Built around Trident’s Space Qualified Digital Radar Transceiver and our mature multifunction process digital RF architecture, the MFREU provides a complete solution for flexible high-bandwidth multifunction RF system needs in space, enabling rapid implementation of radar and other advanced programmable multifunction RF capabilities in a compact form factor.

Highly Integrated.

The MFREU combines Trident’s SQDRT with supporting telemetry and is based on our powerful, flexible multifunction process architecture, programmability over all key RF features in a very small size, weight, and power footprint. SpaceVPX compatibility provides modularity and simplifies integration of peripherals and additional capability.

Highly Reliable.

A Single Event Effects aware FPGA architecture, coupled with radiation-tolerant components and a robust mechanical design, provide a high-reliability platform for operation in harsh orbital and interplanetary environments.
Specifications:
- Number of Channels: 1 Transmit, 2 Simultaneous Receive
- Digital Converters: 12 bits transmit, 12 bits receive; synchronization across multiple transceivers
- Sample Clock Range: programmable up to 3.2 Gsamples/sec
- Instantaneous BW: programmable up to 800MHz
- FPGA: Xilinx Virtex-5QV
- Power: < 85W (FPGA mode & duty cycle dependent; flexible low-power/standby modes)
- Weight: < 13kg
- Shock/Vibration: packaging, materials, construction per NASA and DoD test methods
- Temperature: -20°C to +40 °C Operation (at thermal interface)
- Memory: 1Gbyte SDRAM, 16MB QDR II+ SRAM (with EDAC)
- Form Factor: 10.7” x 10.7” (baseplate dimensions), 5.5” height
- Radiation tolerance: All components selected for high latchup immunity and total dose
- Fault Tolerance: TMR program flow
- SEU/SEFI fault detection/recovery
- Configurable scrubbing
- Parts/Materials/Processes: Exceeds requirements for targeted missions; contact Trident for details
- Base Transceiver Card: Trident Space Qualifiable Digital RF Transceiver (SQDRT)
- Expansion Slot: OpenVPX Specification, SRI0 and SpaceWire connectivity, accepts SQDRT card
- Telemetry: Dedicated card collects and manages both in-chassis and external telemetry data
- System Controller: PowerQUICC III based system controller with 512MB onboard DDR1 memory

Interfaces:
- High-speed data
- Control & low-speed data
- General Purpose I/O
- RF
- Reference & Sample Clocks
- Backplane Interface
- Power
- Serial Rapid I/O
- Dual-Redundant SpaceWire Interfaces
- LVTTL and LVDS
- 50 ohm single ended
- Internal or External
- SpaceVPX/OpenVPX per VITA 78/65
- 28VDC

Multifunction Reconfigurability:
- Multiple FPGA boot load options
- Dynamically reconfigurable
- On-orbit re-programmability

Contact Us: ES-BD@tridsys.com

Because we are constantly improving our products, these specifications are subject to change without notice.
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