Version 19 Date 2020-06-13

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

I	3Y	TE	0						BY	ΤE	1						BY	ΤE	2						ΒY	TE	3						BY	TE	4						
	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	7	6	5	4	3	2	1	0	

Packet header ¬

T2 packet

Non-standard 0 ASCII7 ?-

Standard 1 $\stackrel{\cup}{\cup}$

Local standard 1 1 1 TYP2 TYP2 TYP2 TYP2

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 ¬

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BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4
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	7 6 5 4 3 2 1 0

Standard	1 CC ¬	
Routed standard	1 0 SD0 SD0 SD1 OVR	
Service	1 0 0 VR	
Flash	1 0 0 $\stackrel{\text{C}}{\text{R}}$ $\stackrel{\text{C}}{\text{R}}$ $\stackrel{\text{C}}{\text{R}}$ 0 ASCII7:Code ?	
Bulk	1 0 0 ERRR SD1 1 ?→	
MFM	1 0 1 SD0 SD1 SD2 ERRR	
KITC	1 0 1 SD0 0 0 0 SN2	
ITC	1 0 1 S S D 0 0 1 S S N 2 ? → ? →	
Circuit signals	1 0 1 VR SD 010-111 7	
Ring (lock request)	1 0 1 N R R S S S O 1 0 C C N C C N C C N C C N C C N C C N C C N C C N C C N C C N C C N C C C N C	RADIUS ?
Answer (lock ACK)	1 0 1 VR R R R R R R R R R R R R R R R R R	
Busy (lock NAK)	1 0 1 NR RR SD0 1 0 0 NA CN2 ?→	
Drop (lock discard)	1 0 1	
Talk (cache updates)	1 0 1 N S D 1 1 0 N S C	
Hang up (evt done)	1 0 1 OF RR SD0 1 1 1 1 CN CN CN ? → CN	

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BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4
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	7 6 5 4 3 2 1 0

ASCII7:DIR

'0'..'2'

'0'..'2'

'0'..'2'

0 0 0 0 EN1

0

0

0

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	? →

value	1	1	*	0	0	0	1	0	? →	•		
control	1	1	*	0	0	0	1	1	0	ASCII7:Code	0	ASCII7:PRU
Packet sync	1	1	*	0	0	0	1	1	0	'P'	0	'0''1'
Frame error	1	1	*	0	0	0	1	1	0	'F'	0	'0''1'
Timeout	1	1	*		$\overline{}$		1	1	n	'T'	n	'O' '1'

Monitor	1	1	*	0	0	0	1	1	0	'M'	0	'0''1'	0	'3'	0
reserved	1	1	*	0	0	0	1	1	0	all other values	0	'0''1'	0	'0''3'	? →
	4	-1		_	$\overline{}$	_	4	4	4	0					-

reserved	1	1	*	0	0	0	1	1	1 ? -	,
reserved	1	1	*	0	0	1	Χ	Х	? →	
reserved	1	1	*	0	1	Х	Х	Х	? →	
reserved	1	1	*	1	Х	Х	Х	Х	? →	

Local standard $LKM \rightarrow PRU$

reserved
$$1 1 \times x \times x \times x \times ? \rightarrow$$

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

Local standard LKM → **MFM**

arraara		.,,,	7 11		•				
illegal	1	1	*	0	0	0	0	0	? →
reserved	1	1	*	0	0	0	0	1	? →
reserved	1	1	*	0	0	0	1	Х	? →
reserved	1	1	*	0	0	1	Х	Х	? →
reserved	1	1	*	0	1	Х	Х	Χ	? →
reserved	1	1	*	1	Х	Х	Х	Х	? →

Local standard MFM → **LKM**

lariuaru	IVIE	· IVI	→ L	INIV	1				
illegal	1	1	*	0	0	0	0	0	? →
reserved	1	1	*	0	0	0	0	1	? →
reserved	1	1	*	0	0	0	1	Х	? →
reserved	1	1	*	0	0	1	Х	Х	? →
reserved	1	1	*	0	1	Х	Х	Х	? →
reserved	1	1	*	1	Х	Х	Х	Х	? →

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

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

Abbreviations: Code: Meaning

? Optional data not defined by this spec

* Reserved, should ignore on read, should be 0 on write

→ For rest of packet

→ Defined below

ACT Active, sender is performing an event BLK Bulk (lower priority than MFM) traffic

CTL Circuit control packet CNn Circuit number, bit *n*

CTRX Requested event window center, X coordinate, relative to ITC, s8
CTRY Requested event window center, Y coordinate, relative to ITC, s8

ENn Enable status bit, prudir *n*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

RADIUS Requested event window radius, 1..4

RSVn Reserved, bit *n*

SDn Packet source direction on read, destination direction on write, bit *n*

SNn State number, bit *n*

STND Standard packet format, defined by this spec

TYPn Type code, bit n

URG Urgent x 0 or 1

XITC Extended ITC

YNK Random 'Yoink' bit for race resolutions