

SpaceWire DSP

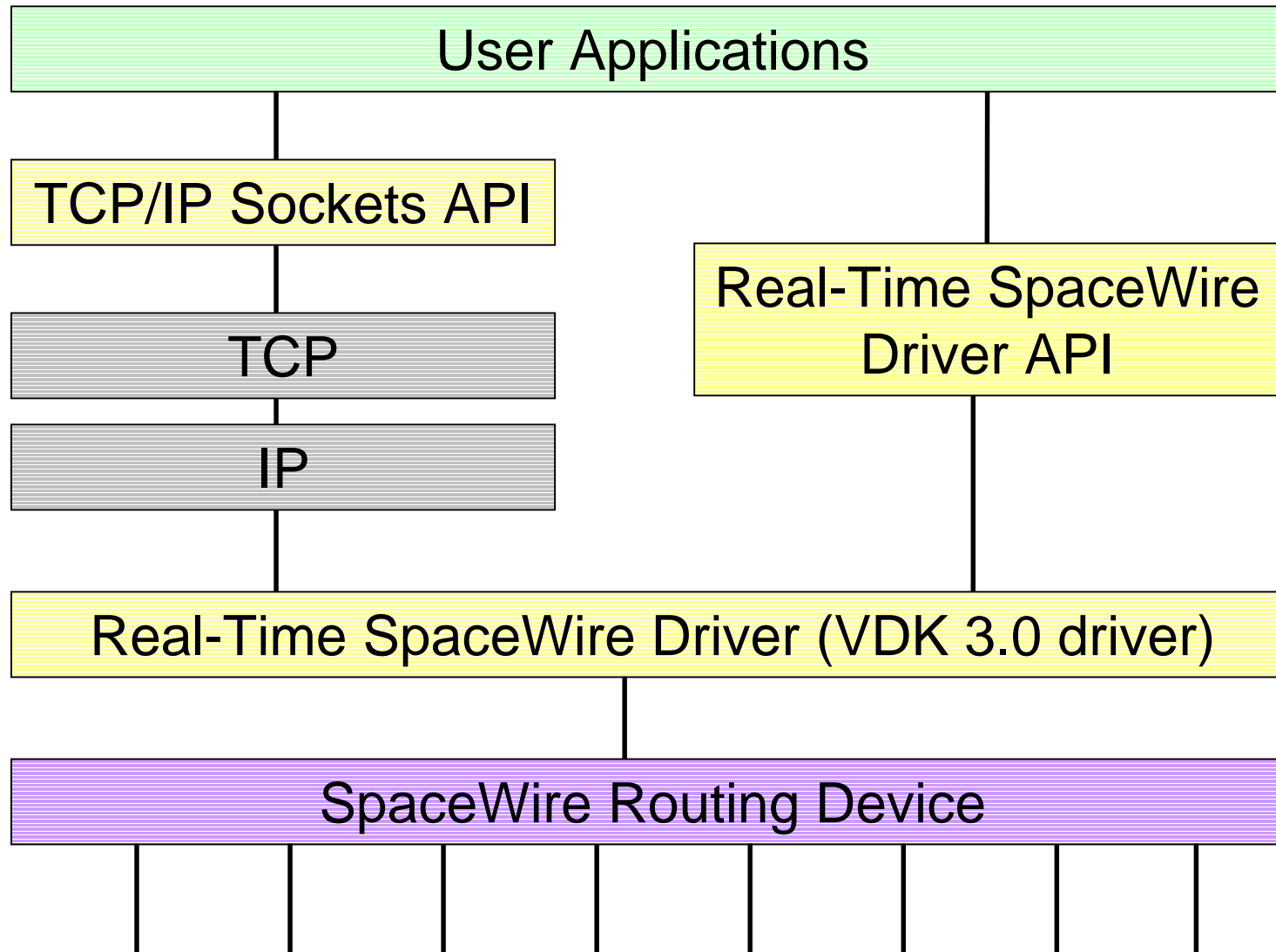
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Main Components

- Analog Devices 21160 SHARC DSP processor
- Eight port SpaceWire Router
 - with external SHARC Link interface
- SHARC Links connecting the DSP to the router.
 - high-speed, bi-directional, half-duplex, point-to-point links

SpaceWireDSP Driver

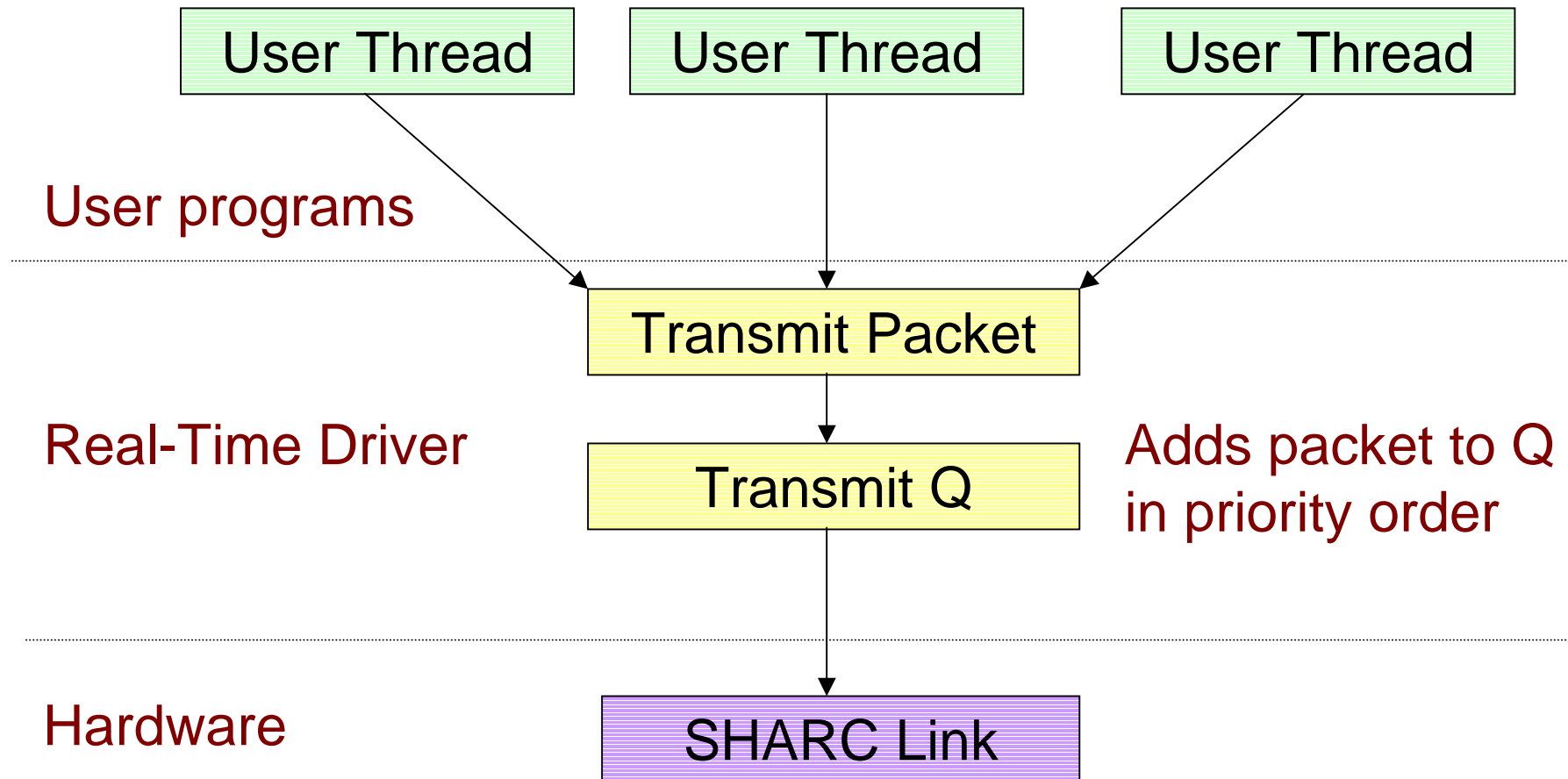
- Coded using Analog Devices software
 - Visual DSP++ Version 3.0
 - Written in C and assembly
 - Implemented as a standard Visual DSP++ Kernel (VDK) driver
- Two driver interfaces are provided
 - A real-time driver API
 - An interface to a TCP/IP stack
 - TCP/IP MicroNet stack provided by SciSys

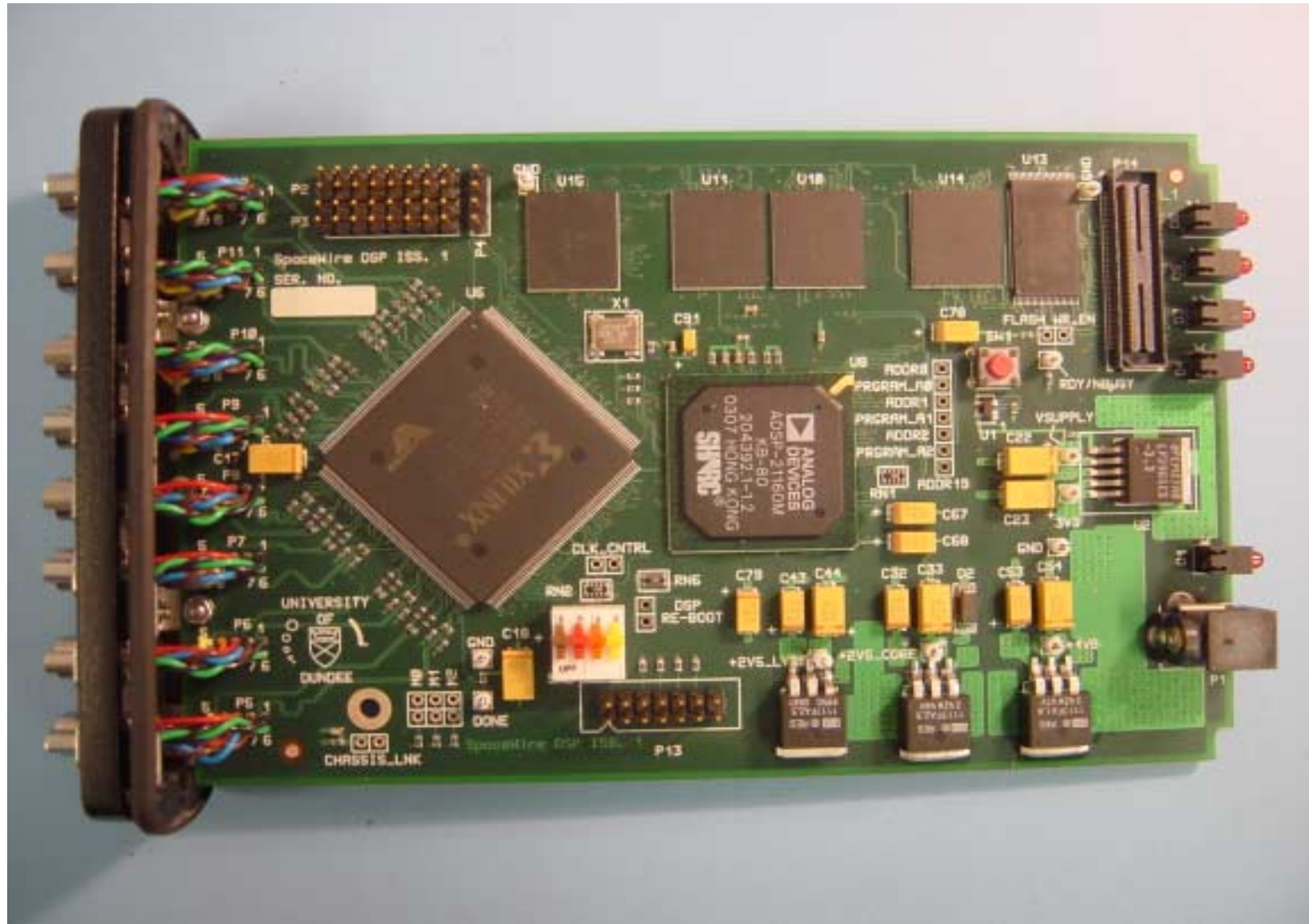


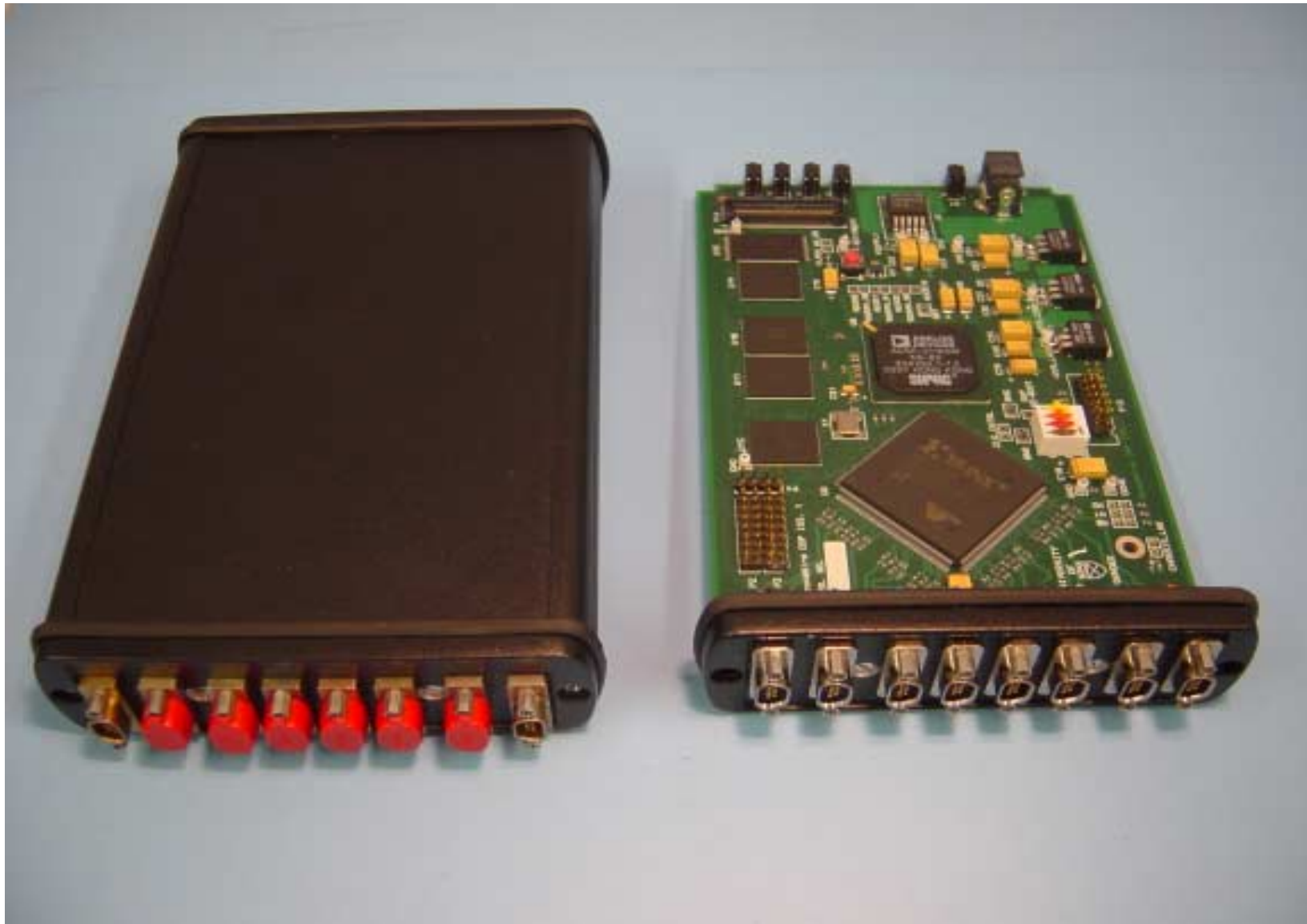
Driver Functionality

- Transmit message calls are processed by a thread-safe priority driven Q queue
- Receive message calls block on an incoming message
 - Only a single thread can receive data at any time

Priority Driver Transmit Q







Project Details

- Funded by British National Space Centre (BNESC)
 - As part of the Real-time Embedded CORBA over SpaceWire (RECS) project.
- Designed for research purposes
 - SpaceWire to DSP integration
- To be used by SciSys Ltd
 - To implement a lightweight, distributed object system (micro-ORB) running over SpaceWire