SRC5986E RUGGED MICRO-TRANSCEIVER

A small form factor multi-channel software defined radio frequency (RF) system for commercial and government spectrum applications

APPLICATIONS
- Designed for stand-alone missions or integrated as a sub-system component
- REDHAWK FEI 2.0 Compliant Device

SPECIFICATIONS
Size, Weight and Power Specifications
- Input range: 7V to 15V, nominal 12V
- Backup battery support (CR-123A)
- Typical power consumption: 30W
- Dimensions: 11.2in x 3.44in x 3.33in
- Weight: 4.65 lb
- Operating temperature: -40 to 65°C
- Environment: Designed to meet MIL-STD-810

Transceiver RF Specifications
- Tuning range: 70 MHz – 6 GHz
- Tuning step-size: < 3 Hz
- RF channel bandwidth: 200 kHz to 112 MHz
- Typical I/Q balance: > 50 dB
- A/D converter sample rate: 233 Ksamples/sec to 61.44 Msamples/sec
- A/D converter sample width: 12 bits
- RF I/O: SMA (50 ohms)
- Number of RF transceivers: 4 (independently configurable to receive or transmit)
- Receive input: internal limiters allow up to 2W (+33 dBm) survival
- Transmit output: ≥ 0 dBm up to 6 GHz

Digital Specifications
- SoC: Altera Arria 10 SX 660 (Dual-Core ARM Cortex A9)
- MCU: Freescale Kinetis K65 MCU (ARM Cortex-M4F) for health and security monitoring
- RAM: 2GB DDR3L-1600 SDRAM with ECC
- Internal flash storage: 64GB eMMC for Linux and root filesystem
- Operating System: Linux Kernel 4.9
- One 10 gigabit ethernet (10GBASE-SR) through MIL circular connector
- Dedicated RS-232 UARTs to MCU and SoC
- 1000BASE-T ethernet for command and control

- IQ Streaming using VITA 49.0 over UDP
- USB
  - USB to UART bridge allows console access to MCU and SoC
  - USB mass storage device interface
  - USB headphone/microphone accessory interface
- Integrated GNSS/GPS receiver with 1PPS for disciplining internal OCXO
  - Optional integrated SAASM device in SRC5986B variant
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FEATURES

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<th>Base-Mezzanine Architecture</th>
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<tr>
<td>- Internal auxiliary 50 MHz OCXO</td>
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<td>- Common baseband processor card</td>
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<tr>
<td>- 2x VITA 57.1 FMC expansion sites</td>
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<th>Baseband Processor Card</th>
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<tr>
<td>- 1.5 TFlop Altera Arria 10 SoC</td>
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<tr>
<td>- Multiple console access via microUSB port</td>
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<td>- High speed RAM and flash access</td>
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<tr>
<td>- Ultra-low power MCU for health and security monitoring</td>
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<th>RF Mezzanine</th>
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<tr>
<td>- Four RF receive paths (configurable as two separately tunable phase coherent pairs, or four phase coherent channels, using a single LO)</td>
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<td>- 11 selectable sub-octave filters per RF channel</td>
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<td>- 70 – 6000 MHz up to 112 MHz IBW</td>
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<td>- Noise figure 5 dB (50 MHz) to 15 dB (6 GHz)</td>
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<td>- 2W limiter</td>
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<td>- RF loopback for finite calibration of entire signal chain</td>
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