SWIFT™-KTX

High Throughput Software-Defined K-band Communications

TETHERS UNLIMITED

Transformative Technologies for Space, Sea, Earth, & Air

SWIFT-KTX is a re-programmable software defined radio that combines significant onboard processing with a wideband K-band transmitter.

Capabilities

SWIFT-KTX provides small satellites with a high-throughput downlink in K-band with an optional uplink/downlink in any other band between UHF and Ka. The waveform and coding agility of the software defined radio enables a wide range of link margins to suit multiple missions and multiple mission profiles.

- >1W K-band Tx w/ >100 MHz bandwidth
- 17 to 40 GHz K-band Tx and Rx frequency coverage in multiple sub-bands
- Arbitrary waveform/modulation/coding
- 100% on-orbit re-programmable with fail-safe boot modes

High-order modulation schemes such {Q,8,16A,32A}PSK combined with >100 MHz instantaneous bandwidth and high-efficiency puncture and turbo codes enable real data rates in excess of 300 Mbps. Significant onboard memory and processing enable high-throughput/low-latency packet processing.

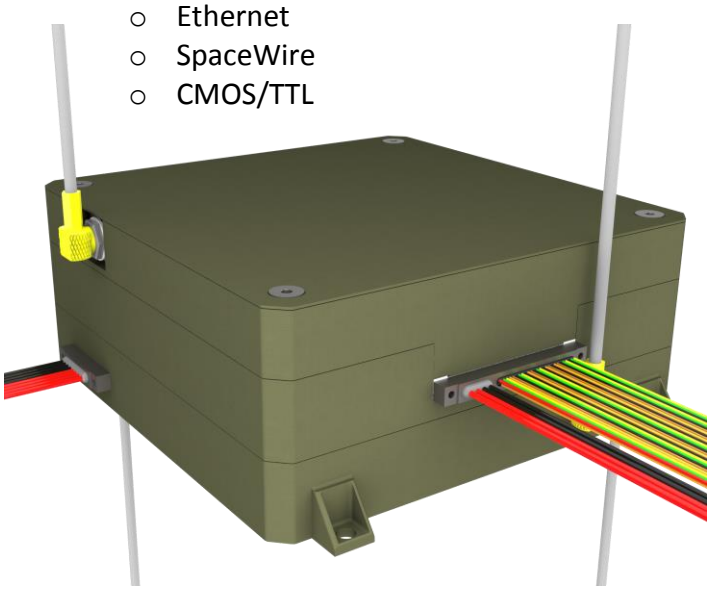
- Link Framing: DVB-S2, CSSDS, TCP/IP, custom formats
- Encryption: AES-{128,196,256}/CBC/CFB/GCM

Status

- Baseband hardware and software platform components already matured to TRL-5
- Engineering models available 15Q4
- Roadmap includes baseband components that will enable approx. 500 MHz instantaneous bandwidth with >1 Gbps real data rates

Specifications

- >1 year LEO mission design life
- ☐86 x 45mm (0.375U)
- <500 grams
- Flexible mounting options
  - Flanges for deck mounting
  - Ears for CubeSat rail mounting
- 6-36V unregulated DC
  - Integrated latch-up/fault detection and protection
- 2.0W base power consumption incremental by mode:
  - +6W K-band receiver
  - +16W K-band transmitter
- Flexible interface options, including separate or multiplexed command and data interfaces
  - RS-232/422/485
  - Ethernet
  - SpaceWire
  - CMOS/TTL



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