



SUMMATION RESEARCH INC.
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LEADERSHIP STATEMENT

Summation Research, Inc. (SRI) is an engineering and manufacturing company that provides high performance data acquisition, satellite telemetry, and communication products and systems to defense, government and commercial markets worldwide.

SRI is dedicated to applying their in-depth understanding of advanced electronics design, manufacturing techniques and signal processing practices to provide innovative, cost-effective products and solutions for communications challenges.

CORE COMPETENCIES

SRI's diverse in-house skills and experience allow the company to provide full end-to-end system and product design and development, manufacturing and technical support services with the cost and schedule effectiveness of a small business. This expertise, augmented by a well equipped facility (in excess of 40,000 square feet), provides the basis to accommodate both large and small program requirements.

SRI specializes in the design, development and production capabilities required to provide high performance data acquisition, satellite telemetry, and communication products. The company leverages its experience in these markets to produce innovative solutions for COTS, custom, and semi-custom products. SRI's Satellite and Range Telemetry Equipment operates in common Commercial and Defense frequency bands, supporting TT&C, flight control, data networking, ranging, and payload data requirements. SRI also provides Land Mobile Radio products to support data acquisition and communications in transportation, Supervisory Control and Data Acquisition (SCADA), and other fixed and mobile markets. Related Sensor Test and Measurement Telemetry solutions support sensor communications for test, validation, and monitoring applications.

SRI products are based on a modern, self-contained digital soft-radio platform utilizing advanced digital FPGA/DSP implementation based on the following core competencies:

- ▶ Standard, Semi-Custom, and Custom Products for Satellite and Range Telemetry, Wireless Sensor Data Acquisition, and Land Mobile Radio Data Communications
- ▶ Engineering Research and Development Services
- ▶ Product Design and Development
- ▶ Prototype to Production Engineering
- ▶ Fabrication, Manufacturing, or Refurbishment Services
- ▶ Maintenance and Repair of Internal or Customer Supplied Designs



PRODUCTS/SERVICES/ OTHER APPLICATION AREAS OF TECHNOLOGY STATEMENT

SRI product and service offerings are focused around the following business areas:

- ▶ Satellite Telemetry, Flight Telemetry, and Data Communications
- ▶ Sensor Test and Measurement Wireless Telemetry
- ▶ Private Land Mobile Data Telemetry and Communications
- ▶ Embedded Communications and Modem Equipment
- ▶ Custom Communication Equipment

Satellite Telemetry, Flight Range Telemetry, and Data Communications

Summation Research offers flexible, powerful solutions for Satellite Telemetry, Range Telemetry, and Data Communications requirements. We can provide rack-mountable chassis level or board level solutions for most L-Band and S-Band operational requirements. Our telemetry equipment is ideal for test stations or ground stations in satellite and range applications. The products are easily configurable for a variety of ground station and satellite telemetry interfaces and formats, including analog and digital modulations such as AM, AM/FSK (SGLS), FM, PM, PM/PSK, BPSK, QPSK, OQPSK, UQPSK, SQPSK, UQPSK, and AQPSK and include receivers, demodulators, bit sync, modulators, test equipment, frequency converters, and more.

SRI products also support requirements in Range telemetry applications. These requirements often include support for ARTM Tier 0, Tier 1, and Tier 2 standards. SRI's range-capable transmitters and receivers are used for multi-site range setup, test and pre-mission qualifications.



Systems Level Solutions

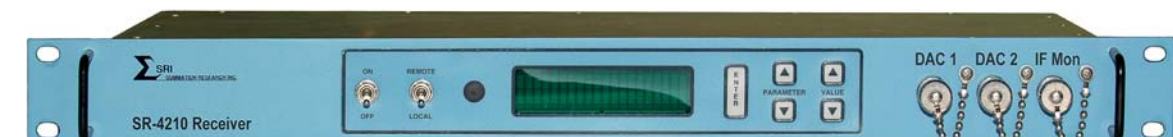
SRI products feature:

- ▶ Complete Test and Mission Operations Ground Station Rack-Mount Equipment Suites or Board-Level Functional Solutions for Satellite and Range Requirements
- ▶ Support for Most Common Communication Formats for L-Band and S-Band Operations
- ▶ Easily Configurable or Adaptable for 3rd Party and/or Custom Equipment Interfaces
- ▶ Industry Standard RS-232 and LAN Remote Control Interfaces for all Elements
- ▶ Software Defined Radio Architecture with a Firmware Intensive Implementation for Field Upgrades of Most Communications Capabilities



Chassis and Board-Level Product Solutions

- ▶ RF Down-conversion and Automatic Gain Control for S-Band, L-Band, or User Specified Frequency Bands
- ▶ Versatile Demodulation/Bit-Synchronization/Decoding for Most Common Satellite Communications Links
- ▶ Analog or Digital PM, PSK (B, Q, OQ, SQ, SOQ, AQ, UQ or UAQ), PM/PSK, FM, FM/FSK, or AM Waveforms
- ▶ Analog Output or Bit-Synchronization options from 50 bps to 50 Mbps for Recovered Data/Clock (Dual Bit-Synchronizers for A or UQPSK waveforms)
- ▶ PC-based or Board-Level products to 1.2 Gbps Data Rates
- ▶ Configurable PCM and/or Viterbi Decoding and Data Descrambling





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Sensor Test and Measurement Wireless Telemetry

Through its PMD affiliate, SRI supplies industry-leading wireless sensor telemetry products for test and operational measurement, sensing, and data logging. Our compact, reliable digital sensor telemetry systems are ideal for the harsh environments encountered in automobiles, turbines, pumps, and propeller shafts. Through the use of advanced digital signal processing technologies, PMD wireless sensor telemetry transmitters are easily programmed to work with a wide variety of sensors measuring temperature, torque, strain, pressure, and other critical parameters in locations that are difficult or impossible to reach with wires or slip rings.



Private Land Mobile Data Telemetry and Communications

Our VHF/UHF High Power Data-Capable radios offer a new standard for long range data transmission needs. SRI's land mobile products are used for Railroad Control and Communications, Supervisory Control and Data Acquisition (SCADA), and other applications where highly reliable communications are needed. These radios are ruggedized and ideally suited to the harsh environmental conditions typical of remote data telemetry systems.

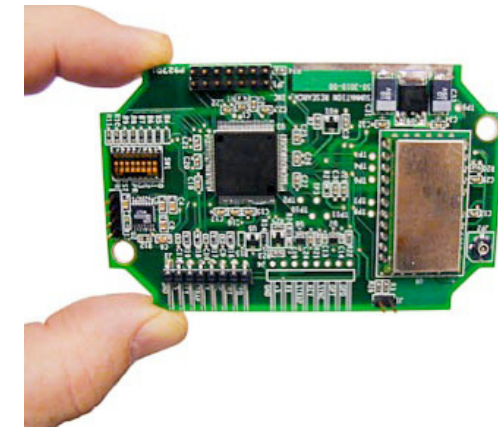


VHF/UHF Data Telemetry Radios

- ▶ High Output Power - Ultra Clean Spectral Purity
- ▶ Programmable for Wideband (25 KHz) or Narrow Band (12.5 KHz or 6.25 KHz) Operation
- ▶ Optional Embedded FM or Digital Modem
- ▶ Extremely Rugged Unit Designed for Demanding Applications

Embedded Communications Equipment

Summation Research introduces industry-leading solutions for embedded communications requirements. Our board-level Modems, Sensor Telemetry and Universal Communications Processors provide a powerful and flexible platform for high-speed, multi-function communications requirements. Building on advanced DSP solutions SRI's embedded products can be utilized to solve a variety of communications applications, including encoding, modulation, demodulation, clock recovery, and data decoding and processing.



Embedded Telemetry Solutions

Designed for OEM applications, SRI's Shaft Rotational Telemetry Module provides cost effective rotational sensor and timing communications capability for industrial engine tuning and balancing systems.

Advanced Signal Processing DSP/FPGA Solutions

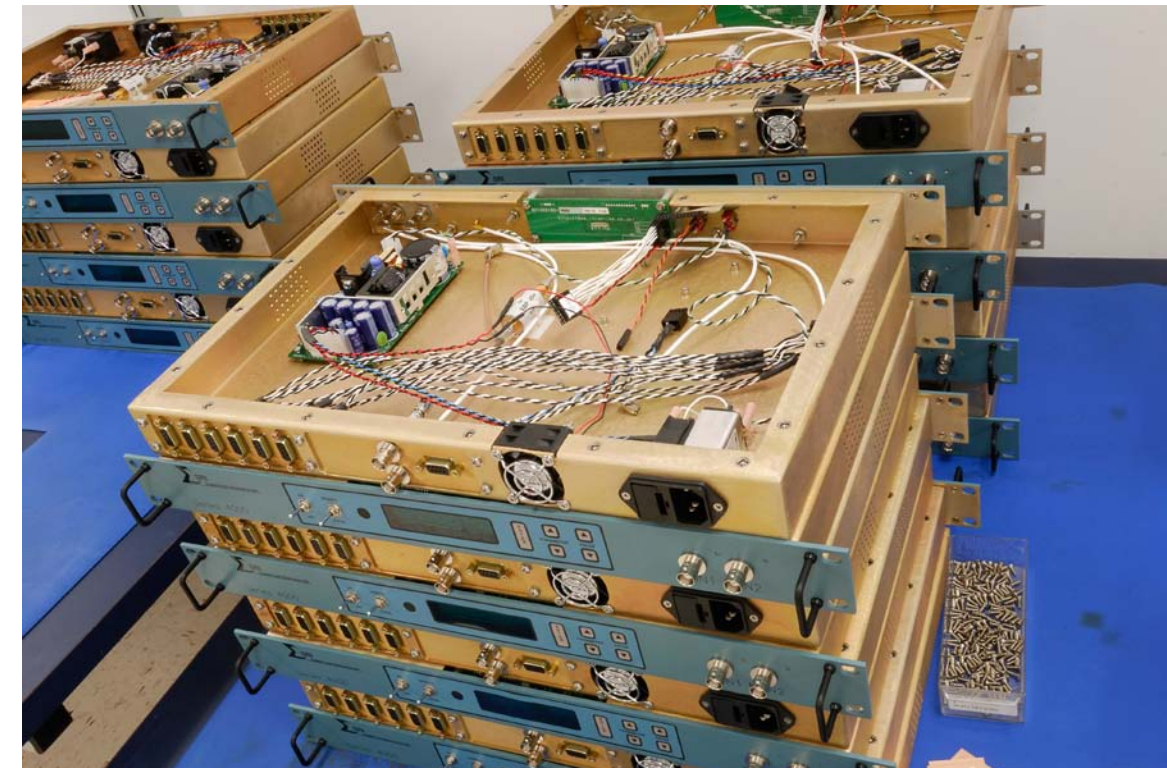
The Universal Communications Processor is a latest-generation Digital Signal Processing solution for high-speed, multi-function communications requirements. Through the use of fully programmable digital logic these processing engines are used in SRI and OEM products for signal processing, data recovery, and waveform generation.

Custom Signal Processing Solutions

SRI board-level products can support custom processing algorithms including such features as spread-spectrum, alternate coding algorithms, complex modulation formats, and so forth. SRI technical staff has the experience, knowledge base, and development tools required to address even the most unique and complex of end-user requirements.

Custom Communication Equipment

Summation Research offers a variety of standard and custom modems and communications processing products. SRI's engineering staff brings a wide range of experience to bear on solving unique communications needs, including applications such as Supervisory Control and Data Acquisition (SCADA), railroad telemetry and communications, Unmanned Aerial Vehicles (UAV) and Remotely Piloted Vehicles (RPV).





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CUSTOMERS AND MARKETS

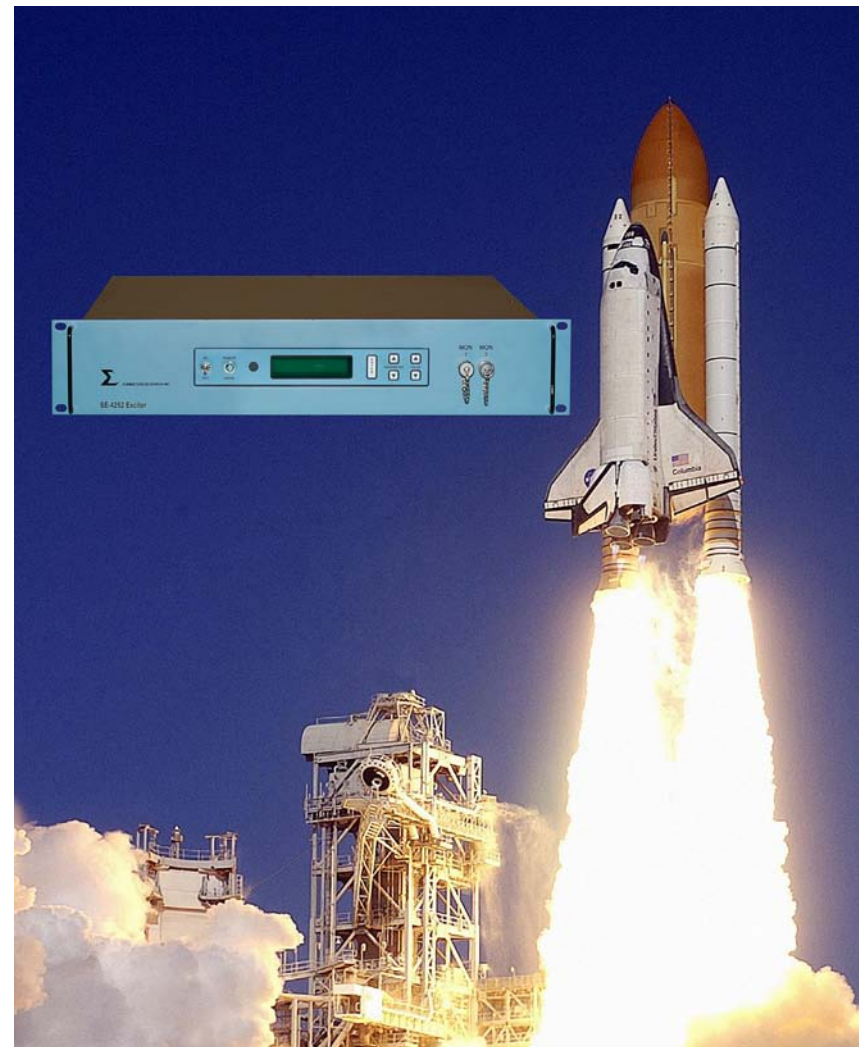
Summation Research has successfully provided equipment and services to Civil and Defense Government, Prime Contractor, and Commercial customers worldwide. Our successes include multiple projects for:

- ▶ Lockheed Martin
- ▶ The Boeing Company
- ▶ National Aeronautics and Space Administration (NASA)
- ▶ National Oceanographic and Atmospheric Administration (NOAA)
- ▶ United States Geological Survey (USGS)
- ▶ Raytheon
- ▶ United Space Alliance (USA)
- ▶ INPE Brazil
- ▶ GE Transportation Global Signaling
- ▶ The Walt Disney Company
- ▶ Kimberly Clark Company

Satellite Applications and Success Stories

SRI has recently provided their SD-4220 Demodulators to the National Oceanographic and Atmospheric Administration (NOAA) for a modernization of the nation's most critical weather satellite system. These Demodulators are now deployed in the NOAA Command and Data Acquisition Stations (CDAS) in Wallops, Virginia and Fairbanks, AK and are receiving data from the Geostationary Operational Environmental Satellites (GOES). The reliability of SRI's Demodulators are a key element in this Critical Infrastructure Protection (CIP) listed program providing space-based, remotely sensed environmental data.

Summation Research has also recently provided SE-4250 RF Exciter & Test Transmitters to United Space Alliance (USA) for use in NASA's Space Shuttle (STS) program. Between missions, the orbiters undergo rigorous testing of all systems, including critical communications links. The SRI Test Signal Transmitters are used during these tests. The Transmitters replaced older, failing equipment and SRI's innovative software defined architecture and communications system expertise allowed USA to maintain their test regimen with a modern yet "drop-in" replacement product.



COMPANY PROFILE AND CORE ADVANTAGE

Summation Research, Inc (SRI) is a qualified Small Business located on the technology-oriented "Space Coast" in Melbourne, Florida. The corporation was formed in 1989 to provide the design, development and production capabilities required to supply technically appropriate hardware, software and system solutions for a variety of applications in both commercial and government markets.

SRI's diverse in-house skills and experience allow the company to provide full end-to-end system and/or product design and development, manufacturing and technical support services with the cost and schedule effectiveness of a small business entity. This expertise, augmented by a well equipped facility (in excess of 40,000 square feet) provides the basis to accommodate both large and small program requirements.

SRI specializes in rapid, cost effective standard product and custom developments to satisfy demanding technical requirements. The company continually demonstrates the ability to successfully satisfy user needs with state-of-the-art technology. SRI's communications laboratories include an array of the latest developmental and support equipment, including signal generators, spectrum analyzers, network analyzers and link simulators, along with high speed oscilloscopes, low noise voltage sources, high power amplifiers, programmable attenuators, and other advanced equipment. A variety of simulators and emulators are also available for commonly used micro-controllers, as well as advanced digital signal processors.

SRI Family of Companies



SRI Summation Research Inc

- ▶ Communications Equipment
- ▶ Automatic Test Equipment
- ▶ Equipment Maintenance/Repair
- ▶ Custom Engineering Design/Development



SRI PMD, Inc.

- ▶ Wireless Telemetry Systems
- ▶ Sensor Data Processing
- ▶ Measurement Recording Systems



SRI CONNECTOR GAGE COMPANY

- ▶ High Frequency/Performance RF Connectors
- ▶ Connector Adaptors
- ▶ High Precision Mechanical Gages
- ▶ Custom Interconnect Solutions



SRI Hermetics

- ▶ Hermetically Sealed Connectors and Packaging
- ▶ Design and Manufacturing
- ▶ Advanced Materials, Research and Development

