



*The iSAFT Quad/Octal SpaceWire Interface Board is an advanced PCIe SpaceWire interface, supporting SpW simulation with error injection and built-in recording capabilities. It is suitable for multiple applications in the space sector, including Data Front-Ends, EGSE/SCOEs.*

*The board is based on TELETEL's powerful SpaceWire codec, and it is a proven solution in various spacecraft / satellite testbeds in Europe and Japan.*

*The board is delivered with a practical SDK, and can be complemented with additional software modules allowing to save development / integration time.*

## Main Features

- Full height / Half length PCIe form factor board with multi-Gbps overall throughput
- Four / Eight SpW Ports with independently programmable Link speed up to 400Mbps, full compliance to ECCS-E-ST-50-12C
- SpW Simulation / Emulation capabilities with built-in packet recording functions
- IRIG-B002/006 generator / receiver TTL/RS-422 electrical levels, with down to 8 nano-seconds accuracy / resolution, with IRIG signal regeneration capability in order to cascade multiple boards / systems
- Asynchronous transmission & Traffic generation support
- Per port / packet triggered transmission conditions (packet to packet delay, transmission on Time-Code / IRIG Timestamp with / without time offset, etc.), Packet & Time-Code transmission on external strobe, etc.
- Provision of several trigger in / out signals with multipurpose functionality (start of capture stimulation, generation of events, synchronization with external equipment, etc.)
- Electrical level self-test capabilities for all interfaces (SpW / IRIG)
- SpW Error injection (EEP, parity, ESC error, disconnect, credit error, NCHAR / Time-Code sequence error, simultaneous D/S transition), programmable fault tolerance modes
- Flight equipment protection against internal failures (FMEA available)

## Competitive Advantages

- Up to 8 SpW ports supported on a single board
- Rx / Tx with 8 ns timestamping resolution
- Transmit more than 2 Million packets / sec
- Support more than 2,5 Gbps aggregate traffic
- Multi-board management, concurrent access
- Industry's most advanced SpW codec which can be extended with RMAP, NDCP, CPTP
- Seamless integration with EGSE software
- Proven solution in multiple EGSE test benches across Europe & Japan

## Environmental Information

- Operating temperature range: 0°C to 50°C
- Storage temperature range: -55°C to 125°C
- RoHS compliant

## Ordering Information

- iSAFT-NIC004: Octal SpW PCIe NIC - G3 (with IRIG support)
- iSAFT-NIC005: Quad SpW PCIe NIC - G3 (with IRIG support)

## Software

### Standard

- Windows / Linux driver APIs
- iSAFT Configuration / Self-test utility

### Optional

- TCP/IP remote client APIs in C++ / Python
- EDEN, CCSDS C&C APIs
- iSAFT SpaceWire Simulator / SPY Tool (board management, SpW / RMAP / CPTP packet editors, simulation, traffic generation, recording, off-line analysis, statistics, Wireshark protocol analyzer)

## Application Areas

- SpW Data Front Ends with online data recording
- Electrical Ground Support Equipment (EGSE) / Test Benches
- Hardware In the Loop Simulation
- New prototyping / experimentation

## CONTACT

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