

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

| 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 | |

Packet header ↴

T2 packet

STND ↴

Non-standard

| | | |
|---|--------|-----|
| 0 | ASCII7 | ? → |
|---|--------|-----|

Standard

1 LOCL ↴

Local standard

| | | | | | | | | |
|---|---|------|------|------|------|------|------|---|
| 1 | 1 | RSV0 | TYP4 | TYP3 | TYP2 | TYP1 | TYP0 | ↴ |
|---|---|------|------|------|------|------|------|---|

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 ↴

| | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----|
| 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 | |

Page 2

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|-----------------|-----------------|-----------------|-----------------|-----------------|-----|
| 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 | |

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 ASCII7:PRU 0 ASCII7:DIR |
| Packet sync | 1 1 * 0 0 0 1 1 | 0 'P' 0 '0'..'1' 0 '0'..'2' |
| Frame error | 1 1 * 0 0 0 1 1 | 0 'F' 0 '0'..'1' 0 '0'..'2' |
| Timeout | 1 1 * 0 0 0 1 1 | 0 'T' 0 '0'..'1' 0 '0'..'2' |
| Monitor | 1 1 * 0 0 0 1 1 | 0 'M' 0 '0'..'1' 0 '3' 0 0 0 0 0 EN2 EN1 EN2 |
| reserved | 1 1 * 0 0 0 1 1 | 0 ..all other values.. 0 '0'..'1' 0 '0'..'3' ? → |
| reserved | 1 1 * 0 0 0 1 1 | 1 ? → |
| reserved | 1 1 * 0 0 1 x x | ? → |
| reserved | 1 1 * 0 1 x x x | ? → |
| reserved | 1 1 * 1 x x x x | ? → |

Local standard LKM → PRU

reserved 1 1 * x x x x x ? →

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

Local standard LKM → MFM

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

Local standard MFM → LKM

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

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| 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 <i>n</i> |
| | 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 <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 |
| | RADIUS | Requested event window radius, 1..4 |
| | RSVn | Reserved, bit <i>n</i> |
| | SDn | Packet source direction on read, destination direction on write, bit <i>n</i> |
| | 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 |
| | YNK | Random 'Yoink' bit for race resolutions |