned int
 Length: 32 bits (4 bytes)

Description:

Bitfield containing the full 32 bits of the starting address or offset.

Start Stop Size Item Type and Name

Used by:

LMEMDUMPMEM (14.1.1)

14.2.1 CIDBF (LAT Unit and Transaction ID Bitfield) Telecommand Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield to contain the LAT unit that is the target of a MEM telecommand and the transaction ID for the MEM telecommand.

Start Stop Size Item Type and Name

Used by:

LMEMDUMPCANCEL (14.1.0)

14.2.2 CPCIADDRBF (PCI Device Header Address Bitfield) Telecommand Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield containing PCI device header address.

Start Stop Size Item Type and Name

Used by:

LMEMDUMPPCI (14.1.3)

14.2.3 CSIZE32 (32-Bit Word Count Bitfield) Telecommand Bitfield

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Bitfield containing the full 32-bit word count value.

Start	Stop	Size	Item Type and Name
-------	------	------	--------------------

Used by:

LMEMDUMPMEM (14.1.1)

14.3 Command Fields

14.3.0 CADDRHI (Upper 16 Bits of Address/Offset) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits

Description:

Upper 16 bits of the 32-bit starting address or offset.

Used by:

???

14.3.1 CADDRLO (Lower 16 Bits of Address/Offset) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits

Description:

Lower 16 bits of the 32-bit starting address or offset.

Used by:

???

14.3.2 CDATA16 (16-Bit Data Value) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

16-bit data value.

Used by:

LMEMLOADMEM (14.1.8)

14.3.3 CLATUNIT (Target LAT Unit) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 4 bits

Description:

LAT unit that is the target of the MEM telecommand.

Used by:

???

14.3.4 CNAMECHAR (Symbol Name Character) Telecommand Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Character within a symbol name.

Used by:

LMEMDUMPSYMREL (14.1.6)

14.3.5 CNAMELENGTH (Symbol Name Length) Telecommand Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Length of symbol name, in bytes.

Used by:

LMEMDUMPSYMREL (14.1.6)

14.3.6 CPAD16 (16-bit padding) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Explicit padding of 16 bits.

Used by:

LMEMDUMPMEM (14.1.1)

14.3.7 CPAD8 (8-bit padding) Telecommand Field

Definition:

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Explicit padding of 8 bits.

Used by:

LMEMDUMPSYMREL (14.1.6)

14.3.8 CPCIBUS (PCI Bus Address) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 1 bit

Description:

Bus portion of a PCI device header address.

Used by:

???

14.3.9 CPCIDEVICE (PCI Device Address) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 5 bits

Description:

Device portion of PCI device header address.

Used by:

???

14.3.10 CPCIFUNCTION (PCI Function Address) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 2 bits

Description:

Function portion of PCI device header address.

Used by:

???

14.3.11 CPICIOFFSET (PCI Offset Address) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 8 bits

Description:

Offset portion of PCI device header address.

Used by:

???

14.3.12 CPOOLID (Memory Pool ID) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Identifier for the memory pool for which statistics should be dumped.

Used by:

LMEMDUMPPPOOL (14.1.4)

14.3.13 CSIZE16 (16-Bit Word count) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of 32-bit words to load/dump.

Used by:

LMEMLOADMEM (14.1.8)

14.3.14 CSIZEHI (Upper 16 Bits of Word Count) Telecommand Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits

Description:

Upper 16 bits of the 32-bit word count.

Used by:

???

14.3.15 CSIZELO (Lower 16 Bits of Word Count) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits

Description:

Lower 16 bits of the 32-bit word count.

Used by:

???

14.3.16 CTRANID (Transaction ID) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 12 bits

Description:

Transaction identifier for the MEM telecommand. This ID is echoed back in the telemetry that is sent in response to the telecommand. It can be used to match telecommands to telemetry.

Used by:

???

14.4 Telemetry Packets

14.4.0 LMEMPOOLDATA (785/0x311)

Context:

Description:

"Memory Pool Statistics Dump" Telemetry Packet

Dump of memory pool statistics.

Layout:

Memory Pool Statistics Dump (LMEMPOOLDATA)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x311										
002	SF		Sequence Count													
004	Packet Length=208															
006	Timestamp															
00E	TIDBF: idents															
010	TPOOLID: poolID															
012	TPAD16: pad															
014	TPOOLFREEBYTES: freeBytes															
018	TPOOLFREEBLOCKS: freeBlocks															
01C	TPOOLMAXBLKBYTES: maxBlockBytes															
020	TPOOLALLOCBYTES: allocBytes															
024	TPOOLALLOCBLOCKS: allocBlocks															

Fields:

TIDBF (14.5.0)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield containing the ID of the LAT unit that sent the telemetry and the transaction identifier of the telecommand that requested the telemetry.

TPAD16 (14.6.5)

Attribute(s):

Brief: "16-Bit Padding"

Instance(s): pad

Explicit padding of 16 bits.

TPOOLALLOCBLOCKS (14.6.7)

Attribute(s):

Brief: "Memory Pool Allocated Blocks"

Instance(s): allocBlocks

Number of blocks allocated within the memory pool.

TPOOLALLOCBYTES (14.6.8)

Attribute(s):

Brief: "Memory Pool Allocated Bytes"

Instance(s): allocBytes

Number of bytes allocated within the memory pool.

TPOOLFREEBLOCKS (14.6.9)

Attribute(s):

Brief: "Memory Pool Free Blocks"

Instance(s): freeBlocks

Number of free blocks within the memory pool.

TPOOLFREEBYTES (14.6.10)

Attribute(s):

Brief: "Memory Pool Free Bytes"

Instance(s): freeBytes

Number of free bytes within the memory pool.

TPOOLID (14.6.11)

Attribute(s):

Brief: "Memory Pool ID"

Instance(s): poolID

Identifier for the memory pool for which the statistics were dumped.

TPOOLMAXBLKBYTES (14.6.12)

Attribute(s):

Brief: "Memory Pool Maximum Block Size"

Instance(s): maxBlockBytes

Size, in bytes, of the largest free block within the memory pool.

14.4.1 LMEMSIUDATA (788/0x314)

Context:

Description:

"SIU Memory Dump Data" Telemetry Packet

Memory dump data from the SIU.

Layout:

SIU Memory Dump Data (LMEMSIUDATA)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x314										
002	SF		Sequence Count													
004	Packet Length=2960															
006	Timestamp															
00E	TIDBF: idents															
010	TDUMPADDR: address															
014	TDUMPSIZE: wordCount															
016	TDUMPCMDFUNC: cmdFuncCode															
018	TDUMPDATA: data[0-89]															

Fields:

TDUMPADDR (14.6.0)

Attribute(s):

Brief: "Starting Address"

Instance(s): address

Address of first 32-bit word of dumped data.

TDUMPCMDFUNC (14.6.1)

Attribute(s):

Brief: "Dump Type"

Instance(s): cmdFuncCode

Function code of telecommand that initiated the dump, which indicates the type of data contained in the dump.

TDUMPDATA (14.6.2)

Attribute(s):

Brief: "Dump Data Word"

Instance(s): data

Memory dump data word.

TDUMPSIZE (14.6.3)

Attribute(s):

Brief: "Word Count"

Instance(s): wordCount

Number of valid 32-bit words of dumped data.

TIDBF (14.5.0)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield containing the ID of the LAT unit that sent the telemetry and the transaction identifier of the telecommand that requested the telemetry.

14.4.2 LMEMSYMVAL (786/0x312)

Context:

Description:

"Symbol Value Dump" Telemetry Packet

Dump of a symbol's 32-bit value.

Layout:

Symbol Value Dump (LMEMSYMVAL)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x312										
002	SF		Sequence Count													
004	Packet Length=464															
006	Timestamp															
00E	TIDBF: idents															
010	TSYMVAL: symValue															
014	TSYMNAME SIZE: nameSize							TPAD8: pad8								
016	TPAD16: pad16															
018	TSYMNAMECHAR: name[0-47]															

Fields:

TIDBF (14.5.0)

Attribute(s):

Brief: "LAT Unit and Transaction ID Bitfield"

Instance(s): idents

Bitfield containing the ID of the LAT unit that sent the telemetry and the transaction identifier of the telecommand that requested the telemetry.

TPAD16 (14.6.5)

Attribute(s):

Brief: "16-Bit Padding"

Instance(s): pad16

Explicit padding of 16 bits.

TPAD8 (14.6.6)

Attribute(s):

Brief: "8-Bit Padding"

Instance(s): pad8

Explicit padding of 8 bits.

TSYMNAMCHAR (14.6.13)

Attribute(s):

Brief: "Symbol Name Character"

Instance(s): name

Character within a symbol name.

TSYMNAMESIZE (14.6.14)

Attribute(s):

Brief: "Symbol Name Length"

Instance(s): nameSize

Length of symbol name, in bytes.

TSYMVAL (14.6.15)

Attribute(s):

Brief: "Symbol Value"

Instance(s): symValue

Value of symbol.

14.5 Telemetry Bitfields

14.5.0 TIDBF (LAT Unit and Transaction ID Bitfield) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield containing the ID of the LAT unit that sent the telemetry and the transaction identifier of the telecommand that requested the telemetry.

Start	Stop	Size	Item Type and Name
0	3	4	TLATUNIT latUnit
4	15	12	TTRANID tranID

Fields:

TLATUNIT (14.6.4)

Attribute(s):

Brief: "Source LAT Unit"

Instance(s): latUnit

LAT unit that sent the telemetry.

TTRANID (14.6.16)

Attribute(s):

Brief: "Transaction ID"

Instance(s): tranID

Transaction identifier from the telecommand that requested the telemetry.

Used by:

LMEMPOOLDATA (14.4.0)

14.6 Telemetry Fields

14.6.0 TDUMPADDR (Starting Address) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Address of first 32-bit word of dumped data.

Used by:

LMEMSIUDATA (14.4.1)

14.6.1 TDUMPCMDFUNC (Dump Type) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Function code of telecommand that initiated the dump, which indicates the type of data contained in the dump.

Used by:

LMEMSIUDATA (14.4.1)

14.6.2 TDUMPDATA (Dump Data Word) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Memory dump data word.

Used by:

LMEMSIUDATA (14.4.1)

14.6.3 TDUMPSIZE (Word Count) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of valid 32-bit words of dumped data.

Used by:

LMEMSIUDATA (14.4.1)

14.6.4 TLATUNIT (Source LAT Unit) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 4 bits

Description:

LAT unit that sent the telemetry.

Used by:

TIDBF (14.5.0)

14.6.5 TPAD16 (16-Bit Padding) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Explicit padding of 16 bits.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.6 TPAD8 (8-Bit Padding) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Explicit padding of 8 bits.

Used by:

LMEMSYMVAL (14.4.2)

14.6.7 TPOOLALLOCBLOCKS (Memory Pool Allocated Blocks) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Number of blocks allocated within the memory pool.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.8 TPOOLALLOCBYTES (Memory Pool Allocated Bytes) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Number of bytes allocated within the memory pool.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.9 TPOOLFREEBLOCKS (Memory Pool Free Blocks) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Number of free blocks within the memory pool.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.10 TPOOLFREEBYTES (Memory Pool Free Bytes) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Number of free bytes within the memory pool.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.11 TPOOLID (Memory Pool ID) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Identifier for the memory pool for which the statistics were dumped.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.12 TPOOLMAXBLKBYTES (Memory Pool Maximum Block Size) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Size, in bytes, of the largest free block within the memory pool.

Used by:

LMEMPOOLDATA (14.4.0)

14.6.13 TSYMNAMECHAR (Symbol Name Character) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char
Length: 8 bits (1 byte)

Description:

Character within a symbol name.

Used by:

LMEMSYMVAL (14.4.2)

14.6.14 TSYMNAMELENGTH (Symbol Name Length) Telemetry Field**Definition:**

Alignment: 1 byte
C type: unsigned char

Length: 8 bits (1 byte)

Description:

Length of symbol name, in bytes.

Used by:

LMEMSYMVAL (14.4.2)

14.6.15 TSYMVAL (Symbol Value) Telemetry Field**Definition:**

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Value of symbol.

Used by:

LMEMSYMVAL (14.4.2)

14.6.16 TTRANID (Transaction ID) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 12 bits

Description:

Transaction identifier from the telecommand that requested the telemetry.

Used by:

TIDBF (14.5.0)

15 PBC Package

15.0 Overview

The PBC package contains routines that are specific to the Primary Boot Code.

The package supports the following functions:

- RAD750 boot and crate initialization

15.1 Command Packets

ITOS Mnemonic: LPBCBADCMD

15.1.0 LBTBAD (1600/0x640:4)

Context:

Description:

"Invalid boot command" Telecommand Packet

Boot command with an invalid function code. This is used for testing the PBC.

Layout:

Invalid boot command (LBTBAD)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x640:4										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=4														
008	LATUNIT: latUnit															
00A	Packet Checksum															

Fields:

LATUNIT (15.2.2)

Attribute(s):

Brief: "LAT unit"

Instance(s): latUnit

Target LAT unit for the command.

ITOS Mnemonic: LPBCERRDUMP

15.1.1 LBTERRDUMP (1600/0x640:2)

Context:

Description:

"Error code pop" Telecommand Packet

Pop the next error code from the PBC error queue.

Layout:

Error code pop (LBTERRDUMP)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x640:2										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=2														
008	LATUNIT: latUnit															
00A	Packet Checksum															

Fields:

LATUNIT (15.2.2)

Attribute(s):

Brief: "LAT unit"

Instance(s): latUnit

Target LAT unit for the command.

ITOS Mnemonic: LPBCRESET

15.1.2 LBTRESET (1600/0x640:1)

Context:

Description:

"Warm reboot" Telecommand Packet

Initiate a warm reboot of the unit.

Layout:

Warm reboot (LBTRESET)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x640:1										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=1														
008	LATUNIT: latUnit															
00A	CPAD16: pad															
00C	BOOTFLAGS: bootFlags															
010	Packet Checksum															

Fields:**BOOTFLAGS (15.2.0)**

Attribute(s):

Brief: "Boot flags"

Instance(s): bootFlags

Flags to indicate the actions to be taken by the boot code when restarting.

CPAD16 (15.2.1)

Attribute(s):

Brief: "16-bit Padding"

Instance(s): pad

Explicit padding of 16 bits.

LATUNIT (15.2.2)

Attribute(s):

Brief: "LAT unit"

Instance(s): latUnit

Target LAT unit for the command.

ITOS Mnemonic: LPBCRTOSEXEC

15.1.3 LBTRTOSEXEC (1600/0x640:3)

Context:

Description:

"Boot RTOS" Telecommand Packet

Start the RTOS.

Layout:

Boot RTOS (LBTRTOSEXEC) Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x640:3										
002	SF=3		Sequence Count													
004	Packet Length=11															
006	0	Function Code=3														
008	LATUNIT: latUnit															
00A	CPAD16: pad															
00C	BOOTFLAGS: sbcFlags															
010	Packet Checksum															

Fields:

BOOTFLAGS (15.2.0)

Attribute(s):

Brief: "Boot flags"

Instance(s): sbcFlags

Flags to indicate the actions to be taken by the boot code when restarting.

CPAD16 (15.2.1)

Attribute(s):

Brief: "16-bit Padding"

Instance(s): pad

Explicit padding of 16 bits.

LATUNIT (15.2.2)

Attribute(s):

Brief: "LAT unit"

Instance(s): latUnit

Target LAT unit for the command.

ITOS Mnemonic: LPBCSTART

15.1.4 LBTSTART (1600/0x640:0)

Context:

Description:

"Boot code no-op" Telecommand Packet

No-op command for the PBC.

Layout:

Boot code no-op (LBTSTART)																
Telecommand Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=1	SH	APID=0x640:0										
002	SF=3		Sequence Count													
004	Packet Length=5															
006	0	Function Code=0														
008	LATUNIT: latUnit															
00A	Packet Checksum															

Fields:

LATUNIT (15.2.2)

Attribute(s):

Brief: "LAT unit"

Instance(s): latUnit

Target LAT unit for the command.

15.2 Command Fields

15.2.0 BOOTFLAGS (Boot flags) Telecommand Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Flags to indicate the actions to be taken by the boot code when restarting.

Used by:

LBTRESET (15.1.2)

15.2.1 CPAD16 (16-bit Padding) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Explicit padding of 16 bits.

Used by:

LBTRESET (15.1.2)

15.2.2 LATUNIT (LAT unit) Telecommand Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Target LAT unit for the command.

Used by:

LBTBAD (15.1.0)

15.3 Telemetry Packets

15.3.0 LBTEPU0HKP (609/0x261)

Context:

Description:

"EPU 0 Boot Housekeeping Telemetry" Telemetry Packet

Boot housekeeping telemetry from EPU 0.

Layout:

EPU 0 Boot Housekeeping Telemetry (LBTEPU0HKP)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x261										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	BOOTSWMODE: swMode															
010	BOOTTOTALERR: errCount															
012	BOOTQERR: qerrCount															
014	BOOTERRWORD: qerrWord															
018	BOOTPKTCOUNT: tcRcvCount															
01A	BOOTPKTACCEPT: tcAccCount															
01C	BOOTLASTERR: errWord															
020	BOOTCOMMAND: tcLast															
022	BOOTSPARE1: spare1															
024	BOOTSPARE2: spare2															
026	BOOTFILESTATE: fileState															
028	BOOTFILEPKT: filePktCount															
02A	BOOTSCRUBADDRHI: addrScrubHi															
02C	BOOTTYPE: bootType															
02E	BOOTDUMPCOUNT: dumpCount															
030	BOOTDUMPADDR: dumpAddr															
034	BOOTDUMPDATA: dumpData[0-15]															

Fields:

BOOTCOMMAND (15.4.0)

Attribute(s):

Brief: "Last boot command bitfield"

Instance(s): tcLast

Bitfield to hold APID and function code of command most recently received by the PBC.

BOOTDUMPADDR (15.5.0)

Attribute(s):

Brief: "Memory dump address"

Instance(s): dumpAddr

Address of first memory dump word.

BOOTDUMPCOUNT (15.5.1)

Attribute(s):

Brief: "Memory dump word count"

Instance(s): dumpCount

Number of valid 32-bit memory dump words.

BOOTDUMPDATA (15.5.2)

Attribute(s):

Brief: "Memory dump data"

Instance(s): dumpData

Memory dump data word.

BOOTERRWORD (15.5.3)

Attribute(s):

Brief: "Error code"

Instance(s): qerrWord

Error code at the head of the boot error queue.

BOOTFILEPKT (15.5.4)

Attribute(s):

Brief: "File upload packet count"

Instance(s): filePktCount

Number of file upload packets received by the PBC.

BOOTFILESTATE (15.5.5)

Attribute(s):

Brief: "File upload state"

Instance(s): fileState

State of the PBC's file upload state machine.

BOOTLASTERR (15.5.7)

Attribute(s):

Brief: "Most recent boot error code"

Instance(s): errWord

Error code for the most recent error encountered by the PBC.

BOOTPKTACCEPT (15.5.9)

Attribute(s):

Brief: "Accepted packet count"

Instance(s): tcAccCount

Number of packets accepted by the PBC.

BOOTPKTCOUNT (15.5.10)

Attribute(s):

Brief: "Received packet count"

Instance(s): tcRcvCount

Number of packets received by the PBC.

BOOTQERR (15.5.11)

Attribute(s):

Brief: "Number of queued errors"

Instance(s): `qerrCount`

Number of errors in the boot error queue.

BOOTSCRUBADDRHI (15.5.12)

Attribute(s):

Brief: "Hi 16 bits of software scrub address"

Instance(s): `addrScrubHi`

Upper 16 bits of PBC software scrub address.

BOOTSPARE1 (15.5.13)

Attribute(s):

Brief: "Unused location"

Instance(s): `spare1`

BOOTSPARE2 (15.5.14)

Attribute(s):

Brief: "Unused location"

Instance(s): `spare2`

BOOTSWMODE (15.5.15)

Attribute(s):

Brief: "Current PBC operating mode"

Instance(s): `swMode`

Current PBC operating mode.

BOOTTOTALERR (15.5.16)

Attribute(s):

Brief: "Number of errors encountered"

Instance(s): `errCount`

Total number of errors encountered by the PBC.

BOOTTYPE (15.5.17)

Attribute(s):

Brief: "Boot type"

Instance(s): `bootType`

Type of boot.

15.3.1 LBTHKP (512/0x200)

Context:

Description:

"Boot housekeeping telemetry" Telemetry Packet

Boot housekeeping telemetry.

Layout:

Boot housekeeping telemetry (LBTHKP)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
000	Version=0			T=0	SH	APID=0x200										
002	SF		Sequence Count													
004	Packet Length=109															
006	Timestamp															
00E	BOOTSWMODE: <code>bootSoftwareMode</code>															
010	BOOTTOTALERR: <code>totalErrorCount</code>															
012	BOOTQERR: <code>queuedErrorCount</code>															
014	BOOTERRWORD: <code>errorWord</code>															
018	BOOTPKTCOUNT: <code>tcPktReceiveCount</code>															
01A	BOOTPKTACCEPT: <code>tcPktAcceptCount</code>															
01C	BOOTLASTERR: <code>latestErrorWord</code>															
020	BOOTCOMMAND: <code>lastCommand</code>															
022	BOOTSPARE1: <code>spare1</code>															
024	BOOTSPARE2: <code>spare2</code>															
026	BOOTFILESTATE: <code>fileUploadState</code>															
028	BOOTFILEPKT: <code>fileUploadPktCnt</code>															

Boot housekeeping telemetry (LBTHKP)																
Telemetry Packet Format																
0x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
02A	BOOTSCRUBADDRHI: scrubAddrHi															
02C	BOOTTYPE: bootType															
02E	BOOTDUMPCOUNT: memDumpWordCount															
030	BOOTDUMPADDR: memDumpAddress															
034	BOOTDUMPDATA: memDumpData[0-15]															

Fields:

BOOTCOMMAND (15.4.0)

Attribute(s):

Brief: "Last boot command bitfield"

Instance(s): lastCommand

Bitfield to hold APID and function code of command most recently received by the PBC.

BOOTDUMPADDR (15.5.0)

Attribute(s):

Brief: "Memory dump address"

Instance(s): memDumpAddress

Address of first memory dump word.

BOOTDUMPCOUNT (15.5.1)

Attribute(s):

Brief: "Memory dump word count"

Instance(s): memDumpWordCount

Number of valid 32-bit memory dump words.

BOOTDUMPDATA (15.5.2)

Attribute(s):

Brief: "Memory dump data"

Instance(s): memDumpData

Memory dump data word.

BOOTERRWORD (15.5.3)

Attribute(s):

Brief: "Error code"

Instance(s): errorWord

Error code at the head of the boot error queue.

BOOTFILEPKT (15.5.4)

Attribute(s):

Brief: "File upload packet count"

Instance(s): fileUploadPktCnt

Number of file upload packets received by the PBC.

BOOTFILESTATE (15.5.5)

Attribute(s):

Brief: "File upload state"

Instance(s): fileUploadState

State of the PBC's file upload state machine.

BOOTLASTERR (15.5.7)

Attribute(s):

Brief: "Most recent boot error code"

Instance(s): latestErrorWord

Error code for the most recent error encountered by the PBC.

BOOTPKTACCEPT (15.5.9)

Attribute(s):

Brief: "Accepted packet count"

Instance(s): `tcPktAcceptCount`

Number of packets accepted by the PBC.

BOOTPKTCOUNT (15.5.10)

Attribute(s):

Brief: "Received packet count"

Instance(s): `tcPktReceiveCount`

Number of packets received by the PBC.

BOOTQERR (15.5.11)

Attribute(s):

Brief: "Number of queued errors"

Instance(s): `queuedErrorCount`

Number of errors in the boot error queue.

BOOTSCRUBADDRHI (15.5.12)

Attribute(s):

Brief: "Hi 16 bits of software scrub address"

Instance(s): `scrubAddrHi`

Upper 16 bits of PBC software scrub address.

BOOTSPARE1 (15.5.13)

Attribute(s):

Brief: "Unused location"

Instance(s): `spare1`

BOOTSPARE2 (15.5.14)

Attribute(s):

Brief: "Unused location"

Instance(s): spare2

BOOTSWMODE (15.5.15)

Attribute(s):

Brief: "Current PBC operating mode"

Instance(s): bootSoftwareMode

Current PBC operating mode.

BOOTTOTALERR (15.5.16)

Attribute(s):

Brief: "Number of errors encountered"

Instance(s): totalErrorCount

Total number of errors encountered by the PBC.

BOOTTYPE (15.5.17)

Attribute(s):

Brief: "Boot type"

Instance(s): bootType

Type of boot.

15.4 Telemetry Bitfields

15.4.0 BOOTCOMMAND (Last boot command bitfield) Telemetry Bitfield

Definition:

Alignment: 2 bytes
 C type: unsigned short
 Length: 16 bits (2 bytes)

Description:

Bitfield to hold APID and function code of command most recently received by the PBC.

Start	Stop	Size	Item Type and Name
0	4	5	BOOTLASTFUNC func
5	15	11	BOOTLASTAPID apid

Fields:

BOOTLASTAPID (15.5.6)

Attribute(s):

Brief: "Last APID"

Instance(s): apid

APID of last command received by the PBC.

BOOTLASTFUNC (15.5.8)

Attribute(s):

Brief: "Last Function Code"

Instance(s): func

Function code of the last command received by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5 Telemetry Fields

15.5.0 BOOTDUMPADDR (Memory dump address) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Address of first memory dump word.

Used by:

LBTEPU0HKP (15.3.0)

15.5.1 BOOTDUMPCOUNT (Memory dump word count) Telemetry Field

Definition:

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of valid 32-bit memory dump words.

Used by:

LBTEPU0HKP (15.3.0)

15.5.2 BOOTDUMPDATA (Memory dump data) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Memory dump data word.

Used by:

LBTEPU0HKP (15.3.0)

15.5.3 BOOTERRWORD (Error code) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Error code at the head of the boot error queue.

Used by:

LBTEPU0HKP (15.3.0)

15.5.4 BOOTFILEPKT (File upload packet count) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of file upload packets received by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5.5 BOOTFILESTATE (File upload state) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

State of the PBC's file upload state machine.

Used by:

LBTEPU0HKP (15.3.0)

15.5.6 BOOTLASTAPID (Last APID) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 11 bits

Description:

APID of last command received by the PBC.

Used by:

BOOTCOMMAND (15.4.0)

15.5.7 BOOTLASTERR (Most recent boot error code) Telemetry Field

Definition:

Alignment: 4 bytes
C type: unsigned int
Length: 32 bits (4 bytes)

Description:

Error code for the most recent error encountered by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5.8 BOOTLASTFUNC (Last Function Code) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 5 bits

Description:

Function code of the last command received by the PBC.

Used by:

BOOTCOMMAND (15.4.0)

15.5.9 BOOTPKTACCEPT (Accepted packet count) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of packets accepted by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5.10 BOOTPKTCOUNT (Received packet count) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of packets received by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5.11 BOOTQERR (Number of queued errors) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Number of errors in the boot error queue.

Used by:

LBTEPU0HKP (15.3.0)

15.5.12 BOOTSCRUBADDRHI (Hi 16 bits of software scrub address) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Upper 16 bits of PBC software scrub address.

Used by:

LBTEPU0HKP (15.3.0)

15.5.13 BOOTSPARE1 (Unused location) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LBTEPU0HKP (15.3.0)

15.5.14 BOOTSPARE2 (Unused location) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:**Used by:**

LBTEPU0HKP (15.3.0)

15.5.15 BOOTSWMODE (Current PBC operating mode) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Current PBC operating mode.

Used by:

LBTEPU0HKP (15.3.0)

15.5.16 BOOTTOTALERR (Number of errors encountered) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Total number of errors encountered by the PBC.

Used by:

LBTEPU0HKP (15.3.0)

15.5.17 BOOTTYPE (Boot type) Telemetry Field**Definition:**

Alignment: 2 bytes
C type: unsigned short
Length: 16 bits (2 bytes)

Description:

Type of boot.

Used by:

LBTEPU0HKP (15.3.0)

17 Telecommand Packet Index, by Mnemonic (ITOS)

Cmd. Packet (I)	APID	FC	Section	Description (I)
CmdResponse	0x695	1	LCM/cmd/_/P.cmdResponse.shtml:%	Change task command confirmation level
LFILUPLCANCEL	0x641	1	FILE/cmd/_/P.LFILUPLCANCEL.shtml:%	File Upload Cancel
LFILUPLCOMMIT	0x641	2	FILE/cmd/_/P.LFILUPLCOMMIT.shtml:%	File Upload Commit
LFILUPLDATA	0x641	3	FILE/cmd/_/P.LFILUPLDATA.shtml:%	File Upload Data
LFILUPLLEPU	0x641	4	FILE/cmd/_/P.LFILUPLLEPU.shtml:%	File Upload to EPU
LFILUPLSTART	0x641	0	FILE/cmd/_/P.LFILUPLSTART.shtml:%	File Upload Start
LHKREQDIAGPKT	0x650	0	LHK/cmd/_/P.ReqDiagPacket.shtml:%	Request a Housekeeping Diagnostic Packet
LHKSTOPDIAG	0x650	2	LHK/cmd/_/P.StopDiag.shtml:%	Stop Diagnostic Sample
LHKSYSRESET	0x650	1	LHK/cmd/_/P.SysReset.shtml:%	System Reset
LLFSDIRCREATE	0x648	2	LFS/cmd/_/P.LLFSDIRCREATE.shtml:%	Directory Create
LLFSDIRDELETE	0x648	3	LFS/cmd/_/P.LLFSDIRDELETE.shtml:%	Directory Delete
LLFSDIRDUMP	0x648	5	LFS/cmd/_/P.LLFSDIRDUMP.shtml:%	Directory Dump
LLFSFILECOPY	0x648	1	LFS/cmd/_/P.LLFSFILECOPY.shtml:%	File Copy Local
LLFSFILEDELETE	0x648	0	LFS/cmd/_/P.LLFSFILEDELETE.shtml:%	File Delete
LLFSFILEDUMPC	0x648	4	LFS/cmd/_/P.LLFSFILEDUMPC.shtml:%	File Dump CTDB
LLFSYSSTATUS	0x648	6	LFS/cmd/_/P.LLFSYSSTATUS.shtml:%	File System Status
LMCACDTILEALL	0x69C	3	LMC/cmd/_/P.acd_tile_all.shtml:%	ACD Tile Counters (All)
LMCACDTILEPAIR	0x69C	2	LMC/cmd/_/P.acd_tile_pair.shtml:%	ACD Tile Counter (Pair)
LMCCALLRS	0x69C	0	LMC/cmd/_/P.cal_irs.shtml:%	CAL Low Rate Science Counters
LMCSTOPCOUNT	0x69C	4	LMC/cmd/_/P.stop_count.shtml:%	Stop Active Counter
LMCTKRLRS	0x69C	1	LMC/cmd/_/P.tkr_irs.shtml:%	TKR Low Rate Science Counters
LMEMDUMPCANCEL	0x644	1	MEM/cmd/_/P.LMEMDUMPCANCEL.shtml:%	Memory Dump Cancel
LMEMDUMPMEM	0x644	0	MEM/cmd/_/P.LMEMDUMPMEM.shtml:%	Memory Data Dump
LMEMDUMPNEXT	0x644	100	MEM/cmd/_/P.LMEMDUMPNEXT.shtml:%	Send Next Dump Packet
LMEMDUMPPCI	0x644	2	MEM/cmd/_/P.LMEMDUMPPCI.shtml:%	PCI Device Header Dump
LMEMDUMPPPOOL	0x644	7	MEM/cmd/_/P.LMEMDUMPPPOOL.shtml:%	Memory Pool Status Dump
LMEMDUMPREG	0x644	3	MEM/cmd/_/P.LMEMDUMPREG.shtml:%	Processor Register Dump
LMEMDUMPSYMREL	0x644	9	MEM/cmd/_/P.LMEMDUMPSYMREL.shtml:%	Memory Dump Symbol Relative
LMEMDUMPSYMVAL	0x644	8	MEM/cmd/_/P.LMEMDUMPSYMVAL.shtml:%	Memory Symbol Lookup
LMEMLOADMEM	0x644	4	MEM/cmd/_/P.LMEMLOADMEM.shtml:%	Memory Write
LMEMLOADPCI	0x644	5	MEM/cmd/_/P.LMEMLOADPCI.shtml:%	PCI Device Header Write
LMEMLOADREG	0x644	6	MEM/cmd/_/P.LMEMLOADREG.shtml:%	Processor Register Write
LPBCBADCMD	0x640	4	PBC/cmd/_/P.LBTBAD.shtml:%	Invalid boot command
LPBCERRDUMP	0x640	2	PBC/cmd/_/P.LBTERRDUMP.shtml:%	Error code pop
LPBCRESET	0x640	1	PBC/cmd/_/P.LBTRESET.shtml:%	Warm reboot
LPBCRTOSEXEC	0x640	3	PBC/cmd/_/P.LBTRTOSEXEC.shtml:%	Boot RTOS
LPBCSTART	0x640	0	PBC/cmd/_/P.LBTSTART.shtml:%	Boot code no-op
LTCHtrOnOffCtl	0x645	5	LTC/cmd/_/P.HtrOnOffCtl.shtml:%	Set heater to always on, or off or auto
LTCReStart	0x645	1	LTC/cmd/_/P.ReStart.shtml:%	Restart and initialize Thermal Control
LTCSetMode	0x645	4	LTC/cmd/_/P.SetMode.shtml:%	Set thermal control mode to active or
LTCSetParam	0x645	6	LTC/cmd/_/P.SetParam.shtml:%	Set control parameters to new values.
LTCSetTlmFreq	0x645	7	LTC/cmd/_/P.SetTlmFreq.shtml:%	Set LTC telemetry frequency, 0 is off.
LTCStart	0x645	2	LTC/cmd/_/P.Start.shtml:%	Start control
LTCStop	0x645	3	LTC/cmd/_/P.Stop.shtml:%	Terminate Thermal Control processing
MsgResponse	0x695	0	LCM/cmd/_/P.msgResponse.shtml:%	Change task messaging level

18 Telecommand Packet Index, by Name (LCAT)

Cmd. Packet (L)	APID	FC	Section	Description (L)
acd_tile_all	0x69C	3	LMC/cmd/_/P.acd_tile_all.shtml:%	ACD Tile Counters (All)
acd_tile_pair	0x69C	2	LMC/cmd/_/P.acd_tile_pair.shtml:%	ACD Tile Counter (Pair)
cal_lrs	0x69C	0	LMC/cmd/_/P.cal_lrs.shtml:%	CAL Low Rate Science Counters
cmdResponse	0x695	1	LCM/cmd/_/P.cmdResponse.shtml:%	Change task command confirmation level
HtrOnOffCtl	0x645	5	LTC/cmd/_/P.HtrOnOffCtl.shtml:%	Set heater to always on, or off or auto
LBTBAD	0x640	4	PBC/cmd/_/P.LBTBAD.shtml:%	Invalid boot command
LBTERRDUMP	0x640	2	PBC/cmd/_/P.LBTERRDUMP.shtml:%	Error code pop
LBRESET	0x640	1	PBC/cmd/_/P.LBTRESET.shtml:%	Warm reboot
LBTRTOSEXEC	0x640	3	PBC/cmd/_/P.LBTRTOSEXEC.shtml:%	Boot RTOS
LBTSTART	0x640	0	PBC/cmd/_/P.LBTSTART.shtml:%	Boot code no-op
LFILUPLCANCEL	0x641	1	FILE/cmd/_/P.LFILUPLCANCEL.shtml:%	File Upload Cancel
LFILUPLCOMMIT	0x641	2	FILE/cmd/_/P.LFILUPLCOMMIT.shtml:%	File Upload Commit
LFILUPLDATA	0x641	3	FILE/cmd/_/P.LFILUPLDATA.shtml:%	File Upload Data
LFILUPLLEPU	0x641	4	FILE/cmd/_/P.LFILUPLLEPU.shtml:%	File Upload to EPU
LFILUPLSTART	0x641	0	FILE/cmd/_/P.LFILUPLSTART.shtml:%	File Upload Start
LLFSDIRCREATE	0x648	2	LFS/cmd/_/P.LLFSDIRCREATE.shtml:%	Directory Create
LLFSDIRDELETE	0x648	3	LFS/cmd/_/P.LLFSDIRDELETE.shtml:%	Directory Delete
LLFSDIRDUMP	0x648	5	LFS/cmd/_/P.LLFSDIRDUMP.shtml:%	Directory Dump
LLFSFILECOPY	0x648	1	LFS/cmd/_/P.LLFSFILECOPY.shtml:%	File Copy Local
LLFSFILEDELETE	0x648	0	LFS/cmd/_/P.LLFSFILEDELETE.shtml:%	File Delete
LLFSFILEDUMPC	0x648	4	LFS/cmd/_/P.LLFSFILEDUMPC.shtml:%	File Dump CTDB
LLFSSYSSTATUS	0x648	6	LFS/cmd/_/P.LLFSSYSSTATUS.shtml:%	File System Status
LLSMSIANCILLARY	0x701	2	LSM/cmd/_/P.LLSMSIANCILLARY.shtml:%	SC Ancillary Broadcast Message
LLSMSIATTITUDE	0x701	1	LSM/cmd/_/P.LLSMSIATTITUDE.shtml:%	SC Attitude Broadcast Message
LLSMSITIMETONE	0x701	3	LSM/cmd/_/P.LLSMSITIMETONE.shtml:%	SC Timetone Broadcast Message
LMEMDUMPCANCEL	0x644	1	MEM/cmd/_/P.LMEMDUMPCANCEL.shtml:%	Memory Dump Cancel
LMEMDUMPMEM	0x644	0	MEM/cmd/_/P.LMEMDUMPMEM.shtml:%	Memory Data Dump
LMEMDUMPNEXT	0x644	100	MEM/cmd/_/P.LMEMDUMPNEXT.shtml:%	Send Next Dump Packet
LMEMDUMPPCI	0x644	2	MEM/cmd/_/P.LMEMDUMPPCI.shtml:%	PCI Device Header Dump
LMEMDUMPPPOOL	0x644	7	MEM/cmd/_/P.LMEMDUMPPPOOL.shtml:%	Memory Pool Status Dump
LMEMDUMPREG	0x644	3	MEM/cmd/_/P.LMEMDUMPREG.shtml:%	Processor Register Dump
LMEMDUMPSYMREL	0x644	9	MEM/cmd/_/P.LMEMDUMPSYMREL.shtml:%	Memory Dump Symbol Relative
LMEMDUMPSYMVAL	0x644	8	MEM/cmd/_/P.LMEMDUMPSYMVAL.shtml:%	Memory Symbol Lookup
LMEMLOADMEM	0x644	4	MEM/cmd/_/P.LMEMLOADMEM.shtml:%	Memory Write
LMEMLOADPCI	0x644	5	MEM/cmd/_/P.LMEMLOADPCI.shtml:%	PCI Device Header Write
LMEMLOADREG	0x644	6	MEM/cmd/_/P.LMEMLOADREG.shtml:%	Processor Register Write
msgResponse	0x695	0	LCM/cmd/_/P.msgResponse.shtml:%	Change task messaging level
ReqDiagPacket	0x650	0	LHK/cmd/_/P.ReqDiagPacket.shtml:%	Request a Housekeeping Diagnostic Packet
ReStart	0x645	1	LTC/cmd/_/P.ReStart.shtml:%	Restart and initialize Thermal Control
SetMode	0x645	4	LTC/cmd/_/P.SetMode.shtml:%	Set thermal control mode to active or
SetParam	0x645	6	LTC/cmd/_/P.SetParam.shtml:%	Set control parameters to new values.
SetTlmFreq	0x645	7	LTC/cmd/_/P.SetTlmFreq.shtml:%	Set LTC telemetry frequency, 0 is off.
Start	0x645	2	LTC/cmd/_/P.Start.shtml:%	Start control
Stop	0x645	3	LTC/cmd/_/P.Stop.shtml:%	Terminate Thermal Control processing
stop_count	0x69C	4	LMC/cmd/_/P.stop_count.shtml:%	Stop Active Counter
StopDiag	0x650	2	LHK/cmd/_/P.StopDiag.shtml:%	Stop Diagnostic Sample
SysReset	0x650	1	LHK/cmd/_/P.SysReset.shtml:%	System Reset
tkr_lrs	0x69C	1	LMC/cmd/_/P.tkr_lrs.shtml:%	TKR Low Rate Science Counters

19 Telecommand Struct Index, by Name (LCAT)

Struct (L)	Cmd. Packet (L)	Section	Description (L)
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20 Telecommand Bitfield Index, by Name (LCAT)

Bitfield (L)	Cmd. Packet (L)	Section	Description (L)
CADDR32	LMEMDUMPMEM	MEM/cmd/_/B.CADDR32.shtml:%	32-Bit Address/Offset Bitfield
CADDR32	LMEMDUMPSYMREL	MEM/cmd/_/B.CADDR32.shtml:%	32-Bit Address/Offset Bitfield
CADDR32	LMEMLOADMEM	MEM/cmd/_/B.CADDR32.shtml:%	32-Bit Address/Offset Bitfield
CADDR32	LMEMLOADREG	MEM/cmd/_/B.CADDR32.shtml:%	32-Bit Address/Offset Bitfield
CIDBF	LMEMDUMPCANCEL	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPMEM	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPNEXT	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPPCI	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPPPOOL	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPREG	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPSYMREL	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMDUMPSYMVAL	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMLOADMEM	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMLOADPCI	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CIDBF	LMEMLOADREG	MEM/cmd/_/B.CIDBF.shtml:%	LAT Unit and Transaction ID Bitfield
CPCIADDRBF	LMEMDUMPPCI	MEM/cmd/_/B.CPCIADDRBF.shtml:%	PCI Device Header Address Bitfield
CPCIADDRBF	LMEMLOADPCI	MEM/cmd/_/B.CPCIADDRBF.shtml:%	PCI Device Header Address Bitfield
CSIZE32	LMEMDUMPMEM	MEM/cmd/_/B.CSIZE32.shtml:%	32-Bit Word Count Bitfield
CSIZE32	LMEMDUMPSYMREL	MEM/cmd/_/B.CSIZE32.shtml:%	32-Bit Word Count Bitfield

21 Telecommand Field Index, by Name (LCAT)

Field (L)	Cmd. Packet (L)	Section	Description (L)
APID	ReqDiagPacket	LHK/cmd/_/F.APID.shtml:%	Application ID parameter
BOOTFLAGS	LBTRRESET	PBC/cmd/_/F.BOOTFLAGS.shtml:%	Boot flags
BOOTFLAGS	LBTRTOSEXEC	PBC/cmd/_/F.BOOTFLAGS.shtml:%	Boot flags
CADDRHI	LMEMDUMPMEM	MEM/cmd/_/F.CADDRHI.shtml:%	Upper 16 Bits of Address/Offset
CADDRHI	LMEMDUMPSYMREL	MEM/cmd/_/F.CADDRHI.shtml:%	Upper 16 Bits of Address/Offset
CADDRHI	LMEMLOADMEM	MEM/cmd/_/F.CADDRHI.shtml:%	Upper 16 Bits of Address/Offset
CADDRHI	LMEMLOADREG	MEM/cmd/_/F.CADDRHI.shtml:%	Upper 16 Bits of Address/Offset
CADDRLO	LMEMDUMPMEM	MEM/cmd/_/F.CADDRLO.shtml:%	Lower 16 Bits of Address/Offset
CADDRLO	LMEMDUMPSYMREL	MEM/cmd/_/F.CADDRLO.shtml:%	Lower 16 Bits of Address/Offset
CADDRLO	LMEMLOADMEM	MEM/cmd/_/F.CADDRLO.shtml:%	Lower 16 Bits of Address/Offset
CADDRLO	LMEMLOADREG	MEM/cmd/_/F.CADDRLO.shtml:%	Lower 16 Bits of Address/Offset
cal_mask	cal_lrs	LMC/cmd/_/F.cal_mask.shtml:%	CAL LRS Mask
CDATA16	LMEMLOADMEM	MEM/cmd/_/F.CDATA16.shtml:%	16-Bit Data Value
CDATA16	LMEMLOADPCI	MEM/cmd/_/F.CDATA16.shtml:%	16-Bit Data Value
CDATA16	LMEMLOADREG	MEM/cmd/_/F.CDATA16.shtml:%	16-Bit Data Value
CLATUNIT	LMEMDUMPCANCEL	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPMEM	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPNEXT	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPPCI	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPPPOOL	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPREG	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPSYMREL	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMDUMPSYMVAL	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMLOADMEM	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMLOADPCI	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CLATUNIT	LMEMLOADREG	MEM/cmd/_/F.CLATUNIT.shtml:%	Target LAT Unit
CNAMECHAR	LMEMDUMPSYMREL	MEM/cmd/_/F.CNAMECHAR.shtml:%	Symbol Name Character
CNAMECHAR	LMEMDUMPSYMVAL	MEM/cmd/_/F.CNAMECHAR.shtml:%	Symbol Name Character
CNAMESIZE	LMEMDUMPSYMREL	MEM/cmd/_/F.CNAMESIZE.shtml:%	Symbol Name Length
CNAMESIZE	LMEMDUMPSYMVAL	MEM/cmd/_/F.CNAMESIZE.shtml:%	Symbol Name Length
count	acd_tile_all	LMC/cmd/_/F.count.shtml:%	Sample count
count	acd_tile_pair	LMC/cmd/_/F.count.shtml:%	Sample count
count	cal_lrs	LMC/cmd/_/F.count.shtml:%	Sample count
count	tkr_lrs	LMC/cmd/_/F.count.shtml:%	Sample count
counter_opcode	stop_count	LMC/cmd/_/F.counter_opcode.shtml:%	Counter type opcode
CPAD16	LBTRRESET	PBC/cmd/_/F.CPAD16.shtml:%	16-bit Padding
CPAD16	LBTRTOSEXEC	PBC/cmd/_/F.CPAD16.shtml:%	16-bit Padding
CPAD16	LMEMDUMPMEM	MEM/cmd/_/F.CPAD16.shtml:%	16-bit padding
CPAD16	LMEMDUMPSYMREL	MEM/cmd/_/F.CPAD16.shtml:%	16-bit padding
CPAD8	LMEMDUMPSYMREL	MEM/cmd/_/F.CPAD8.shtml:%	8-bit padding
CPAD8	LMEMDUMPSYMVAL	MEM/cmd/_/F.CPAD8.shtml:%	8-bit padding
CPCIBUS	LMEMDUMPPCI	MEM/cmd/_/F.CPCIBUS.shtml:%	PCI Bus Address
CPCIBUS	LMEMLOADPCI	MEM/cmd/_/F.CPCIBUS.shtml:%	PCI Bus Address
CPCIDEVICE	LMEMDUMPPCI	MEM/cmd/_/F.CPCIDEVICE.shtml:%	PCI Device Address
CPCIDEVICE	LMEMLOADPCI	MEM/cmd/_/F.CPCIDEVICE.shtml:%	PCI Device Address
CPCIFUNCTION	LMEMDUMPPCI	MEM/cmd/_/F.CPCIFUNCTION.shtml:%	PCI Function Address
CPCIFUNCTION	LMEMLOADPCI	MEM/cmd/_/F.CPCIFUNCTION.shtml:%	PCI Function Address
CPCIOFFSET	LMEMDUMPPCI	MEM/cmd/_/F.CPCIOFFSET.shtml:%	PCI Offset Address
CPCIOFFSET	LMEMLOADPCI	MEM/cmd/_/F.CPCIOFFSET.shtml:%	PCI Offset Address
CPOOLID	LMEMDUMPPPOOL	MEM/cmd/_/F.CPOOLID.shtml:%	Memory Pool ID
CSIZE16	LMEMLOADMEM	MEM/cmd/_/F.CSIZE16.shtml:%	16-Bit Word count

Field (L)	Cmd. Packet (L)	Section	Description (L)
CSIZE16	LMEMLOADREG	MEM/cmd/_/F.CSIZE16.shtml:%	16-Bit Word count
CSIZEHI	LMEMDUMPMEM	MEM/cmd/_/F.CSIZEHI.shtml:%	Upper 16 Bits of Word Count
CSIZEHI	LMEMDUMPSYMREL	MEM/cmd/_/F.CSIZEHI.shtml:%	Upper 16 Bits of Word Count
CSIZELO	LMEMDUMPMEM	MEM/cmd/_/F.CSIZELO.shtml:%	Lower 16 Bits of Word Count
CSIZELO	LMEMDUMPSYMREL	MEM/cmd/_/F.CSIZELO.shtml:%	Lower 16 Bits of Word Count
CTRANID	LMEMDUMPCANCEL	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPMEM	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPNEXT	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPPCI	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPPPOOL	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPREG	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPSYMREL	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMDUMPSYMVAL	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMLOADMEM	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMLOADPCI	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
CTRANID	LMEMLOADREG	MEM/cmd/_/F.CTRANID.shtml:%	Transaction ID
DiagInterval	ReqDiagPacket	LHK/cmd/_/F.DiagInterval.shtml:%	Diagnostic sample interval
DiagPktCnt	ReqDiagPacket	LHK/cmd/_/F.DiagPktCnt.shtml:%	Diagnostic sample Packet Count
FILEDATA	LFILUPLDATA	FILE/cmd/_/F.FILEDATA.shtml:%	File Data
FILEFLAGS	LFILUPLCOMMIT	FILE/cmd/_/F.FILEFLAGS.shtml:%	File Commit Flags
FILEID	LFILUPLCOMMIT	FILE/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LFILUPLPU	FILE/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSDIRCREATE	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSDIRDELETE	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSDIRDUMP	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSFILECOPY	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSFILEDELETE	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSFILEDUMPC	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FILEID	LLFSSYSSTATUS	LFS/cmd/_/F.FILEID.shtml:%	File Storage ID
FileId	ReStart	LTC/cmd/_/F.FileId.shtml:%	File identification number
FileId	SysReset	LHK/cmd/_/F.FileId.shtml:%	Configuration File ID
FILEOFFSET	LFILUPLDATA	FILE/cmd/_/F.FILEOFFSET.shtml:%	File Data Offset
FILESIZE	LFILUPLSTART	FILE/cmd/_/F.FILESIZE.shtml:%	File Size
FLOAT	SetParam	LTC/cmd/_/F.FLOAT.shtml:%	32-bit real number.
interval	acd_tile_all	LMC/cmd/_/F.interval.shtml:%	Sample interval in milliseconds
interval	acd_tile_pair	LMC/cmd/_/F.interval.shtml:%	Sample interval in milliseconds
interval	cal_lrs	LMC/cmd/_/F.interval.shtml:%	Sample interval in milliseconds
interval	tkr_lrs	LMC/cmd/_/F.interval.shtml:%	Sample interval in milliseconds
ITC_CmdAction	cmdResponse	LCM/cmd/_/F.ITC_CmdAction.shtml:%	Actions task can take (forward or ex
ITC_CmdClass	cmdResponse	LCM/cmd/_/F.ITC_CmdClass.shtml:%	Spacecraft command class (normal c
ITC_CmdLevel	cmdResponse	LCM/cmd/_/F.ITC_CmdLevel.shtml:%	Response level
ITC_NodeId	cmdResponse	LCM/cmd/_/F.ITC_NodeId.shtml:%	ITC node ID
ITC_NodeId	msgResponse	LCM/cmd/_/F.ITC_NodeId.shtml:%	ITC node ID
ITC_TaskId	cmdResponse	LCM/cmd/_/F.ITC_TaskId.shtml:%	ITC task ID
ITC_TaskId	msgResponse	LCM/cmd/_/F.ITC_TaskId.shtml:%	ITC task ID
LATUNIT	LBTBAD	PBC/cmd/_/F.LATUNIT.shtml:%	LAT unit
LATUNIT	LBTERRDUMP	PBC/cmd/_/F.LATUNIT.shtml:%	LAT unit
LATUNIT	LBTRESET	PBC/cmd/_/F.LATUNIT.shtml:%	LAT unit
LATUNIT	LBTRTOSEXEC	PBC/cmd/_/F.LATUNIT.shtml:%	LAT unit
LATUNIT	LBTSTART	PBC/cmd/_/F.LATUNIT.shtml:%	LAT unit
LATUNIT	LFILUPLCANCEL	FILE/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID
LATUNIT	LFILUPLCOMMIT	FILE/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID

Field (L)	Cmd. Packet (L)	Section	Description (L)
LATUNIT	LFILUPLPU	FILE/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID
LATUNIT	LLFSDIRCREATE	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSDIRDELETE	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSDIRDUMP	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSFILECOPY	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSFILEDELETE	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSFILEDUMPC	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LATUNIT	LLFSSYSSTATUS	LFS/cmd/_/F.LATUNIT.shtml:%	LAT Unit ID and Transaction ID
LLSMANCFLLAGS	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMANCFLLAGS.shtml:%	Ancillary SC flags
LLSMANCMODE	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMANCMODE.shtml:%	Ancillary GNC mode
LLSMANCP0S	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMANCP0S.shtml:%	Ancillary position element
LLSMANCSSR	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMANCSSR.shtml:%	Ancillary SSR usage
LLSMANCVEL	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMANCVEL.shtml:%	Ancillary velocity element
LLSMATTAVEC	LLSMSIATTITUDE	LSM/cmd/_/F.LLSMATTAVEC.shtml:%	Attitude angular velocity element
LLSMATTQUAT	LLSMSIATTITUDE	LSM/cmd/_/F.LLSMATTQUAT.shtml:%	Attitude quaternion element
LLSMTIMEFLAGS	LLSMSITIMETONE	LSM/cmd/_/F.LLSMTIMEFLAGS.shtml:%	Timetone SC flags
LLSMTIMESEC	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMTIMESEC.shtml:%	Timestamp seconds
LLSMTIMESEC	LLSMSIATTITUDE	LSM/cmd/_/F.LLSMTIMESEC.shtml:%	Timestamp seconds
LLSMTIMESEC	LLSMSITIMETONE	LSM/cmd/_/F.LLSMTIMESEC.shtml:%	Timestamp seconds
LLSMTIMESUB	LLSMSIANCILLARY	LSM/cmd/_/F.LLSMTIMESUB.shtml:%	Timestamp microseconds
LLSMTIMESUB	LLSMSIATTITUDE	LSM/cmd/_/F.LLSMTIMESUB.shtml:%	Timestamp microseconds
MSG_MsgLevel	msgResponse	LCM/cmd/_/F.MSG_MsgLevel.shtml:%	Messaging level
PAD16	LLFSDIRCREATE	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSDIRDELETE	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSDIRDUMP	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSFILECOPY	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSFILEDELETE	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSFILEDUMPC	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
PAD16	LLFSSYSSTATUS	LFS/cmd/_/F.PAD16.shtml:%	16-bit padding
Pad1	cmdResponse	LCM/cmd/_/F.Pad1.shtml:%	One byte padding
Pad1	msgResponse	LCM/cmd/_/F.Pad1.shtml:%	One byte padding
tem_mask	cal_lrs	LMC/cmd/_/F.tem_mask.shtml:%	TEM device mask
tem_mask	tkr_lrs	LMC/cmd/_/F.tem_mask.shtml:%	TEM device mask
tile_num	acd_tile_pair	LMC/cmd/_/F.tile_num.shtml:%	ACD Tile ID
tkr_mask	tkr_lrs	LMC/cmd/_/F.tkr_mask.shtml:%	TKR LRS Mask
WORD16	HtrOnOffCtl	LTC/cmd/_/F.WORD16.shtml:%	Unsigned 16-bit word
WORD16	SetMode	LTC/cmd/_/F.WORD16.shtml:%	Unsigned 16-bit word
WORD16	SetParam	LTC/cmd/_/F.WORD16.shtml:%	Unsigned 16-bit word
WORD16	SetTlmFreq	LTC/cmd/_/F.WORD16.shtml:%	Unsigned 16-bit word
WORD16	Start	LTC/cmd/_/F.WORD16.shtml:%	Unsigned 16-bit word

22 Telecommand Enumeration Index, by Name

Enumeration	Section	Description
CMD_CNT_SEL	ISIS/att/_/E.CMD_CNT_SEL.shtml:%	Selects count to return as diagnostic telemetry
EPU_ID	ISIS/att/_/E.EPU_ID.shtml:%	Enumeration of the EPUs
FILEDEVICE	ISIS/att/_/E.FILEDEVICE.shtml:%	Code for file device
ON_OFF_SELECTOR	ISIS/att/_/E.ON_OFF_SELECTOR.shtml:%	Enumeration of the options for the simple on-off selector
P_S_SELECTOR	ISIS/att/_/E.P_S_SELECTOR.shtml:%	Enumeration for the simple primary-secondary selector
PDU_ID	ISIS/att/_/E.PDU_ID.shtml:%	Identifies a PDU
SCIPATTYPE	ISIS/att/_/E.SCIPATTYPE.shtml:%	Science data generation pattern types
SIU_ID	ISIS/att/_/E.SIU_ID.shtml:%	Enumeration of the possible SIU IDs

23 Telecommand Range Index, by Name

Range	Section	Description
bits_12_range	ISIS/att/_/R.bits_12_range.shtml:%	Range for 12-bit fields
cmd_cnt_range	ISIS/att/_/R.cmd_cnt_range.shtml:%	Range for command count selection
epu_range	ISIS/att/_/R.epu_range.shtml:%	EPU number range
LHKAPIDRNG	LHK/att/_/R.LHKAPIDRNG.shtml:%	LHK APID Range
LHKDIAGINTV	LHK/att/_/R.LHKDIAGINTV.shtml:%	Diagnostic Interval
LHKDIAGPKTCNT	LHK/att/_/R.LHKDIAGPKTCNT.shtml:%	Diagnostic Packet Count
on_off_range	ISIS/att/_/R.on_off_range.shtml:%	On and off selector range
p_s_range	ISIS/att/_/R.p_s_range.shtml:%	Primary and secondary selector range
pdu_id_range	ISIS/att/_/R.pdu_id_range.shtml:%	PDU ID range
siu_id_range	ISIS/att/_/R.siu_id_range.shtml:%	SIU ID range
tem_mask_range	ISIS/att/_/R.tem_mask_range.shtml:%	TEM mask range

24 Telemetry Packet Index, by APID

APID	Tlm. Packet (L)	Section	Description (L)
0x200	LBTHKP	PBC/tlm/_/PLBTHKP.shtml:%	Boot housekeeping telemetry
0x210	TemEnvPwr0	LHK/tlm/_/P.TemEnvPwr0.shtml:%	TEM Power Packet 0
0x211	TemEnvPwr1	LHK/tlm/_/P.TemEnvPwr1.shtml:%	TEM Power Packet 1
0x212	TemEnvPwr2	LHK/tlm/_/P.TemEnvPwr2.shtml:%	TEM Power Packet 2
0x213	TemEnvPwr3	LHK/tlm/_/P.TemEnvPwr3.shtml:%	TEM Power Packet 3
0x214	TemEnvPwr4	LHK/tlm/_/P.TemEnvPwr4.shtml:%	TEM Power Packet 4
0x215	TemEnvPwr5	LHK/tlm/_/P.TemEnvPwr5.shtml:%	TEM Power Packet 5
0x216	TemEnvTemp0	LHK/tlm/_/P.TemEnvTemp0.shtml:%	TEM Temperature Packet 0
0x217	TemEnvTemp1	LHK/tlm/_/P.TemEnvTemp1.shtml:%	TEM Temperature Packet 1
0x218	TemEnvTemp2	LHK/tlm/_/P.TemEnvTemp2.shtml:%	TEM Temperature Packet 2
0x219	TemEnvTemp3	LHK/tlm/_/P.TemEnvTemp3.shtml:%	TEM Temperature Packet 3
0x21A	TemEnvTemp4	LHK/tlm/_/P.TemEnvTemp4.shtml:%	TEM Temperature Packet 4
0x21B	TemEnvTemp5	LHK/tlm/_/P.TemEnvTemp5.shtml:%	TEM Temperature Packet 5
0x21C	TemEnvTemp6	LHK/tlm/_/P.TemEnvTemp6.shtml:%	TEM Temperature Packet 6
0x21D	TemEnvTemp7	LHK/tlm/_/P.TemEnvTemp7.shtml:%	TEM Temperature Packet 7
0x21E	TemEnvV0	LHK/tlm/_/P.PollEnvV0.shtml:%	PEM Environmental Packet 0
0x21F	TemEnvV1	LHK/tlm/_/P.PollEnvV1.shtml:%	PEM Environmental Packet 1
0x220	TemEnvV2	LHK/tlm/_/P.PollEnvV2.shtml:%	PEM Environmental Packet 2
0x221	TemEnvV3	LHK/tlm/_/P.PollEnvV3.shtml:%	PEM Environmental Packet 3
0x222	TemEnvV4	LHK/tlm/_/P.PollEnvV4.shtml:%	PEM Environmental Packet 4
0x223	TemEnvV5	LHK/tlm/_/P.PollEnvV5.shtml:%	PEM Environmental Packet 5
0x224	TemEnvV6	LHK/tlm/_/P.PollEnvV6.shtml:%	PEM Environmental Packet 6
0x225	TemEnvV7	LHK/tlm/_/P.PollEnvV7.shtml:%	PEM Environmental Packet 7
0x226	TemEnvV8	LHK/tlm/_/P.PollEnvV8.shtml:%	PEM Environmental Packet 8
0x227	TemEnvV9	LHK/tlm/_/P.PollEnvV9.shtml:%	PEM Environmental Packet 9
0x228	TemEnvV10	LHK/tlm/_/P.PollEnvV10.shtml:%	PEM Environmental Packet 10
0x229	TemEnvV11	LHK/tlm/_/P.PollEnvV11.shtml:%	PEM Environmental Packet 11
0x22A	TemEnvV12	LHK/tlm/_/P.PollEnvV12.shtml:%	PEM Environmental Packet 12
0x22B	TemEnvV13	LHK/tlm/_/P.PollEnvV13.shtml:%	PEM Environmental Packet 13
0x22C	TemEnvV14	LHK/tlm/_/P.PollEnvV14.shtml:%	PEM Environmental Packet 14
0x22D	TemEnvV15	LHK/tlm/_/P.PollEnvV15.shtml:%	PEM Environmental Packet 15
0x22E	TemEnvV16	LHK/tlm/_/P.PollEnvV16.shtml:%	PEM Environmental Packet 16
0x22F	TemEnvV17	LHK/tlm/_/P.PollEnvV17.shtml:%	PEM Environmental Packet 17
0x230	TemEnvV18	LHK/tlm/_/P.PollEnvV18.shtml:%	PEM Environmental Packet 18
0x231	TemEnvV19	LHK/tlm/_/P.PollEnvV19.shtml:%	PEM Environmental Packet 19
0x232	TemEnvV20	LHK/tlm/_/P.PollEnvV20.shtml:%	PEM Environmental Packet 20
0x233	TemEnvV21	LHK/tlm/_/P.PollEnvV21.shtml:%	PEM Environmental Packet 21
0x234	TemEnvV22	LHK/tlm/_/P.PollEnvV22.shtml:%	PEM Environmental Packet 22
0x235	TemEnvV23	LHK/tlm/_/P.PollEnvV23.shtml:%	PEM Environmental Packet 23
0x236	TemEnvV24	LHK/tlm/_/P.PollEnvV24.shtml:%	PEM Environmental Packet 24
0x237	TemEnvV25	LHK/tlm/_/P.PollEnvV25.shtml:%	PEM Environmental Packet 25
0x238	TemEnvV26	LHK/tlm/_/P.PollEnvV26.shtml:%	PEM Environmental Packet 26
0x239	TemEnvV27	LHK/tlm/_/P.PollEnvV27.shtml:%	PEM Environmental Packet 27
0x23A	TemEnvV28	LHK/tlm/_/P.PollEnvV28.shtml:%	PEM Environmental Packet 28
0x23B	TemEnvV29	LHK/tlm/_/P.PollEnvV29.shtml:%	PEM Environmental Packet 29
0x23C	TemEnvV30	LHK/tlm/_/P.PollEnvV30.shtml:%	PEM Environmental Packet 30
0x23D	TemEnvV31	LHK/tlm/_/P.PollEnvV31.shtml:%	PEM Environmental Packet 31
0x23E	TemEnvV32	LHK/tlm/_/P.PollEnvV32.shtml:%	PEM Environmental Packet 32
0x23F	TemEnvV33	LHK/tlm/_/P.PollEnvV33.shtml:%	PEM Environmental Packet 33
0x240	TemEnvV34	LHK/tlm/_/P.PollEnvV34.shtml:%	PEM Environmental Packet 34
0x241	TemEnvV35	LHK/tlm/_/P.PollEnvV35.shtml:%	PEM Environmental Packet 35
0x242	TemEnvV36	LHK/tlm/_/P.PollEnvV36.shtml:%	PEM Environmental Packet 36
0x243	TemEnvV37	LHK/tlm/_/P.PollEnvV37.shtml:%	PEM Environmental Packet 37
0x244	TemEnvV38	LHK/tlm/_/P.PollEnvV38.shtml:%	PEM Environmental Packet 38
0x245	TemEnvV39	LHK/tlm/_/P.PollEnvV39.shtml:%	PEM Environmental Packet 39
0x246	TemEnvV40	LHK/tlm/_/P.PollEnvV40.shtml:%	PEM Environmental Packet 40
0x247	TemEnvV41	LHK/tlm/_/P.PollEnvV41.shtml:%	PEM Environmental Packet 41
0x248	TemEnvV42	LHK/tlm/_/P.PollEnvV42.shtml:%	PEM Environmental Packet 42
0x249	TemEnvV43	LHK/tlm/_/P.PollEnvV43.shtml:%	PEM Environmental Packet 43
0x24A	TemEnvV44	LHK/tlm/_/P.PollEnvV44.shtml:%	PEM Environmental Packet 44
0x24B	TemEnvV45	LHK/tlm/_/P.PollEnvV45.shtml:%	PEM Environmental Packet 45
0x24C	TemEnvV46	LHK/tlm/_/P.PollEnvV46.shtml:%	PEM Environmental Packet 46
0x24D	TemEnvV47	LHK/tlm/_/P.PollEnvV47.shtml:%	PEM Environmental Packet 47
0x24E	TemEnvV48	LHK/tlm/_/P.PollEnvV48.shtml:%	PEM Environmental Packet 48
0x24F	TemEnvV49	LHK/tlm/_/P.PollEnvV49.shtml:%	PEM Environmental Packet 49
0x250	TemEnvV50	LHK/tlm/_/P.PollEnvV50.shtml:%	PEM Environmental Packet 50
0x251	TemEnvV51	LHK/tlm/_/P.PollEnvV51.shtml:%	PEM Environmental Packet 51
0x252	TemEnvV52	LHK/tlm/_/P.PollEnvV52.shtml:%	PEM Environmental Packet 52
0x253	TemEnvV53	LHK/tlm/_/P.PollEnvV53.shtml:%	PEM Environmental Packet 53
0x254	TemEnvV54	LHK/tlm/_/P.PollEnvV54.shtml:%	PEM Environmental Packet 54
0x255	TemEnvV55	LHK/tlm/_/P.PollEnvV55.shtml:%	PEM Environmental Packet 55
0x256	TemEnvV56	LHK/tlm/_/P.PollEnvV56.shtml:%	PEM Environmental Packet 56
0x257	TemEnvV57	LHK/tlm/_/P.PollEnvV57.shtml:%	PEM Environmental Packet 57
0x258	TemEnvV58	LHK/tlm/_/P.PollEnvV58.shtml:%	PEM Environmental Packet 58
0x259	TemEnvV59	LHK/tlm/_/P.PollEnvV59.shtml:%	PEM Environmental Packet 59
0x25A	TemEnvV60	LHK/tlm/_/P.PollEnvV60.shtml:%	PEM Environmental Packet 60
0x25B	TemEnvV61	LHK/tlm/_/P.PollEnvV61.shtml:%	PEM Environmental Packet 61
0x25C	TemEnvV62	LHK/tlm/_/P.PollEnvV62.shtml:%	PEM Environmental Packet 62
0x25D	TemEnvV63	LHK/tlm/_/P.PollEnvV63.shtml:%	PEM Environmental Packet 63
0x25E	TemEnvV64	LHK/tlm/_/P.PollEnvV64.shtml:%	PEM Environmental Packet 64
0x25F	TemEnvV65	LHK/tlm/_/P.PollEnvV65.shtml:%	PEM Environmental Packet 65
0x260	TemEnvV66	LHK/tlm/_/P.PollEnvV66.shtml:%	PEM Environmental Packet 66
0x261	TemEnvV67	LHK/tlm/_/P.PollEnvV67.shtml:%	PEM Environmental Packet 67
0x262	TemEnvV68	LHK/tlm/_/P.PollEnvV68.shtml:%	PEM Environmental Packet 68
0x263	TemEnvV69	LHK/tlm/_/P.PollEnvV69.shtml:%	PEM Environmental Packet 69
0x264	TemEnvV70	LHK/tlm/_/P.PollEnvV70.shtml:%	PEM Environmental Packet 70
0x265	TemEnvV71	LHK/tlm/_/P.PollEnvV71.shtml:%	PEM Environmental Packet 71
0x266	TemEnvV72	LHK/tlm/_/P.PollEnvV72.shtml:%	PEM Environmental Packet 72
0x267	TemEnvV73	LHK/tlm/_/P.PollEnvV73.shtml:%	PEM Environmental Packet 73
0x268	TemEnvV74	LHK/tlm/_/P.PollEnvV74.shtml:%	PEM Environmental Packet 74
0x269	TemEnvV75	LHK/tlm/_/P.PollEnvV75.shtml:%	PEM Environmental Packet 75
0x26A	TemEnvV76	LHK/tlm/_/P.PollEnvV76.shtml:%	PEM Environmental Packet 76
0x26B	TemEnvV77	LHK/tlm/_/P.PollEnvV77.shtml:%	PEM Environmental Packet 77
0x26C	TemEnvV78	LHK/tlm/_/P.PollEnvV78.shtml:%	PEM Environmental Packet 78
0x26D	TemEnvV79	LHK/tlm/_/P.PollEnvV79.shtml:%	PEM Environmental Packet 79
0x26E	TemEnvV80	LHK/tlm/_/P.PollEnvV80.shtml:%	PEM Environmental Packet 80
0x26F	TemEnvV81	LHK/tlm/_/P.PollEnvV81.shtml:%	PEM Environmental Packet 81
0x270	TemEnvV82	LHK/tlm/_/P.PollEnvV82.shtml:%	PEM Environmental Packet 82
0x271	TemEnvV83	LHK/tlm/_/P.PollEnvV83.shtml:%	PEM Environmental Packet 83
0x272	TemEnvV84	LHK/tlm/_/P.PollEnvV84.shtml:%	PEM Environmental Packet 84
0x273	TemEnvV85	LHK/tlm/_/P.PollEnvV85.shtml:%	PEM Environmental Packet 85
0x274	TemEnvV86	LHK/tlm/_/P.PollEnvV86.shtml:%	PEM Environmental Packet 86
0x275	TemEnvV87	LHK/tlm/_/P.PollEnvV87.shtml:%	PEM Environmental Packet 87
0x276	TemEnvV88	LHK/tlm/_/P.PollEnvV88.shtml:%	PEM Environmental Packet 88
0x277	TemEnvV89	LHK/tlm/_/P.PollEnvV89.shtml:%	PEM Environmental Packet 89
0x278	TemEnvV90	LHK/tlm/_/P.PollEnvV90.shtml:%	PEM Environmental Packet 90
0x279	TemEnvV91	LHK/tlm/_/P.PollEnvV91.shtml:%	PEM Environmental Packet 91
0x27A	TemEnvV92	LHK/tlm/_/P.PollEnvV92.shtml:%	PEM Environmental Packet 92
0x27B	TemEnvV93	LHK/tlm/_/P.PollEnvV93.shtml:%	PEM Environmental Packet 93
0x27C	TemEnvV94	LHK/tlm/_/P.PollEnvV94.shtml:%	PEM Environmental Packet 94
0x27D	TemEnvV95	LHK/tlm/_/P.PollEnvV95.shtml:%	PEM Environmental Packet 95
0x27E	TemEnvV96	LHK/tlm/_/P.PollEnvV96.shtml:%	PEM Environmental Packet 96
0x27F	TemEnvV97	LHK/tlm/_/P.PollEnvV97.shtml:%	PEM Environmental Packet 97
0x280	TemEnvV98	LHK/tlm/_/P.PollEnvV98.shtml:%	PEM Environmental Packet 98
0x281	TemEnvV99	LHK/tlm/_/P.PollEnvV99.shtml:%	PEM Environmental Packet 99

APID	Packet (L)	Section	Description
0000	0000	0000	0000
0001	0001	0001	0001
0002	0002	0002	0002
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0046	0046	0046	0046
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0090	0090	0090	0090
0091	0091	0091	0091
0092	0092	0092	0092
0093	0093	0093	0093
0094	0094	0094	0094
0095	0095	0095	0095
0096	0096	0096	0096
0097	0097	0097	0097
0098	0098	0098	0098
0099	0099	0099	0099

25 Telemetry Packet Index, by Name (LCAT)

Tlm. Packet (L)	APID	Section	Description (L)
acd_cnt	0x2C3	LMC/tlm/_/P.acd_cnt.shtml:%	ACD Tile Counters
AemEnv0	0x226	LHK/tlm/_/P.AemEnv0.shtml:%	AEM Environmental Monitor Packet 0
cal_cnt	0x2C1	LMC/tlm/_/P.cal_cnt.shtml:%	CAL Low Rate Science Counters
CmdCnt0	0x228	LHK/tlm/_/P.CmdCnt0.shtml:%	Command Statistics Packet 0
CmdCnt1	0x229	LHK/tlm/_/P.CmdCnt1.shtml:%	Command Statistics Packet 1
CmdConfirm	0x2D0	ITC/tlm/_/P.CmdConfirm.shtml:%	Response to command from spacecraft
CpuMetr	0x22B	LHK/tlm/_/P.CpuMetr.shtml:%	CPU Metrics/RT Statistics Packet
DiagAemEnv0	0x286	LHK/tlm/_/P.DiagAemEnv0.shtml:%	Diagnostic AEM Environmental Monitor Packet 0
DiagCmdCnt0	0x288	LHK/tlm/_/P.DiagCmdCnt0.shtml:%	Diagnostic Command Statistics Packet 0
DiagCmdCnt1	0x289	LHK/tlm/_/P.DiagCmdCnt1.shtml:%	Diagnostic Command Statistics Packet 1
DiagCpuMetr	0x28B	LHK/tlm/_/P.DiagCpuMetr.shtml:%	Diagnostic CPU Metrics/RT Statistics Packet
DiagFileStats	0x28A	LHK/tlm/_/P.DiagFileStats.shtml:%	Diagnostic File System Statistics Packet
DiagLrs0	0x287	LHK/tlm/_/P.DiagLrs0.shtml:%	Diagnostic Low-rate Science Packet
DiagLTC	0x2BC	LTC/tlm/_/P.DiagLTC.shtml:%	LAT Thermal Control diagnostic telemetry
DiagMemStats0	0x28C	LHK/tlm/_/P.DiagMemStats0.shtml:%	Diagnostic Memory Load/Dump Statistics
DiagMemStats1	0x28D	LHK/tlm/_/P.DiagMemStats1.shtml:%	Diagnostic Memory Load/Dump Statistics
DiagPduEnv0	0x27E	LHK/tlm/_/P.DiagPduEnv0.shtml:%	Diagnostic PDU Environmental Packet 0
DiagPduEnv1	0x27F	LHK/tlm/_/P.DiagPduEnv1.shtml:%	Diagnostic PDU Environmental Packet 1
DiagPduEnv2	0x280	LHK/tlm/_/P.DiagPduEnv2.shtml:%	Diagnostic PDU Environmental Packet 2
DiagPduEnv3	0x281	LHK/tlm/_/P.DiagPduEnv3.shtml:%	Diagnostic PDU Environmental Packet 3
DiagPduEnv4	0x282	LHK/tlm/_/P.DiagPduEnv4.shtml:%	Diagnostic PDU Environmental Packet 4
DiagPduEnv5	0x283	LHK/tlm/_/P.DiagPduEnv5.shtml:%	Diagnostic PDU Environmental Packet 5
DiagPduEnv6	0x284	LHK/tlm/_/P.DiagPduEnv6.shtml:%	Diagnostic PDU Environmental Packet 6
DiagPduEnv7	0x285	LHK/tlm/_/P.DiagPduEnv7.shtml:%	Diagnostic PDU Environmental Packet 7
DiagTemEnvPwr0	0x270	LHK/tlm/_/P.DiagTemEnvPwr0.shtml:%	Diagnostic TEM Power Packet 0
DiagTemEnvPwr1	0x271	LHK/tlm/_/P.DiagTemEnvPwr1.shtml:%	Diagnostic TEM Power Packet 1
DiagTemEnvPwr2	0x272	LHK/tlm/_/P.DiagTemEnvPwr2.shtml:%	Diagnostic TEM Power Packet 2
DiagTemEnvPwr3	0x273	LHK/tlm/_/P.DiagTemEnvPwr3.shtml:%	Diagnostic TEM Power Packet 3
DiagTemEnvPwr4	0x274	LHK/tlm/_/P.DiagTemEnvPwr4.shtml:%	Diagnostic TEM Power Packet 4
DiagTemEnvPwr5	0x275	LHK/tlm/_/P.DiagTemEnvPwr5.shtml:%	Diagnostic TEM Power Packet 5
DiagTemEnvTemp0	0x276	LHK/tlm/_/P.DiagTemEnvTemp0.shtml:%	Diagnostic TEM Temperature Packet 0
DiagTemEnvTemp1	0x277	LHK/tlm/_/P.DiagTemEnvTemp1.shtml:%	Diagnostic TEM Temperature Packet 1
DiagTemEnvTemp2	0x278	LHK/tlm/_/P.DiagTemEnvTemp2.shtml:%	Diagnostic TEM Temperature Packet 2
DiagTemEnvTemp3	0x279	LHK/tlm/_/P.DiagTemEnvTemp3.shtml:%	Diagnostic TEM Temperature Packet 3
DiagTemEnvTemp4	0x27A	LHK/tlm/_/P.DiagTemEnvTemp4.shtml:%	Diagnostic TEM Temperature Packet 4
DiagTemEnvTemp5	0x27B	LHK/tlm/_/P.DiagTemEnvTemp5.shtml:%	Diagnostic TEM Temperature Packet 5
DiagTemEnvTemp6	0x27C	LHK/tlm/_/P.DiagTemEnvTemp6.shtml:%	Diagnostic TEM Temperature Packet 6
DiagTemEnvTemp7	0x27D	LHK/tlm/_/P.DiagTemEnvTemp7.shtml:%	Diagnostic TEM Temperature Packet 7
FileStats	0x22A	LHK/tlm/_/P.FileStats.shtml:%	File System Statistics Packet
LBTEPU0HKP	0x261	PBC/tlm/_/P.LBTEPU0HKP.shtml:%	EPU 0 Boot Housekeeping Telemetry
LBTHKP	0x200	PBC/tlm/_/P.LBTHKP.shtml:%	Boot housekeeping telemetry
LLFSDIRLIST	0x318	LFS/tlm/_/P.LLFSDIRLIST.shtml:%	Directory Listing Report
LLFSDUMPCTDB	0x31B	LFS/tlm/_/P.LLFSDUMPCTDB.shtml:%	File Dump Data CTDB
LLFSROOTLIST	0x319	LFS/tlm/_/P.LLFSROOTLIST.shtml:%	Root Listing Report
LLFSSYSLIST	0x31A	LFS/tlm/_/P.LLFSSYSLIST.shtml:%	File System Status Report
LMEMPOOLDATA	0x311	MEM/tlm/_/P.LMEMPOOLDATA.shtml:%	Memory Pool Statistics Dump
LMEMSIUDATA	0x314	MEM/tlm/_/P.LMEMSIUDATA.shtml:%	SIU Memory Dump Data
LMEMSYMVAL	0x312	MEM/tlm/_/P.LMEMSYMVAL.shtml:%	Symbol Value Dump
Lrs0	0x227	LHK/tlm/_/P.Lrs0.shtml:%	Low-rate Science Packet
MemStats0	0x22C	LHK/tlm/_/P.MemStats0.shtml:%	Memory Load/Dump Statistics
MemStats1	0x22D	LHK/tlm/_/P.MemStats1.shtml:%	Memory Load/Dump Statistics

Tlm. Packet (L)	APID	Section	Description (L)
PduEnv0	0x21E	LHK/tlm/_/P.PduEnv0.shtml:%	PDU Environmental Packet 0
PduEnv1	0x21F	LHK/tlm/_/P.PduEnv1.shtml:%	PDU Environmental Packet 1
PduEnv2	0x220	LHK/tlm/_/P.PduEnv2.shtml:%	PDU Environmental Packet 2
PduEnv3	0x221	LHK/tlm/_/P.PduEnv3.shtml:%	PDU Environmental Packet 3
PduEnv4	0x222	LHK/tlm/_/P.PduEnv4.shtml:%	PDU Environmental Packet 4
PduEnv5	0x223	LHK/tlm/_/P.PduEnv5.shtml:%	PDU Environmental Packet 5
PduEnv6	0x224	LHK/tlm/_/P.PduEnv6.shtml:%	PDU Environmental Packet 6
PduEnv7	0x225	LHK/tlm/_/P.PduEnv7.shtml:%	PDU Environmental Packet 7
RedLimAlrt	0x353	LHK/tlm/_/P.RedLimAlrt.shtml:%	Red Limit Alert Packet
TemEnvPwr0	0x210	LHK/tlm/_/P.TemEnvPwr0.shtml:%	TEM Power Packet 0
TemEnvPwr1	0x211	LHK/tlm/_/P.TemEnvPwr1.shtml:%	TEM Power Packet 1
TemEnvPwr2	0x212	LHK/tlm/_/P.TemEnvPwr2.shtml:%	TEM Power Packet 2
TemEnvPwr3	0x213	LHK/tlm/_/P.TemEnvPwr3.shtml:%	TEM Power Packet 3
TemEnvPwr4	0x214	LHK/tlm/_/P.TemEnvPwr4.shtml:%	TEM Power Packet 4
TemEnvPwr5	0x215	LHK/tlm/_/P.TemEnvPwr5.shtml:%	TEM Power Packet 5
TemEnvTemp0	0x216	LHK/tlm/_/P.TemEnvTemp0.shtml:%	TEM Temperature Packet 0
TemEnvTemp1	0x217	LHK/tlm/_/P.TemEnvTemp1.shtml:%	TEM Temperature Packet 1
TemEnvTemp2	0x218	LHK/tlm/_/P.TemEnvTemp2.shtml:%	TEM Temperature Packet 2
TemEnvTemp3	0x219	LHK/tlm/_/P.TemEnvTemp3.shtml:%	TEM Temperature Packet 3
TemEnvTemp4	0x21A	LHK/tlm/_/P.TemEnvTemp4.shtml:%	TEM Temperature Packet 4
TemEnvTemp5	0x21B	LHK/tlm/_/P.TemEnvTemp5.shtml:%	TEM Temperature Packet 5
TemEnvTemp6	0x21C	LHK/tlm/_/P.TemEnvTemp6.shtml:%	TEM Temperature Packet 6
TemEnvTemp7	0x21D	LHK/tlm/_/P.TemEnvTemp7.shtml:%	TEM Temperature Packet 7
tkr_cnt	0x2C2	LMC/tlm/_/P.tkr_cnt.shtml:%	TKR Low Rate Science Counters

26 Telemetry Struct Index, by Name (LCAT)

Struct (L)	Tlm. Packet (L)	Section	Description (L)
AEMDAQENV	DiagPduEnv0	LHK/tlm/_/S.AEMDAQENV.shtml:%	AEM DAQ Environmental
AEMDAQENV	PduEnv0	LHK/tlm/_/S.AEMDAQENV.shtml:%	AEM DAQ Environmental
AEMFRENV	AemEnv0	LHK/tlm/_/S.AEMFRENV.shtml:%	AEM Free Board Environmental ADCs
AEMFRENV	DiagAemEnv0	LHK/tlm/_/S.AEMFRENV.shtml:%	AEM Free Board Environmental ADCs
cal_counter	cal_cnt	LMC/tlm/_/S.cal_counter.shtml:%	CAL LRS Counter Structure
CMDCNTRS	CmdCnt0	LHK/tlm/_/S.CMDCNTRS.shtml:%	Command Counters
CMDCNTRS	CmdCnt1	LHK/tlm/_/S.CMDCNTRS.shtml:%	Command Counters
CMDCNTRS	DiagCmdCnt0	LHK/tlm/_/S.CMDCNTRS.shtml:%	Command Counters
CMDCNTRS	DiagCmdCnt1	LHK/tlm/_/S.CMDCNTRS.shtml:%	Command Counters
CmdHeader	CmdConfirm	ITC/tlm/_/S.CmdHeader.shtml:%	CCSDS telecommand header
CPUMETR	CpuMetr	LHK/tlm/_/S.CPUMETR.shtml:%	CPU Metrics
CPUMETR	DiagCpuMetr	LHK/tlm/_/S.CPUMETR.shtml:%	CPU Metrics
FILESTATS	DiagFileStats	LHK/tlm/_/S.FILESTATS.shtml:%	FILE Upload Statistics
FILESTATS	FileStats	LHK/tlm/_/S.FILESTATS.shtml:%	FILE Upload Statistics
GEMLRS	DiagLrs0	LHK/tlm/_/S.GEMLRS.shtml:%	GEM Low-Rate Science Counter
GEMLRS	Lrs0	LHK/tlm/_/S.GEMLRS.shtml:%	GEM Low-Rate Science Counter
MEMSTATS	DiagMemStats0	LHK/tlm/_/S.MEMSTATS.shtml:%	MEM Statistics
MEMSTATS	DiagMemStats1	LHK/tlm/_/S.MEMSTATS.shtml:%	MEM Statistics
MEMSTATS	MemStats0	LHK/tlm/_/S.MEMSTATS.shtml:%	MEM Statistics
MEMSTATS	MemStats1	LHK/tlm/_/S.MEMSTATS.shtml:%	MEM Statistics
RTSTATS	CpuMetr	LHK/tlm/_/S.RTSTATS.shtml:%	1553 Remote Terminal Statistics
RTSTATS	DiagCpuMetr	LHK/tlm/_/S.RTSTATS.shtml:%	1553 Remote Terminal Statistics
tile_counter	acd_cnt	LMC/tlm/_/S.tile_counter.shtml:%	ADC Tile Counter Structure
tkr_counter	tkr_cnt	LMC/tlm/_/S.tkr_counter.shtml:%	TKR LRS Counter Structure
TMUX0	DiagTemEnvPwr0	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	DiagTemEnvPwr1	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	DiagTemEnvPwr2	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	DiagTemEnvPwr3	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	DiagTemEnvPwr4	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	DiagTemEnvPwr5	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr0	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr1	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr2	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr3	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr4	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX0	TemEnvPwr5	LHK/tlm/_/S.TMUX0.shtml:%	TEM mux channel 0 environmental ADCs
TMUX1	DiagTemEnvPwr0	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	DiagTemEnvPwr1	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	DiagTemEnvPwr2	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	DiagTemEnvPwr3	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	DiagTemEnvPwr4	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	DiagTemEnvPwr5	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr0	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr1	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr2	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr3	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr4	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX1	TemEnvPwr5	LHK/tlm/_/S.TMUX1.shtml:%	TEM mux channel 1 environmental ADCs
TMUX2	DiagTemEnvTemp0	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp1	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp2	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs

Struct (L)	Tlm. Packet (L)	Section	Description (L)
TMUX2	DiagTemEnvTemp3	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp4	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp5	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp6	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	DiagTemEnvTemp7	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp0	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp1	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp2	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp3	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp4	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp5	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp6	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX2	TemEnvTemp7	LHK/tlm/_/S.TMUX2.shtml:%	TEM mux channel 2 environmental ADCs
TMUX3	DiagTemEnvTemp0	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp1	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp2	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp3	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp4	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp5	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp6	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	DiagTemEnvTemp7	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp0	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp1	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp2	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp3	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp4	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp5	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp6	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX3	TemEnvTemp7	LHK/tlm/_/S.TMUX3.shtml:%	TEM mux channel 3 environmental ADCs
TMUX4	DiagTemEnvTemp0	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp1	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp2	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp3	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp4	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp5	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp6	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	DiagTemEnvTemp7	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp0	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp1	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp2	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp3	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp4	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp5	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp6	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs
TMUX4	TemEnvTemp7	LHK/tlm/_/S.TMUX4.shtml:%	TEM mux channel 4 environmental ADCs

27 Telemetry Bitfield Index, by Name (LCAT)

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
ACDBEAGRIDTEMP	DiagPduEnv3	LHK/tlm/_/B.ACDBEAGRIDTEMP.shtml:%	ACD BEA Grid Interface Temperature
ACDBEAGRIDTEMP	DiagPduEnv7	LHK/tlm/_/B.ACDBEAGRIDTEMP.shtml:%	ACD BEA Grid Interface Temperature
ACDBEAGRIDTEMP	PduEnv3	LHK/tlm/_/B.ACDBEAGRIDTEMP.shtml:%	ACD BEA Grid Interface Temperature
ACDBEAGRIDTEMP	PduEnv7	LHK/tlm/_/B.ACDBEAGRIDTEMP.shtml:%	ACD BEA Grid Interface Temperature
ACDPMTRAILTEMP	DiagPduEnv3	LHK/tlm/_/B.ACDPMTRAILTEMP.shtml:%	ADC PMT Rail Temperature
ACDPMTRAILTEMP	DiagPduEnv7	LHK/tlm/_/B.ACDPMTRAILTEMP.shtml:%	ADC PMT Rail Temperature
ACDPMTRAILTEMP	PduEnv3	LHK/tlm/_/B.ACDPMTRAILTEMP.shtml:%	ADC PMT Rail Temperature
ACDPMTRAILTEMP	PduEnv7	LHK/tlm/_/B.ACDPMTRAILTEMP.shtml:%	ADC PMT Rail Temperature
ACDPWRREG	DiagPduEnv0	LHK/tlm/_/B.ACDPWRREG.shtml:%	PDU ADC Power Management Register
ACDPWRREG	DiagPduEnv4	LHK/tlm/_/B.ACDPWRREG.shtml:%	PDU ADC Power Management Register
ACDPWRREG	PduEnv0	LHK/tlm/_/B.ACDPWRREG.shtml:%	PDU ADC Power Management Register
ACDPWRREG	PduEnv4	LHK/tlm/_/B.ACDPWRREG.shtml:%	PDU ADC Power Management Register
ACDSHELLTEMP	DiagPduEnv3	LHK/tlm/_/B.ACDSHELLTEMP.shtml:%	ADC Shell Temperature
ACDSHELLTEMP	DiagPduEnv7	LHK/tlm/_/B.ACDSHELLTEMP.shtml:%	ADC Shell Temperature
ACDSHELLTEMP	PduEnv3	LHK/tlm/_/B.ACDSHELLTEMP.shtml:%	ADC Shell Temperature
ACDSHELLTEMP	PduEnv7	LHK/tlm/_/B.ACDSHELLTEMP.shtml:%	ADC Shell Temperature
AEMFR28ISUM	DiagPduEnv0	LHK/tlm/_/B.AEMFR28ISUM.shtml:%	AEM FREE Board 28V Sum
AEMFR28ISUM	PduEnv0	LHK/tlm/_/B.AEMFR28ISUM.shtml:%	AEM FREE Board 28V Sum
AEMFR33ISUM	DiagPduEnv0	LHK/tlm/_/B.AEMFR33ISUM.shtml:%	AEM FREE Board 3.3 Sum
AEMFR33ISUM	PduEnv0	LHK/tlm/_/B.AEMFR33ISUM.shtml:%	AEM FREE Board 3.3 Sum
AEMFRHV1	AemEnv0	LHK/tlm/_/B.AEMFRHV1.shtml:%	AEM Free Board HV1
AEMFRHV1	DiagAemEnv0	LHK/tlm/_/B.AEMFRHV1.shtml:%	AEM Free Board HV1
AEMFRHV2	AemEnv0	LHK/tlm/_/B.AEMFRHV2.shtml:%	AEM Free Board HV2
AEMFRHV2	DiagAemEnv0	LHK/tlm/_/B.AEMFRHV2.shtml:%	AEM Free Board HV2
AEMFRPWRREG	AemEnv0	LHK/tlm/_/B.AEMFRPWRREG.shtml:%	AEM FREE board power status register
AEMFRPWRREG	DiagAemEnv0	LHK/tlm/_/B.AEMFRPWRREG.shtml:%	AEM FREE board power status register
AEMFRTEMP	AemEnv0	LHK/tlm/_/B.AEMFRTEMP.shtml:%	AEM Free board Temperature
AEMFRTEMP	DiagAemEnv0	LHK/tlm/_/B.AEMFRTEMP.shtml:%	AEM Free board Temperature
AEMFRVDD	AemEnv0	LHK/tlm/_/B.AEMFRVDD.shtml:%	AEM VDD
AEMFRVDD	DiagAemEnv0	LHK/tlm/_/B.AEMFRVDD.shtml:%	AEM VDD
AFEETEMP	DiagTemEnvTemp0	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp1	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp2	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp3	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp4	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp5	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp6	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	DiagTemEnvTemp7	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp0	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp1	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp2	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp3	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp4	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp5	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp6	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
AFEETEMP	TemEnvTemp7	LHK/tlm/_/B.AFEETEMP.shtml:%	CAL AFFE temperature ADC value
BOOTCOMMAND	LBTEPU0HKP	PBC/tlm/_/B.BOOTCOMMAND.shtml:%	Last boot command bitfield
BOOTCOMMAND	LBTHKP	PBC/tlm/_/B.BOOTCOMMAND.shtml:%	Last boot command bitfield
CAL33I	DiagTemEnvPwr0	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	DiagTemEnvPwr1	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	DiagTemEnvPwr2	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
CAL33I	DiagTemEnvPwr3	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	DiagTemEnvPwr4	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	DiagTemEnvPwr5	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr0	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr1	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr2	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr3	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr4	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33I	TemEnvPwr5	LHK/tlm/_/B.CAL33I.shtml:%	CAL 3.3 Current ADC value
CAL33V	DiagTemEnvPwr0	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	DiagTemEnvPwr1	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	DiagTemEnvPwr2	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	DiagTemEnvPwr3	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	DiagTemEnvPwr4	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	DiagTemEnvPwr5	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr0	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr1	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr2	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr3	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr4	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CAL33V	TemEnvPwr5	LHK/tlm/_/B.CAL33V.shtml:%	CAL 3.3 Voltage ADC value
CALBIASI	DiagTemEnvPwr0	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	DiagTemEnvPwr1	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	DiagTemEnvPwr2	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	DiagTemEnvPwr3	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	DiagTemEnvPwr4	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	DiagTemEnvPwr5	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr0	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr1	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr2	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr3	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr4	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASI	TemEnvPwr5	LHK/tlm/_/B.CALBIASI.shtml:%	CAL Bias Current ADC value
CALBIASV	DiagTemEnvPwr0	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	DiagTemEnvPwr1	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	DiagTemEnvPwr2	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	DiagTemEnvPwr3	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	DiagTemEnvPwr4	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	DiagTemEnvPwr5	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr0	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr1	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr2	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr3	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr4	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBIASV	TemEnvPwr5	LHK/tlm/_/B.CALBIASV.shtml:%	CAL Bias Voltage ADC value
CALBSPTMP	DiagPduEnv1	LHK/tlm/_/B.CALBSPTMP.shtml:%	CAL Baseplate Temperature
CALBSPTMP	DiagPduEnv5	LHK/tlm/_/B.CALBSPTMP.shtml:%	CAL Baseplate Temperature
CALBSPTMP	PduEnv1	LHK/tlm/_/B.CALBSPTMP.shtml:%	CAL Baseplate Temperature
CALBSPTMP	PduEnv5	LHK/tlm/_/B.CALBSPTMP.shtml:%	CAL Baseplate Temperature
DABTEMP	DiagPduEnv0	LHK/tlm/_/B.DABTEMP.shtml:%	DAQ Board Temperature
DABTEMP	PduEnv0	LHK/tlm/_/B.DABTEMP.shtml:%	DAQ Board Temperature
DAQ33V	DiagPduEnv0	LHK/tlm/_/B.DAQ33V.shtml:%	DAQ Board 3.3 Voltage

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
DAQ33V	PduEnv0	LHK/tlm/_/B.DAQ33V.shtml:%	DAQ Board 3.3 Voltage
DUMPSTFLAGS	LLFSDIRLIST	LFS/tlm/_/B.DUMPSTFLAGS.shtml:%	File Dump Flags
DUMPSTFLAGS	LLFSDUMPCTDB	LFS/tlm/_/B.DUMPSTFLAGS.shtml:%	File Dump Flags
DUMPSTFLAGS	LLFSROOTLIST	LFS/tlm/_/B.DUMPSTFLAGS.shtml:%	File Dump Flags
DUMPSTFLAGS	LLFSSYSLIST	LFS/tlm/_/B.DUMPSTFLAGS.shtml:%	File Dump Flags
EPUTEMP	DiagPduEnv0	LHK/tlm/_/B.EPUTEMP.shtml:%	EPU Temperature ADC value
EPUTEMP	DiagPduEnv4	LHK/tlm/_/B.EPUTEMP.shtml:%	EPU Temperature ADC value
EPUTEMP	PduEnv0	LHK/tlm/_/B.EPUTEMP.shtml:%	EPU Temperature ADC value
EPUTEMP	PduEnv4	LHK/tlm/_/B.EPUTEMP.shtml:%	EPU Temperature ADC value
EPUV	DiagPduEnv0	LHK/tlm/_/B.EPUV.shtml:%	EPU Voltage ADC value
EPUV	DiagPduEnv4	LHK/tlm/_/B.EPUV.shtml:%	EPU Voltage ADC value
EPUV	PduEnv0	LHK/tlm/_/B.EPUV.shtml:%	EPU Voltage ADC value
EPUV	PduEnv4	LHK/tlm/_/B.EPUV.shtml:%	EPU Voltage ADC value
FILESTFLAGS	LLFSDIRLIST	LFS/tlm/_/B.FILESTFLAGS.shtml:%	File Storage Flags
FILESTFLAGS	LLFSROOTLIST	LFS/tlm/_/B.FILESTFLAGS.shtml:%	File Storage Flags
FILESTID	LLFSDIRLIST	LFS/tlm/_/B.FILESTID.shtml:%	File Storage ID
FILESTID	LLFSDUMPCTDB	LFS/tlm/_/B.FILESTID.shtml:%	File Storage ID
FILESTID	LLFSROOTLIST	LFS/tlm/_/B.FILESTID.shtml:%	File Storage ID
FILESTID	LLFSSYSLIST	LFS/tlm/_/B.FILESTID.shtml:%	File Storage ID
GRIDRADIFTEMP	DiagPduEnv3	LHK/tlm/_/B.GRIDRADIFTEMP.shtml:%	Grid Radiator Interface Temperature
GRIDRADIFTEMP	DiagPduEnv7	LHK/tlm/_/B.GRIDRADIFTEMP.shtml:%	Grid Radiator Interface Temperature
GRIDRADIFTEMP	PduEnv3	LHK/tlm/_/B.GRIDRADIFTEMP.shtml:%	Grid Radiator Interface Temperature
GRIDRADIFTEMP	PduEnv7	LHK/tlm/_/B.GRIDRADIFTEMP.shtml:%	Grid Radiator Interface Temperature
GRIDTEMP	DiagPduEnv3	LHK/tlm/_/B.GRIDTEMP.shtml:%	Grid Temperature
GRIDTEMP	DiagPduEnv7	LHK/tlm/_/B.GRIDTEMP.shtml:%	Grid Temperature
GRIDTEMP	PduEnv3	LHK/tlm/_/B.GRIDTEMP.shtml:%	Grid Temperature
GRIDTEMP	PduEnv7	LHK/tlm/_/B.GRIDTEMP.shtml:%	Grid Temperature
Hdr0	CmdConfirm	ITC/tlm/_/B.Hdr0.shtml:%	CCSDS telecommand header (by
Hdr1	CmdConfirm	ITC/tlm/_/B.Hdr1.shtml:%	CCSDS telecommand header (by
Hdr3	CmdConfirm	ITC/tlm/_/B.Hdr3.shtml:%	CCSDS telecommand header (by
PDUEPUCRATEPWR	DiagPduEnv0	LHK/tlm/_/B.PDUEPUCRATEPWR.shtml:%	PDU EPU Crate Power States
PDUEPUCRATEPWR	DiagPduEnv4	LHK/tlm/_/B.PDUEPUCRATEPWR.shtml:%	PDU EPU Crate Power States
PDUEPUCRATEPWR	PduEnv0	LHK/tlm/_/B.PDUEPUCRATEPWR.shtml:%	PDU EPU Crate Power States
PDUEPUCRATEPWR	PduEnv4	LHK/tlm/_/B.PDUEPUCRATEPWR.shtml:%	PDU EPU Crate Power States
PDUTEMPWRREG	DiagPduEnv0	LHK/tlm/_/B.PDUTEMPWRREG.shtml:%	PDU TEM Power Management F
PDUTEMPWRREG	DiagPduEnv4	LHK/tlm/_/B.PDUTEMPWRREG.shtml:%	PDU TEM Power Management F
PDUTEMPWRREG	PduEnv0	LHK/tlm/_/B.PDUTEMPWRREG.shtml:%	PDU TEM Power Management F
PDUTEMPWRREG	PduEnv4	LHK/tlm/_/B.PDUTEMPWRREG.shtml:%	PDU TEM Power Management F
RADANHTRTEMP	DiagPduEnv3	LHK/tlm/_/B.RADANHTRTEMP.shtml:%	Radiator Anitfreeze Heater Temp
RADANHTRTEMP	DiagPduEnv7	LHK/tlm/_/B.RADANHTRTEMP.shtml:%	Radiator Anitfreeze Heater Temp
RADANHTRTEMP	PduEnv3	LHK/tlm/_/B.RADANHTRTEMP.shtml:%	Radiator Anitfreeze Heater Temp
RADANHTRTEMP	PduEnv7	LHK/tlm/_/B.RADANHTRTEMP.shtml:%	Radiator Anitfreeze Heater Temp
RADTEMP	DiagPduEnv3	LHK/tlm/_/B.RADTEMP.shtml:%	Radiator Temperature
RADTEMP	DiagPduEnv7	LHK/tlm/_/B.RADTEMP.shtml:%	Radiator Temperature
RADTEMP	PduEnv3	LHK/tlm/_/B.RADTEMP.shtml:%	Radiator Temperature
RADTEMP	PduEnv7	LHK/tlm/_/B.RADTEMP.shtml:%	Radiator Temperature
ResRitSnsrSel	DiagLTC	LTC/tlm/_/B.ResRitSnsrSel.shtml:%	Selected RSVR and RIT sensors
ResRitStatus	DiagLTC	LTC/tlm/_/B.ResRitStatus.shtml:%	Heat pipe RIT and reservoir sens
TEM33I	DiagTemEnvPwr0	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	DiagTemEnvPwr1	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	DiagTemEnvPwr2	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	DiagTemEnvPwr3	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
TEM33I	DiagTemEnvPwr4	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	DiagTemEnvPwr5	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr0	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr1	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr2	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr3	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr4	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33I	TemEnvPwr5	LHK/tlm/_/B.TEM33I.shtml:%	TEM 3.3 Current ADC value
TEM33V	DiagPduEnv0	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagPduEnv4	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr0	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr1	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr2	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr3	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr4	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	DiagTemEnvPwr5	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	PduEnv0	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	PduEnv4	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr0	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr1	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr2	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr3	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr4	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEM33V	TemEnvPwr5	LHK/tlm/_/B.TEM33V.shtml:%	TEM 3.3 Voltage ADC value
TEMDEADTIMEREG	DiagLrs0	LHK/tlm/_/B.TEMDEADTIMEREG.shtml:%	TEM Deadtime Register Bitfield
TEMDEADTIMEREG	Lrs0	LHK/tlm/_/B.TEMDEADTIMEREG.shtml:%	TEM Deadtime Register Bitfield
TEMPCBTEMP	DiagPduEnv1	LHK/tlm/_/B.TEMPCBTEMP.shtml:%	TEM PCB Temperature
TEMPCBTEMP	DiagPduEnv5	LHK/tlm/_/B.TEMPCBTEMP.shtml:%	TEM PCB Temperature
TEMPCBTEMP	PduEnv1	LHK/tlm/_/B.TEMPCBTEMP.shtml:%	TEM PCB Temperature
TEMPCBTEMP	PduEnv5	LHK/tlm/_/B.TEMPCBTEMP.shtml:%	TEM PCB Temperature
TEMPSTEMP	DiagPduEnv0	LHK/tlm/_/B.TEMPSTEMP.shtml:%	TEM Power Supply Temperature
TEMPSTEMP	DiagPduEnv4	LHK/tlm/_/B.TEMPSTEMP.shtml:%	TEM Power Supply Temperature
TEMPSTEMP	PduEnv0	LHK/tlm/_/B.TEMPSTEMP.shtml:%	TEM Power Supply Temperature
TEMPSTEMP	PduEnv4	LHK/tlm/_/B.TEMPSTEMP.shtml:%	TEM Power Supply Temperature
TIDBF	LMEMPOOLDATA	MEM/tlm/_/B.TIDBF.shtml:%	LAT Unit and Transaction ID Bit
TIDBF	LMEMSIUDATA	MEM/tlm/_/B.TIDBF.shtml:%	LAT Unit and Transaction ID Bit
TIDBF	LMEMSYMVAL	MEM/tlm/_/B.TIDBF.shtml:%	LAT Unit and Transaction ID Bit
TKR15I	DiagTemEnvPwr0	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	DiagTemEnvPwr1	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	DiagTemEnvPwr2	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	DiagTemEnvPwr3	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	DiagTemEnvPwr4	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	DiagTemEnvPwr5	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr0	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr1	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr2	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr3	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr4	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15I	TemEnvPwr5	LHK/tlm/_/B.TKR15I.shtml:%	TKR 1.5 Current ADC value
TKR15V	DiagTemEnvPwr0	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	DiagTemEnvPwr1	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	DiagTemEnvPwr2	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
TKR15V	DiagTemEnvPwr3	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	DiagTemEnvPwr4	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	DiagTemEnvPwr5	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr0	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr1	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr2	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr3	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr4	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR15V	TemEnvPwr5	LHK/tlm/_/B.TKR15V.shtml:%	TKR 1.5 Voltage ADC value
TKR25I	DiagTemEnvPwr0	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	DiagTemEnvPwr1	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	DiagTemEnvPwr2	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	DiagTemEnvPwr3	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	DiagTemEnvPwr4	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	DiagTemEnvPwr5	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr0	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr1	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr2	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr3	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr4	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25I	TemEnvPwr5	LHK/tlm/_/B.TKR25I.shtml:%	TKR 2.5 Current ADC value
TKR25V	DiagTemEnvPwr0	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	DiagTemEnvPwr1	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	DiagTemEnvPwr2	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	DiagTemEnvPwr3	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	DiagTemEnvPwr4	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	DiagTemEnvPwr5	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr0	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr1	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr2	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr3	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr4	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKR25V	TemEnvPwr5	LHK/tlm/_/B.TKR25V.shtml:%	TKR 2.5 Voltage ADC value
TKRBIA SI	DiagTemEnvPwr0	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	DiagTemEnvPwr1	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	DiagTemEnvPwr2	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	DiagTemEnvPwr3	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	DiagTemEnvPwr4	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	DiagTemEnvPwr5	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr0	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr1	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr2	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr3	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr4	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SI	TemEnvPwr5	LHK/tlm/_/B.TKRBIA SI.shtml:%	TKR Bias Current ADC value
TKRBIA SV	DiagTemEnvPwr0	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	DiagTemEnvPwr1	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	DiagTemEnvPwr2	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	DiagTemEnvPwr3	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	DiagTemEnvPwr4	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	DiagTemEnvPwr5	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value
TKRBIA SV	TemEnvPwr0	LHK/tlm/_/B.TKRBIA SV.shtml:%	TKR Bias Voltage ADC value

Bitfield (L)	Tlm. Packet (L)	Section	Description (L)
TKRBIASV	TemEnvPwr1	LHK/tlm/_/B.TKRBIASV.shtml:%	TKR Bias Voltage ADC value
TKRBIASV	TemEnvPwr2	LHK/tlm/_/B.TKRBIASV.shtml:%	TKR Bias Voltage ADC value
TKRBIASV	TemEnvPwr3	LHK/tlm/_/B.TKRBIASV.shtml:%	TKR Bias Voltage ADC value
TKRBIASV	TemEnvPwr4	LHK/tlm/_/B.TKRBIASV.shtml:%	TKR Bias Voltage ADC value
TKRBIASV	TemEnvPwr5	LHK/tlm/_/B.TKRBIASV.shtml:%	TKR Bias Voltage ADC value
TKRCBLT	DiagTemEnvTemp0	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp1	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp2	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp3	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp4	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp5	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp6	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	DiagTemEnvTemp7	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp0	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp1	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp2	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp3	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp4	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp5	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp6	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
TKRCBLT	TemEnvTemp7	LHK/tlm/_/B.TKRCBLT.shtml:%	TKR Cable Temperature ADC va
VCHPDSHPTEMP	DiagPduEnv2	LHK/tlm/_/B.VCHPDSHPTEMP.shtml:%	VCHP-DSHP Interface Temperat
VCHPDSHPTEMP	DiagPduEnv6	LHK/tlm/_/B.VCHPDSHPTEMP.shtml:%	VCHP-DSHP Interface Temperat
VCHPDSHPTEMP	PduEnv2	LHK/tlm/_/B.VCHPDSHPTEMP.shtml:%	VCHP-DSHP Interface Temperat
VCHPDSHPTEMP	PduEnv6	LHK/tlm/_/B.VCHPDSHPTEMP.shtml:%	VCHP-DSHP Interface Temperat
VCHPRSVRHTRTEMP	DiagPduEnv2	LHK/tlm/_/B.VCHPRSVRHTRTEMP.shtml:%	VCHP Reservoir Heater Tempera
VCHPRSVRHTRTEMP	DiagPduEnv6	LHK/tlm/_/B.VCHPRSVRHTRTEMP.shtml:%	VCHP Reservoir Heater Tempera
VCHPRSVRHTRTEMP	PduEnv2	LHK/tlm/_/B.VCHPRSVRHTRTEMP.shtml:%	VCHP Reservoir Heater Tempera
VCHPRSVRHTRTEMP	PduEnv6	LHK/tlm/_/B.VCHPRSVRHTRTEMP.shtml:%	VCHP Reservoir Heater Tempera
VCHPXLHPTEMP	DiagPduEnv2	LHK/tlm/_/B.VCHPXLHPTEMP.shtml:%	VCHP-XLHP Interface Temperat
VCHPXLHPTEMP	DiagPduEnv6	LHK/tlm/_/B.VCHPXLHPTEMP.shtml:%	VCHP-XLHP Interface Temperat
VCHPXLHPTEMP	PduEnv2	LHK/tlm/_/B.VCHPXLHPTEMP.shtml:%	VCHP-XLHP Interface Temperat
VCHPXLHPTEMP	PduEnv6	LHK/tlm/_/B.VCHPXLHPTEMP.shtml:%	VCHP-XLHP Interface Temperat

28 Telemetry Field Index, by Name (LCAT)

Field (L)	Tlm. Packet (L)	Section	Description (L)
ActiveHtPipe	DiagLTC	LTC/tlm/_/F.ActiveHtPipe.shtml:%	Mask for active heat pipes
ADCS	AemEnv0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagAemEnv0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv6	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagPduEnv7	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvPwr5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp6	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	DiagTemEnvTemp7	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv6	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	PduEnv7	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvPwr5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp0	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp1	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp2	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp3	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp4	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp5	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp6	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCS	TemEnvTemp7	LHK/tlm/_/F.ADCS.shtml:%	ADC status bits
ADCV	AemEnv0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagAemEnv0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value

Field (L)	Tlm. Packet (L)	Section	Description (L)
ADCV	DiagPduEnv2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv6	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagPduEnv7	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvPwr5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp6	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	DiagTemEnvTemp7	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv6	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	PduEnv7	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvPwr5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp0	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp1	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp2	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp3	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp4	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp5	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp6	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
ADCV	TemEnvTemp7	LHK/tlm/_/F.ADCV.shtml:%	ADC raw value
AEMFRPWRST	AemEnv0	LHK/tlm/_/F.AEMFRPWRST.shtml:%	AEM FREE Board Power Stat
AEMFRPWRST	DiagAemEnv0	LHK/tlm/_/F.AEMFRPWRST.shtml:%	AEM FREE Board Power Stat
Apid	CmdConfirm	ITC/tlm/_/F.Apid.shtml:%	CCSDS application ID
BOOTDUMPADDR	LBTEPU0HKP	PBC/tlm/_/F.BOOTDUMPADDR.shtml:%	Memory dump address
BOOTDUMPADDR	LBTHKP	PBC/tlm/_/F.BOOTDUMPADDR.shtml:%	Memory dump address
BOOTDUMPCOUNT	LBTEPU0HKP	PBC/tlm/_/F.BOOTDUMPCOUNT.shtml:%	Memory dump word count
BOOTDUMPCOUNT	LBTHKP	PBC/tlm/_/F.BOOTDUMPCOUNT.shtml:%	Memory dump word count
BOOTDUMPDATA	LBTEPU0HKP	PBC/tlm/_/F.BOOTDUMPDATA.shtml:%	Memory dump data
BOOTDUMPDATA	LBTHKP	PBC/tlm/_/F.BOOTDUMPDATA.shtml:%	Memory dump data
BOOTERRWORD	LBTEPU0HKP	PBC/tlm/_/F.BOOTERRWORD.shtml:%	Error code

Field (L)	Tlm. Packet (L)	Section	Description (L)
BOOTERRWORD	LBTHKP	PBC/tlm/_/F.BOOTERRWORD.shtml:%	Error code
BOOTFILEPKT	LBTEPU0HKP	PBC/tlm/_/F.BOOTFILEPKT.shtml:%	File upload packet count
BOOTFILEPKT	LBTHKP	PBC/tlm/_/F.BOOTFILEPKT.shtml:%	File upload packet count
BOOTFILESTATE	LBTEPU0HKP	PBC/tlm/_/F.BOOTFILESTATE.shtml:%	File upload state
BOOTFILESTATE	LBTHKP	PBC/tlm/_/F.BOOTFILESTATE.shtml:%	File upload state
BOOTLASTAPID	LBTEPU0HKP	PBC/tlm/_/F.BOOTLASTAPID.shtml:%	Last APID
BOOTLASTAPID	LBTHKP	PBC/tlm/_/F.BOOTLASTAPID.shtml:%	Last APID
BOOTLASTERR	LBTEPU0HKP	PBC/tlm/_/F.BOOTLASTERR.shtml:%	Most recent boot error code
BOOTLASTERR	LBTHKP	PBC/tlm/_/F.BOOTLASTERR.shtml:%	Most recent boot error code
BOOTLASTFUNC	LBTEPU0HKP	PBC/tlm/_/F.BOOTLASTFUNC.shtml:%	Last Function Code
BOOTLASTFUNC	LBTHKP	PBC/tlm/_/F.BOOTLASTFUNC.shtml:%	Last Function Code
BOOTPKTACCEPT	LBTEPU0HKP	PBC/tlm/_/F.BOOTPKTACCEPT.shtml:%	Accepted packet count
BOOTPKTACCEPT	LBTHKP	PBC/tlm/_/F.BOOTPKTACCEPT.shtml:%	Accepted packet count
BOOTPKTCOUNT	LBTEPU0HKP	PBC/tlm/_/F.BOOTPKTCOUNT.shtml:%	Received packet count
BOOTPKTCOUNT	LBTHKP	PBC/tlm/_/F.BOOTPKTCOUNT.shtml:%	Received packet count
BOOTQERR	LBTEPU0HKP	PBC/tlm/_/F.BOOTQERR.shtml:%	Number of queued errors
BOOTQERR	LBTHKP	PBC/tlm/_/F.BOOTQERR.shtml:%	Number of queued errors
BOOTSCRUBADDRHI	LBTEPU0HKP	PBC/tlm/_/F.BOOTSCRUBADDRHI.shtml:%	Hi 16 bits of software scrub ac
BOOTSCRUBADDRHI	LBTHKP	PBC/tlm/_/F.BOOTSCRUBADDRHI.shtml:%	Hi 16 bits of software scrub ac
BOOTSPARE1	LBTEPU0HKP	PBC/tlm/_/F.BOOTSPARE1.shtml:%	Unused location
BOOTSPARE1	LBTHKP	PBC/tlm/_/F.BOOTSPARE1.shtml:%	Unused location
BOOTSPARE2	LBTEPU0HKP	PBC/tlm/_/F.BOOTSPARE2.shtml:%	Unused location
BOOTSPARE2	LBTHKP	PBC/tlm/_/F.BOOTSPARE2.shtml:%	Unused location
BOOTSWMODE	LBTEPU0HKP	PBC/tlm/_/F.BOOTSWMODE.shtml:%	Current PBC operating mode
BOOTSWMODE	LBTHKP	PBC/tlm/_/F.BOOTSWMODE.shtml:%	Current PBC operating mode
BOOTTOTALERR	LBTEPU0HKP	PBC/tlm/_/F.BOOTTOTALERR.shtml:%	Number of errors encountered
BOOTTOTALERR	LBTHKP	PBC/tlm/_/F.BOOTTOTALERR.shtml:%	Number of errors encountered
BOOTTYPE	LBTEPU0HKP	PBC/tlm/_/F.BOOTTYPE.shtml:%	Boot type
BOOTTYPE	LBTHKP	PBC/tlm/_/F.BOOTTYPE.shtml:%	Boot type
Cmd_len	CmdConfirm	ITC/tlm/_/F.Cmd_len.shtml:%	CCSDS telecommand packet l
CMDCNTS	CmdCnt0	LHK/tlm/_/F.CMDCNTS.shtml:%	Commands sent counter
CMDCNTS	CmdCnt1	LHK/tlm/_/F.CMDCNTS.shtml:%	Commands sent counter
CMDCNTS	DiagCmdCnt0	LHK/tlm/_/F.CMDCNTS.shtml:%	Commands sent counter
CMDCNTS	DiagCmdCnt1	LHK/tlm/_/F.CMDCNTS.shtml:%	Commands sent counter
CMDDISPF	CmdCnt0	LHK/tlm/_/F.CMDDISPF.shtml:%	Command dispatch failure cou
CMDDISPF	CmdCnt1	LHK/tlm/_/F.CMDDISPF.shtml:%	Command dispatch failure cou
CMDDISPF	DiagCmdCnt0	LHK/tlm/_/F.CMDDISPF.shtml:%	Command dispatch failure cou
CMDDISPF	DiagCmdCnt1	LHK/tlm/_/F.CMDDISPF.shtml:%	Command dispatch failure cou
CMDEXEF	CmdCnt0	LHK/tlm/_/F.CMDEXEF.shtml:%	Command execution failure co
CMDEXEF	CmdCnt1	LHK/tlm/_/F.CMDEXEF.shtml:%	Command execution failure co
CMDEXEF	DiagCmdCnt0	LHK/tlm/_/F.CMDEXEF.shtml:%	Command execution failure co
CMDEXEF	DiagCmdCnt1	LHK/tlm/_/F.CMDEXEF.shtml:%	Command execution failure co
counter	acd_cnt	LMC/tlm/_/F.counter.shtml:%	Counter data
counter	cal_cnt	LMC/tlm/_/F.counter.shtml:%	Counter data
counter	tkr_cnt	LMC/tlm/_/F.counter.shtml:%	Counter data
CPUJT	CpuMetr	LHK/tlm/_/F.CPUJT.shtml:%	CPU Junction Temperature
CPUJT	DiagCpuMetr	LHK/tlm/_/F.CPUJT.shtml:%	CPU Junction Temperature
CRXBCNT	CpuMetr	LHK/tlm/_/F.CRXBCNT.shtml:%	1553 Cmd Rx Byte Count
CRXBCNT	DiagCpuMetr	LHK/tlm/_/F.CRXBCNT.shtml:%	1553 Cmd Rx Byte Count
CRXPCNT	CpuMetr	LHK/tlm/_/F.CRXPCNT.shtml:%	1553 Cmd Rx Packet Count
CRXPCNT	DiagCpuMetr	LHK/tlm/_/F.CRXPCNT.shtml:%	1553 Cmd Rx Packet Count
CTXBCNT	CpuMetr	LHK/tlm/_/F.CTXBCNT.shtml:%	1553 Cmd Tx Byte Count

Field (L)	Tlm. Packet (L)	Section	Description (L)
CTXBCNT	DiagCpuMetr	LHK/tlm/_/F.CTXBCNT.shtml:%	1553 Cmd Tx Byte Count
CTXPCNT	CpuMetr	LHK/tlm/_/F.CTXPCNT.shtml:%	1553 Cmd Tx Packet Count
CTXPCNT	DiagCpuMetr	LHK/tlm/_/F.CTXPCNT.shtml:%	1553 Cmd Tx Packet Count
dev_mask	cal_cnt	LMC/tlm/_/F.dev_mask.shtml:%	TEM mask
dev_mask	tkr_cnt	LMC/tlm/_/F.dev_mask.shtml:%	TEM mask
Drop	CmdConfirm	ITC/tlm/_/F.Drop.shtml:%	Number of dropped confirmations
dtime	acd_cnt	LMC/tlm/_/F.dtime.shtml:%	Delta timestamp
dtime	cal_cnt	LMC/tlm/_/F.dtime.shtml:%	Delta timestamp
dtime	tkr_cnt	LMC/tlm/_/F.dtime.shtml:%	Delta timestamp
FILEDATA	LLFSDUMPCTDB	LFS/tlm/_/F.FILEDATA.shtml:%	File Data Contents
FILEDEV	LLFSDIRLIST	LFS/tlm/_/F.FILEDEV.shtml:%	File ID Device Number
FILEDEV	LLFSDUMPCTDB	LFS/tlm/_/F.FILEDEV.shtml:%	File ID Device Number
FILEDEV	LLFSROOTLIST	LFS/tlm/_/F.FILEDEV.shtml:%	File ID Device Number
FILEDEV	LLFSSYSLIST	LFS/tlm/_/F.FILEDEV.shtml:%	File ID Device Number
FILEDIR	LLFSDIRLIST	LFS/tlm/_/F.FILEDIR.shtml:%	File ID Directory Number
FILEDIR	LLFSDUMPCTDB	LFS/tlm/_/F.FILEDIR.shtml:%	File ID Directory Number
FILEDIR	LLFSROOTLIST	LFS/tlm/_/F.FILEDIR.shtml:%	File ID Directory Number
FILEDIR	LLFSSYSLIST	LFS/tlm/_/F.FILEDIR.shtml:%	File ID Directory Number
FILEDUMPSIZE	LLFSDUMPCTDB	LFS/tlm/_/F.FILEDUMPSIZE.shtml:%	File Dump Current Size
FILEHDR	LLFSDIRLIST	LFS/tlm/_/F.FILEHDR.shtml:%	File Header Data
FILEIDCOM	DiagFileStats	LHK/tlm/_/F.FILEIDCOM.shtml:%	FILE ID Commit
FILEIDCOM	FileStats	LHK/tlm/_/F.FILEIDCOM.shtml:%	FILE ID Commit
FILENUM	LLFSDIRLIST	LFS/tlm/_/F.FILENUM.shtml:%	File ID File Number
FILENUM	LLFSDUMPCTDB	LFS/tlm/_/F.FILENUM.shtml:%	File ID File Number
FILENUM	LLFSROOTLIST	LFS/tlm/_/F.FILENUM.shtml:%	File ID File Number
FILENUM	LLFSSYSLIST	LFS/tlm/_/F.FILENUM.shtml:%	File ID File Number
FILEPKTCNT	DiagFileStats	LHK/tlm/_/F.FILEPKTCNT.shtml:%	FILE Packet Count
FILEPKTCNT	FileStats	LHK/tlm/_/F.FILEPKTCNT.shtml:%	FILE Packet Count
FILEERRCNT	DiagFileStats	LHK/tlm/_/F.FILEERRCNT.shtml:%	FILE Error Count
FILEERRCNT	FileStats	LHK/tlm/_/F.FILEERRCNT.shtml:%	FILE Error Count
FILEERRCODE	DiagFileStats	LHK/tlm/_/F.FILEERRCODE.shtml:%	FILE Error Code
FILEERRCODE	FileStats	LHK/tlm/_/F.FILEERRCODE.shtml:%	FILE Error Code
FILESIZECUR	DiagFileStats	LHK/tlm/_/F.FILESIZECUR.shtml:%	File Size Current
FILESIZECUR	FileStats	LHK/tlm/_/F.FILESIZECUR.shtml:%	File Size Current
FILESTARCHIVE	LLFSDIRLIST	LFS/tlm/_/F.FILESTARCHIVE.shtml:%	File Storage Archive Flag
FILESTARCHIVE	LLFSROOTLIST	LFS/tlm/_/F.FILESTARCHIVE.shtml:%	File Storage Archive Flag
FILESTATE	DiagFileStats	LHK/tlm/_/F.FILESTATE.shtml:%	FILE Upload State
FILESTATE	FileStats	LHK/tlm/_/F.FILESTATE.shtml:%	FILE Upload State
FILESTBLOCK	LLFSDIRLIST	LFS/tlm/_/F.FILESTBLOCK.shtml:%	File Storage Blocks
FILESTBLOCK	LLFSROOTLIST	LFS/tlm/_/F.FILESTBLOCK.shtml:%	File Storage Blocks
FILESTDIR	LLFSDIRLIST	LFS/tlm/_/F.FILESTDIR.shtml:%	File Storage Directory Flag
FILESTDIR	LLFSROOTLIST	LFS/tlm/_/F.FILESTDIR.shtml:%	File Storage Directory Flag
FILESTOFFSET	LLFSDUMPCTDB	LFS/tlm/_/F.FILESTOFFSET.shtml:%	File Data Offset
FILESTRDONLY	LLFSDIRLIST	LFS/tlm/_/F.FILESTRDONLY.shtml:%	File Storage Read-Only Flag
FILESTRDONLY	LLFSROOTLIST	LFS/tlm/_/F.FILESTRDONLY.shtml:%	File Storage Read-Only Flag
FILESTSIZE	LLFSDIRLIST	LFS/tlm/_/F.FILESTSIZE.shtml:%	File Storage Size
FILESTSIZE	LLFSROOTLIST	LFS/tlm/_/F.FILESTSIZE.shtml:%	File Storage Size
FILESTTIME	LLFSDIRLIST	LFS/tlm/_/F.FILESTTIME.shtml:%	File Storage Update Time
FILESTTIME	LLFSROOTLIST	LFS/tlm/_/F.FILESTTIME.shtml:%	File Storage Update Time
Fnc_code	CmdConfirm	ITC/tlm/_/F.Fnc_code.shtml:%	CCSDS telecommand function
Fnc_pad	CmdConfirm	ITC/tlm/_/F.Fnc_pad.shtml:%	Padding
GEMLRSDISC	DiagLrs0	LHK/tlm/_/F.GEMLRSDISC.shtml:%	GEM low-rate science discarded

Field (L)	Tlm. Packet (L)	Section	Description (L)
GEMLRSDISC	Lrs0	LHK/tlm/_/F.GEMLRSDISC.shtml:%	GEM low-rate science discard
GEMLRSLIVE	DiagLrs0	LHK/tlm/_/F.GEMLRSLIVE.shtml:%	GEM low-rate science livetime
GEMLRSLIVE	Lrs0	LHK/tlm/_/F.GEMLRSLIVE.shtml:%	GEM low-rate science livetime
GEMLRSSSENT	DiagLrs0	LHK/tlm/_/F.GEMLRSSSENT.shtml:%	GEM low-rate science sent count
GEMLRSSSENT	Lrs0	LHK/tlm/_/F.GEMLRSSSENT.shtml:%	GEM low-rate science sent count
GEMPRSCL	DiagLrs0	LHK/tlm/_/F.GEMPRSCL.shtml:%	Low-rate science prescaled count
GEMPRSCL	Lrs0	LHK/tlm/_/F.GEMPRSCL.shtml:%	Low-rate science prescaled count
HeaterCmdMask	DiagLTC	LTC/tlm/_/F.HeaterCmdMask.shtml:%	Command mask for reservoir heater
HKBCNT	CpuMetr	LHK/tlm/_/F.HKBCNT.shtml:%	1553 Housekeeping Byte Count
HKBCNT	DiagCpuMetr	LHK/tlm/_/F.HKBCNT.shtml:%	1553 Housekeeping Byte Count
HKPCNT	CpuMetr	LHK/tlm/_/F.HKPCNT.shtml:%	1553 Housekeeping Packet Count
HKPCNT	DiagCpuMetr	LHK/tlm/_/F.HKPCNT.shtml:%	1553 Housekeeping Packet Count
INTRCNT	CpuMetr	LHK/tlm/_/F.INTRCNT.shtml:%	1553 Interrupts
INTRCNT	DiagCpuMetr	LHK/tlm/_/F.INTRCNT.shtml:%	1553 Interrupts
isCmd	CmdConfirm	ITC/tlm/_/F.isCmd.shtml:%	CCSDS command bit
ITC_NodeID	CmdConfirm	ITC/tlm/_/F.ITC_NodeID.shtml:%	ITC node ID
ITC_TaskID	CmdConfirm	ITC/tlm/_/F.ITC_TaskID.shtml:%	ITC task ID
LATSTUNIT	LLFSDIRLIST	LFS/tlm/_/F.LATSTUNIT.shtml:%	LAT Storage Unit
LATSTUNIT	LLFSDUMPCTDB	LFS/tlm/_/F.LATSTUNIT.shtml:%	LAT Storage Unit
LATSTUNIT	LLFSROOTLIST	LFS/tlm/_/F.LATSTUNIT.shtml:%	LAT Storage Unit
LATSTUNIT	LLFSSYSLIST	LFS/tlm/_/F.LATSTUNIT.shtml:%	LAT Storage Unit
LFSXID	LLFSDIRLIST	LFS/tlm/_/F.LFSXID.shtml:%	Transaction ID
LFSXID	LLFSDUMPCTDB	LFS/tlm/_/F.LFSXID.shtml:%	Transaction ID
LFSXID	LLFSROOTLIST	LFS/tlm/_/F.LFSXID.shtml:%	Transaction ID
LFSXID	LLFSSYSLIST	LFS/tlm/_/F.LFSXID.shtml:%	Transaction ID
lrs_mask	cal_cnt	LMC/tlm/_/F.lrs_mask.shtml:%	Low Rate Science Mask
lrs_mask	tkr_cnt	LMC/tlm/_/F.lrs_mask.shtml:%	Low Rate Science Mask
MDPACT	DiagMemStats0	LHK/tlm/_/F.MDPACT.shtml:%	Memory dump active
MDPACT	DiagMemStats1	LHK/tlm/_/F.MDPACT.shtml:%	Memory dump active
MDPACT	MemStats0	LHK/tlm/_/F.MDPACT.shtml:%	Memory dump active
MDPACT	MemStats1	LHK/tlm/_/F.MDPACT.shtml:%	Memory dump active
MDPADDR	DiagMemStats0	LHK/tlm/_/F.MDPADDR.shtml:%	Memory dump address
MDPADDR	DiagMemStats1	LHK/tlm/_/F.MDPADDR.shtml:%	Memory dump address
MDPADDR	MemStats0	LHK/tlm/_/F.MDPADDR.shtml:%	Memory dump address
MDPADDR	MemStats1	LHK/tlm/_/F.MDPADDR.shtml:%	Memory dump address
MDPBYS	DiagMemStats0	LHK/tlm/_/F.MDPBYS.shtml:%	Memory dump bytes
MDPBYS	DiagMemStats1	LHK/tlm/_/F.MDPBYS.shtml:%	Memory dump bytes
MDPBYS	MemStats0	LHK/tlm/_/F.MDPBYS.shtml:%	Memory dump bytes
MDPBYS	MemStats1	LHK/tlm/_/F.MDPBYS.shtml:%	Memory dump bytes
MDPFCD	DiagMemStats0	LHK/tlm/_/F.MDPFCD.shtml:%	Memory dump function code
MDPFCD	DiagMemStats1	LHK/tlm/_/F.MDPFCD.shtml:%	Memory dump function code
MDPFCD	MemStats0	LHK/tlm/_/F.MDPFCD.shtml:%	Memory dump function code
MDPFCD	MemStats1	LHK/tlm/_/F.MDPFCD.shtml:%	Memory dump function code
MDPSTADR	DiagMemStats0	LHK/tlm/_/F.MDPSTADR.shtml:%	Memory dump start address
MDPSTADR	DiagMemStats1	LHK/tlm/_/F.MDPSTADR.shtml:%	Memory dump start address
MDPSTADR	MemStats0	LHK/tlm/_/F.MDPSTADR.shtml:%	Memory dump start address
MDPSTADR	MemStats1	LHK/tlm/_/F.MDPSTADR.shtml:%	Memory dump start address
MDPSTAT	DiagMemStats0	LHK/tlm/_/F.MDPSTAT.shtml:%	Memory dump status
MDPSTAT	DiagMemStats1	LHK/tlm/_/F.MDPSTAT.shtml:%	Memory dump status
MDPSTAT	MemStats0	LHK/tlm/_/F.MDPSTAT.shtml:%	Memory dump status
MDPSTAT	MemStats1	LHK/tlm/_/F.MDPSTAT.shtml:%	Memory dump status
MDPTXID	DiagMemStats0	LHK/tlm/_/F.MDPTXID.shtml:%	Memory dump transaction ID

Field (L)	Tlm. Packet (L)	Section	Description (L)
MDPTXID	DiagMemStats1	LHK/tlm/_/F.MDPTXID.shtml:%	Memory dump transaction ID
MDPTXID	MemStats0	LHK/tlm/_/F.MDPTXID.shtml:%	Memory dump transaction ID
MDPTXID	MemStats1	LHK/tlm/_/F.MDPTXID.shtml:%	Memory dump transaction ID
MLDACT	DiagMemStats0	LHK/tlm/_/F.MLDACT.shtml:%	Memory load active flag
MLDACT	DiagMemStats1	LHK/tlm/_/F.MLDACT.shtml:%	Memory load active flag
MLDACT	MemStats0	LHK/tlm/_/F.MLDACT.shtml:%	Memory load active flag
MLDACT	MemStats1	LHK/tlm/_/F.MLDACT.shtml:%	Memory load active flag
MLDBYTS	DiagMemStats0	LHK/tlm/_/F.MLDBYTS.shtml:%	Memory load total bytes
MLDBYTS	DiagMemStats1	LHK/tlm/_/F.MLDBYTS.shtml:%	Memory load total bytes
MLDBYTS	MemStats0	LHK/tlm/_/F.MLDBYTS.shtml:%	Memory load total bytes
MLDBYTS	MemStats1	LHK/tlm/_/F.MLDBYTS.shtml:%	Memory load total bytes
MLDOFF	DiagMemStats0	LHK/tlm/_/F.MLDOFF.shtml:%	Memory load offset
MLDOFF	DiagMemStats1	LHK/tlm/_/F.MLDOFF.shtml:%	Memory load offset
MLDOFF	MemStats0	LHK/tlm/_/F.MLDOFF.shtml:%	Memory load offset
MLDOFF	MemStats1	LHK/tlm/_/F.MLDOFF.shtml:%	Memory load offset
MLDSTADR	DiagMemStats0	LHK/tlm/_/F.MLDSTADR.shtml:%	Starting memory load address
MLDSTADR	DiagMemStats1	LHK/tlm/_/F.MLDSTADR.shtml:%	Starting memory load address
MLDSTADR	MemStats0	LHK/tlm/_/F.MLDSTADR.shtml:%	Starting memory load address
MLDSTADR	MemStats1	LHK/tlm/_/F.MLDSTADR.shtml:%	Starting memory load address
MLDSTAT	DiagMemStats0	LHK/tlm/_/F.MLDSTAT.shtml:%	Status of most recent load acti
MLDSTAT	DiagMemStats1	LHK/tlm/_/F.MLDSTAT.shtml:%	Status of most recent load acti
MLDSTAT	MemStats0	LHK/tlm/_/F.MLDSTAT.shtml:%	Status of most recent load acti
MLDSTAT	MemStats1	LHK/tlm/_/F.MLDSTAT.shtml:%	Status of most recent load acti
Pad2	CmdConfirm	ITC/tlm/_/F.Pad2.shtml:%	Pad two bytes
PDUACDCNVT	DiagPduEnv0	LHK/tlm/_/F.PDUACDCNVT.shtml:%	PDU ACD Power Converter S
PDUACDCNVT	DiagPduEnv4	LHK/tlm/_/F.PDUACDCNVT.shtml:%	PDU ACD Power Converter S
PDUACDCNVT	PduEnv0	LHK/tlm/_/F.PDUACDCNVT.shtml:%	PDU ACD Power Converter S
PDUACDCNVT	PduEnv4	LHK/tlm/_/F.PDUACDCNVT.shtml:%	PDU ACD Power Converter S
PDUACDPWRST	DiagPduEnv0	LHK/tlm/_/F.PDUACDPWRST.shtml:%	PDU ACD Power State
PDUACDPWRST	DiagPduEnv4	LHK/tlm/_/F.PDUACDPWRST.shtml:%	PDU ACD Power State
PDUACDPWRST	PduEnv0	LHK/tlm/_/F.PDUACDPWRST.shtml:%	PDU ACD Power State
PDUACDPWRST	PduEnv4	LHK/tlm/_/F.PDUACDPWRST.shtml:%	PDU ACD Power State
PDUACDPWRSUP	DiagPduEnv0	LHK/tlm/_/F.PDUACDPWRSUP.shtml:%	PDU ACD Power Supply Sour
PDUACDPWRSUP	DiagPduEnv4	LHK/tlm/_/F.PDUACDPWRSUP.shtml:%	PDU ACD Power Supply Sour
PDUACDPWRSUP	PduEnv0	LHK/tlm/_/F.PDUACDPWRSUP.shtml:%	PDU ACD Power Supply Sour
PDUACDPWRSUP	PduEnv4	LHK/tlm/_/F.PDUACDPWRSUP.shtml:%	PDU ACD Power Supply Sour
PDUEPUCVTST	DiagPduEnv0	LHK/tlm/_/F.PDUEPUCVTST.shtml:%	PDU EPU Converter State
PDUEPUCVTST	DiagPduEnv4	LHK/tlm/_/F.PDUEPUCVTST.shtml:%	PDU EPU Converter State
PDUEPUCVTST	PduEnv0	LHK/tlm/_/F.PDUEPUCVTST.shtml:%	PDU EPU Converter State
PDUEPUCVTST	PduEnv4	LHK/tlm/_/F.PDUEPUCVTST.shtml:%	PDU EPU Converter State
PDUEPUPWRST	DiagPduEnv0	LHK/tlm/_/F.PDUEPUPWRST.shtml:%	PDU EPU Crate Power State
PDUEPUPWRST	DiagPduEnv4	LHK/tlm/_/F.PDUEPUPWRST.shtml:%	PDU EPU Crate Power State
PDUEPUPWRST	PduEnv0	LHK/tlm/_/F.PDUEPUPWRST.shtml:%	PDU EPU Crate Power State
PDUEPUPWRST	PduEnv4	LHK/tlm/_/F.PDUEPUPWRST.shtml:%	PDU EPU Crate Power State
PDUTEMPWRST	DiagPduEnv0	LHK/tlm/_/F.PDUTEMPWRST.shtml:%	PDU TEM Power State
PDUTEMPWRST	DiagPduEnv4	LHK/tlm/_/F.PDUTEMPWRST.shtml:%	PDU TEM Power State
PDUTEMPWRST	PduEnv0	LHK/tlm/_/F.PDUTEMPWRST.shtml:%	PDU TEM Power State
PDUTEMPWRST	PduEnv4	LHK/tlm/_/F.PDUTEMPWRST.shtml:%	PDU TEM Power State
RawAdcStatVal	DiagLTC	LTC/tlm/_/F.RawAdcStatVal.shtml:%	Raw ADC Status and Value
RLADC	RedLimAlrt	LHK/tlm/_/F.RLADC.shtml:%	Red Limit ADC Number
RLCNT	RedLimAlrt	LHK/tlm/_/F.RLCNT.shtml:%	Red Limit ADC Counts
RLDEV	RedLimAlrt	LHK/tlm/_/F.RLDEV.shtml:%	Red Limit Device Opcode

Field (L)	Tlm. Packet (L)	Section	Description (L)
RLLIM	RedLimAlrt	LHK/tlm/_/F.RLLIM.shtml:%	Red Limit Threshold
RTERR	CpuMetr	LHK/tlm/_/F.RTERR.shtml:%	1553 Error Count
RTERR	DiagCpuMetr	LHK/tlm/_/F.RTERR.shtml:%	1553 Error Count
Sec_hdr	CmdConfirm	ITC/tlm/_/F.Sec_hdr.shtml:%	CCSDS secondary header flag
SensorHpNum	DiagLTC	LTC/tlm/_/F.SensorHpNum.shtml:%	Specifies connected HP number
SensorStatus	DiagLTC	LTC/tlm/_/F.SensorStatus.shtml:%	Status for HP sensors
SensorType	DiagLTC	LTC/tlm/_/F.SensorType.shtml:%	Specifies Sensor Type
Seq_cnt	CmdConfirm	ITC/tlm/_/F.Seq_cnt.shtml:%	CCSDS sequencing count
Seq_flg	CmdConfirm	ITC/tlm/_/F.Seq_flg.shtml:%	CCSDS sequencing bits
spare16	acd_cnt	LMC/tlm/_/F.spare16.shtml:%	Spare 16 bits
Status	CmdConfirm	ITC/tlm/_/F.Status.shtml:%	MSG status code
SYSBLKFREE	LLFSSYSLIST	LFS/tlm/_/F.SYSBLKFREE.shtml:%	File System Free Blocks
SYSBLKSIZE	LLFSSYSLIST	LFS/tlm/_/F.SYSBLKSIZE.shtml:%	File System Block Size
SYSBLKTOTAL	LLFSSYSLIST	LFS/tlm/_/F.SYSBLKTOTAL.shtml:%	File System Total Blocks
TDUMPADDR	LMEMSIUDATA	MEM/tlm/_/F.TDUMPADDR.shtml:%	Starting Address
TDUMPCMDFUNC	LMEMSIUDATA	MEM/tlm/_/F.TDUMPCMDFUNC.shtml:%	Dump Type
TDUMPDATA	LMEMSIUDATA	MEM/tlm/_/F.TDUMPDATA.shtml:%	Dump Data Word
TDUMPSIZE	LMEMSIUDATA	MEM/tlm/_/F.TDUMPSIZE.shtml:%	Word Count
TEMDEADTIME	DiagLrs0	LHK/tlm/_/F.TEMDEADTIME.shtml:%	TEM Deadtime Low-rate Science
TEMDEADTIME	Lrs0	LHK/tlm/_/F.TEMDEADTIME.shtml:%	TEM Deadtime Low-rate Science
TempCelsius	DiagLTC	LTC/tlm/_/F.TempCelsius.shtml:%	Temperature converted to celsius
tile_id	acd_cnt	LMC/tlm/_/F.tile_id.shtml:%	ACD Tile ID
Time_lsui	CmdConfirm	ITC/tlm/_/F.Time_lsui.shtml:%	Time (least significant 32 bits)
Time_msui	CmdConfirm	ITC/tlm/_/F.Time_msui.shtml:%	Time (most significant 32 bits)
TIMSEC	CmdCnt0	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMSEC	CmdCnt1	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMSEC	DiagCmdCnt0	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMSEC	DiagCmdCnt1	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMSEC	DiagLrs0	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMSEC	Lrs0	LHK/tlm/_/F.TIMSEC.shtml:%	Timestamp seconds
TIMESUBSEC	CmdCnt0	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TIMESUBSEC	CmdCnt1	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TIMESUBSEC	DiagCmdCnt0	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TIMESUBSEC	DiagCmdCnt1	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TIMESUBSEC	DiagLrs0	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TIMESUBSEC	Lrs0	LHK/tlm/_/F.TIMESUBSEC.shtml:%	Timestamp subseconds
TLATUNIT	LMEMPOOLDATA	MEM/tlm/_/F.TLATUNIT.shtml:%	Source LAT Unit
TLATUNIT	LMEMSIUDATA	MEM/tlm/_/F.TLATUNIT.shtml:%	Source LAT Unit
TLATUNIT	LMEMSYMVAL	MEM/tlm/_/F.TLATUNIT.shtml:%	Source LAT Unit
TLMBCNT	CpuMetr	LHK/tlm/_/F.TLMBCNT.shtml:%	1553 Telemetry Byte Count
TLMBCNT	DiagCpuMetr	LHK/tlm/_/F.TLMBCNT.shtml:%	1553 Telemetry Byte Count
TLMPCNT	CpuMetr	LHK/tlm/_/F.TLMPCNT.shtml:%	1553 Telemetry Packet Count
TLMPCNT	DiagCpuMetr	LHK/tlm/_/F.TLMPCNT.shtml:%	1553 Telemetry Packet Count
TPAD16	LMEMPOOLDATA	MEM/tlm/_/F.TPAD16.shtml:%	16-Bit Padding
TPAD16	LMEMSYMVAL	MEM/tlm/_/F.TPAD16.shtml:%	16-Bit Padding
TPAD8	LMEMSYMVAL	MEM/tlm/_/F.TPAD8.shtml:%	8-Bit Padding
TPOOLALLOCBLOCKS	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLALLOCBLOCKS.shtml:%	Memory Pool Allocated Blocks
TPOOLALLOCBYTES	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLALLOCBYTES.shtml:%	Memory Pool Allocated Bytes
TPOOLFREEBLOCKS	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLFREEBLOCKS.shtml:%	Memory Pool Free Blocks
TPOOLFREEBYTES	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLFREEBYTES.shtml:%	Memory Pool Free Bytes
TPOOLID	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLID.shtml:%	Memory Pool ID
TPOOLMAXBLKBYTES	LMEMPOOLDATA	MEM/tlm/_/F.TPOOLMAXBLKBYTES.shtml:%	Memory Pool Maximum Block

Field (L)	Tlm. Packet (L)	Section	Description (L)
TSP10	DiagPduEnv0	LHK/tlm/_/F.TSP10.shtml:%	Spare 10 bits
TSP10	DiagPduEnv4	LHK/tlm/_/F.TSP10.shtml:%	Spare 10 bits
TSP10	PduEnv0	LHK/tlm/_/F.TSP10.shtml:%	Spare 10 bits
TSP10	PduEnv4	LHK/tlm/_/F.TSP10.shtml:%	Spare 10 bits
TSP13	DiagPduEnv0	LHK/tlm/_/F.TSP13.shtml:%	Spare 13 bit field
TSP13	DiagPduEnv4	LHK/tlm/_/F.TSP13.shtml:%	Spare 13 bit field
TSP13	PduEnv0	LHK/tlm/_/F.TSP13.shtml:%	Spare 13 bit field
TSP13	PduEnv4	LHK/tlm/_/F.TSP13.shtml:%	Spare 13 bit field
TSP16	CmdCnt0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	CmdCnt1	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	CpuMetr	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagCmdCnt0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagCmdCnt1	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagCpuMetr	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagFileStats	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagLrs0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagMemStats0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagMemStats1	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	DiagTemEnvPwr5	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	FileStats	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	Lrs0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	MemStats0	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	MemStats1	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP16	TemEnvPwr5	LHK/tlm/_/F.TSP16.shtml:%	Spare 16 bit field
TSP4	AemEnv0	LHK/tlm/_/F.TSP4.shtml:%	Spare 4 bits
TSP4	DiagAemEnv0	LHK/tlm/_/F.TSP4.shtml:%	Spare 4 bits
TSP8	AemEnv0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagAemEnv0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv6	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagPduEnv7	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvPwr5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp6	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	DiagTemEnvTemp7	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field

Field (L)	Tlm. Packet (L)	Section	Description (L)
TSP8	PduEnv2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv6	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	PduEnv7	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvPwr5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp0	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp1	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp2	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp3	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp4	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp5	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp6	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSP8	TemEnvTemp7	LHK/tlm/_/F.TSP8.shtml:%	Spare byte field
TSYMNAMCHAR	LMEMSYMVAL	MEM/tlm/_/F.TSYMNAMCHAR.shtml:%	Symbol Name Character
TSYMNAMESIZE	LMEMSYMVAL	MEM/tlm/_/F.TSYMNAMESIZE.shtml:%	Symbol Name Length
TSYMVAL	LMEMSYMVAL	MEM/tlm/_/F.TSYMVAL.shtml:%	Symbol Value
TTRANID	LMEMPOOLDATA	MEM/tlm/_/F.TTRANID.shtml:%	Transaction ID
TTRANID	LMEMSIUDATA	MEM/tlm/_/F.TTRANID.shtml:%	Transaction ID
TTRANID	LMEMSYMVAL	MEM/tlm/_/F.TTRANID.shtml:%	Transaction ID
Version	CmdConfirm	ITC/tlm/_/F.Version.shtml:%	CCSDS version

29 Telemetry Analog Conv. Index, by Name

Analog Conv.	Section	Description
LDTEMVADCCNV	LHK/att/_/A.LDTEMVADCCNV.shtml:%	TEM Voltage Conversion

30 Telemetry Discrete Conv. Index, by Name

Discrete Conv.	Section	Description
ITC_NODEID	ITC/att/_/D.ITC_NODEID.shtml:%	Discrete list of ITC nodes
ITC_TASKID	ITC/att/_/D.ITC_TASKID.shtml:%	Discrete list of ITC task IDs
LAEMFRPWRSTATES	LHK/att/_/D.LAEMFRPWRSTATES.shtml:%	AEM FREE Board Power States
LAPDUPWRCNVTSTAT	LHK/att/_/D.LAPDUPWRCNVTSTAT.shtml:%	ACD PDU Power Converter State
LAPDUPWRSTATES	LHK/att/_/D.LAPDUPWRSTATES.shtml:%	ACD PDU Power States
LAPDUPWRSUPSTAT	LHK/att/_/D.LAPDUPWRSUPSTAT.shtml:%	ACD PDU Power Supply Sources
LDPDUEPUCNVT	LHK/att/_/D.LDPDUEPUCNVT.shtml:%	PDU EPU Converter
LDPDUEPUPWRST	LHK/att/_/D.LDPDUEPUPWRST.shtml:%	EPU Power States
LDPDUTEMPWRST	LHK/att/_/D.LDPDUTEMPWRST.shtml:%	PDU TEM Power State
LHKSTATUSBITS	LHK/att/_/D.LHKSTATUSBITS.shtml:%	ADC status bit conversions
LRLIMDEVICE	LHK/att/_/D.LRLIMDEVICE.shtml:%	Device Opcodes for Red Limit Alerts

31 Telemetry Limit Set Index, by Name

Limit Set	Section	Description
LABEAGTEMPADCLIM	LHK/att/_/L.LABEAGTEMPADCLIM.shtml:%	ACD BEA Grid Interface Temperature Limits
LAPMTRTEMPADCLIM	LHK/att/_/L.LAPMTRTEMPADCLIM.shtml:%	ACD PMT Rail Temperature Limits
LASHLTEMPADCLIM	LHK/att/_/L.LASHLTEMPADCLIM.shtml:%	ACD Shell Temperature Limits
LC33IADCLIM	LHK/att/_/L.LC33IADCLIM.shtml:%	CAL 3.3I ADC limits
LC33VADCLIM	LHK/att/_/L.LC33VADCLIM.shtml:%	CAL 3.3V ADC limits
LCAFETADCLIM	LHK/att/_/L.LCAFETADCLIM.shtml:%	CAL AFFE temperature limits
LCBASPLADCLIM	LHK/att/_/L.LCBASPLADCLIM.shtml:%	CAL Baseplate Temperature Limits
LCBIASIADCLIM	LHK/att/_/L.LCBIASIADCLIM.shtml:%	CAL bias current limits
LCBIASVADCLIM	LHK/att/_/L.LCBIASVADCLIM.shtml:%	CAL bias voltage limits
LDAEMFRHV1ADCLIM	LHK/att/_/L.LDAEMFRHV1ADCLIM.shtml:%	AEM Free Board HV1 Limits
LDAEMFRHV2ADCLIM	LHK/att/_/L.LDAEMFRHV2ADCLIM.shtml:%	AEM Free Board HV2 Limits
LDAEMFRTMPADCLIM	LHK/att/_/L.LDAEMFRTMPADCLIM.shtml:%	AEM Free Board Temperature Limits
LDAEMFRVDDADCLIM	LHK/att/_/L.LDAEMFRVDDADCLIM.shtml:%	AEM Free Board VDD Limits
LDEPUTEMPADCLIM	LHK/att/_/L.LDEPUTEMPADCLIM.shtml:%	EPU Temperature ADC Limits
LDEPUVADCLIM	LHK/att/_/L.LDEPUVADCLIM.shtml:%	EPU Voltage ADC Limits
LDTEM33IADCLIM	LHK/att/_/L.LDTEM33IADCLIM.shtml:%	TEM 3.3I digital limits
LDTEM33VADCLIM	LHK/att/_/L.LDTEM33VADCLIM.shtml:%	TEM digital 3.3V limits
LDTEMPCBTADCLIM	LHK/att/_/L.LDTEMPCBTADCLIM.shtml:%	TEM PCB Temperature Limits
LDTEMPSTADCLIM	LHK/att/_/L.LDTEMPSTADCLIM.shtml:%	TEM Power Supply Temperature Limits
LMGRDRADIFADCLIM	LHK/att/_/L.LMGRDRADIFADCLIM.shtml:%	Grid Radiator Interface Temperature Limits
LMGRIDTEMPADCLIM	LHK/att/_/L.LMGRIDTEMPADCLIM.shtml:%	Grid Temperature ADC Limits
LMRADAFHTRADCLIM	LHK/att/_/L.LMRADAFHTRADCLIM.shtml:%	Radiator Anitfreeze Heater Temperature Limits
LMRADTEMPADCLIM	LHK/att/_/L.LMRADTEMPADCLIM.shtml:%	Radiator Temperature Limits
LMVCHPDSHPADCLIM	LHK/att/_/L.LMVCHPDSHPADCLIM.shtml:%	VCHP-DSHP Interface Temperature Limits
LMVCHPRSVTADCLIM	LHK/att/_/L.LMVCHPRSVTADCLIM.shtml:%	VCHP Reservoir Heater Temperature Limits
LMVCHPXLHPADCLIM	LHK/att/_/L.LMVCHPXLHPADCLIM.shtml:%	VCHP-XLHP Interface Temperature Limits
LT15IADCLIM	LHK/att/_/L.LT15IADCLIM.shtml:%	TKR 1.5I ADC limits
LT15VADCLIM	LHK/att/_/L.LT15VADCLIM.shtml:%	TKR 1.5V ADC Limits
LT25IADCLIM	LHK/att/_/L.LT25IADCLIM.shtml:%	TKR 2.5I ADC limits
LT25VADCLIM	LHK/att/_/L.LT25VADCLIM.shtml:%	TKR 2.5V ADC limits
LTBIASIADCLIM	LHK/att/_/L.LTBIASIADCLIM.shtml:%	TKR bias current ADC limits
LTBIASVADCLIM	LHK/att/_/L.LTBIASVADCLIM.shtml:%	TKR bias voltage ADC limits
LTCBLTADCLIM	LHK/att/_/L.LTCBLTADCLIM.shtml:%	TKR cable temperature limits