T2 Tile Packet Header Formats

Version 15 Date **2020-05-13**

VERSION 15

DATE 2020-05-13

Packet length is 1..255 bytes. Transport layer must handle byte and packet framing.

E	3Y	ΤE	0							BY	TE	1						BY	ΤE	2						BY	ΤE	3						BY	ΤE	4						
	7	6	5	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	• • •

Packet header

T2 packet STAL

Non-standard 0 ASCII7 ?→

Standard 1 C

Local standard 1 1 1 RSV0

Local standard packets are defined per source/destination

PRU→PRU Not used

PRU→LKM Page 3 ¬

LKM→PRU Page 3

LKM→MFM Page 3

MFM→LKM Page 3 ¬

Standard	1	LOCL	¬														
Routed standard	1	0	URG	OVR	ERR ERR	SD2	SD1	SD0	? →								
Bulk	1	0	0	VROVR	ERR	SD2	SD1 SD1 SD1	SD0	? →								
Urgent	1	0	1	OVR	ERR	SD2	SD1	SDO	MFM	→							_
Flash	1	0	1	OVR	ERR	SD2	SD1	SD0	0		Α	SC	117:0	Coc	le		?→
MFM	1	0	1	OVR	ERR	SD2	SD1	SD0	1	XITC2	XITC1	XITCO	¬				
KITC	1	0	1	OVR	ERR	SD2	SD1	SD0	1	0	0	0	SN3	SN2	SN1	SNO	?→
Circuit	1	0	1	OVR	ERR	SD2	SD1	SD0	1	00	1-1	.00	-				
Ring	1	0	1	OVR OVR OVR OVR	ERR	SD2	SD1 SD1 SD1	SD0	1	0	0	1	CN3	CN2	CN1	CNO	?→
Hang up	1	0	1	OVR	ERR ERR ERR ERR	SD2 SD2	SD1	SD0	1	0	1	0	CN3 CN3	CN2 CN2 CN2 CN2	CN1 CN1 CN1	cno cno cno cno	?→
Cache updates	1	0	1	OVR	ERR	SD2 SD2	SD1 SD1	SD0	1	0	1	1	сиз сиз	CN2	CN1	CNO	?→
Cache upd ack	1	0	1	OVR	ERR	SD2	SD1	SD0	1	1	0	0	CN3	CN2	CN1	CNO	?→
ITC	1	0	1	OVR	ERR	SD2	SD1	SD0	1	10	1-1	.11]¬				
Reserved active	1	0	1	OVR	ERR	SD2 SD2	SD1 SD1 SD1	SDO	1	1	0	1	CN3	CN2	CN1	CNO	?→
Reserved passive	1	0	1	VR OVR OVR OVR	ERR ERR	SD2 SD2	SD1	SDO	1	1	1	0	CN3 CN3 SN3	CN2 CN2 SN2	CN1 CN1 SN1	cno cno sno	?→
ITC state	1	0	1	OVR	ERR	SD2	SD1	SD0	1	1	1	1	SN3	SN2	SN1	SNO	?→

Local standard PRU→**LKM**

illegal	1	1	*	0	0	0	0	0	? →			
debug	1	1	*	0	0	0	0	1	? →			
value	1	1	*	0	0	0	1	0	? →			
control	1	1	*	0	0	0	1	1	0	ASCII7:Code	0	
Packet sync	1	1	*	0	0	0	1	1	0	'P'	0	
Frame error	1	1	*	0	0	0	1	1	0	ĴĹ	0	
Timeout	1	1	*	0	0	0	1	1	0	'T'	0	
Monitor	1	1	*	0	0	0	1	1	0	'M'	0	
reserved	1	1	*	0	0	0	1	1	0	all other values	0	
reserved	1	1	*	0	0	0	1	1	1	? →		
reserved	1	1	*	0	0	1	Х	Х	? →			
reserved	1	1	*	0	1	Х	Х	Х	? →			
reserved	1	1	*	1	Χ	Χ	Х	Χ	? →			

Local standard LKM→PRU

1 1 * x x x x x ?→ reserved

LKM -> PRU uses non-standard packets rather than STNDLOCL. See T2-12/pru/itcio/firmware/SpecialPackets.c for details Note:

ASCII7:PRU

'0'..'1'

'0'..'1'

'0'..'1'

'0'..'1'

'0'..'1'

ASCII7:DIR

'0'..'2'

'0'..'2'

'0'..'2'

'3'

'0'..'3'

0

0

0

0

0

0

Local standard $LKM \rightarrow MFM$

1 1 * 0 0 0 0 0 ? → illegal 1 1 * 0 0 0 0 1 MFZID Compatible 1 1 * 0 0 0 1 0 MFZID Incompatible 1 1 * 0 0 0 1 1 ? → reserved 1 1 * 1 1 1 x x ?→ reserved

Local standard $MFM \rightarrow LKM$

1 1 * 0 0 0 0 0 |?→ illegal 1 1 * 0 0 0 0 1 Ping 1 1 * 0 0 0 1 0 reserved 1 1 * 0 0 0 1 1 ? → reserved 1 1 * 1 1 1 x x |?→ reserved

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Abbreviations: Code:	Meaning
?	Optional data not defined by this spec
*	Reserved, should ignore on read, should be 0 on write
\rightarrow	For rest of packet
⊸	Defined below
ACT	Active, sender is performing an event
CTL	Circuit control packet
CNn	Circuit number, bit <i>n</i>
ENn	Enable status bit, prudir <i>n</i>
ERR	Error, corrupted packet
ITC	Intertile Connection
KITC	Kernel Intertile Connection
LOCL	Local packet moving PRU ↔ ARM, but not PRU ↔ PRU
MFM	Movable Feast Machine
n	Bit index counting from least significant bit is 0
OVR	Overrun, packet too long
RSVn	Reserved, bit <i>n</i>
SDn	Packet source direction on read, destination direction on write, bit n
SNn	State number, bit <i>n</i>
STND	Standard packet format, defined by this spec
TYPn	Type code, bit <i>n</i>
URG	Urgent
X	0 or 1
XITC	Extended ITC