DataSoft Corporation
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Capabilities in
Wireless & Tactical Communications
DataSoft Overview

• Developer of technology and products for wireless & radio communications:
  • Software Defined Radio Platforms
  • Secure Bluetooth Modules
  • Android Apps
  • Real-time embedded software and SCA tools
  • Network security appliance

• Markets: defense, aerospace, telecom, industrial automation

• Customers: Navy, Army, Air Force, General Dynamics, Comtech EF Data, Thales, Lockheed Martin, Raytheon

• Major programs: ATIP (NMT), JTRS HMS & AMF, HDR RF Modem, MUOS

• 13 Phase II SBIR’s on JTRS, Cyber defense, Network management

• Small business, located in Tempe, AZ

• DCAA approved accounting system; Secret FCL; COMSEC account
Overview of Products and Projects

- Microburst SDR
- Thunder Development & Test Platform
- Test Automation
- JTRS HMS & radio accessory

- Software Probe Toolbox for SDRs
- Satellite Network Simulator
- MUOS & ATIP (NMT)
- Network Security
Export/ITAR Experience:

- Registered with Dept. of State as a Manufacturer & Exporter
- Exported ITAR-controlled HW & SW to France, UK, Brazil, India
- Partners in UK, India, Poland
- Interests from Argentina, South Africa, Australia, Poland
- Investing in export compliance training, monitoring ITAR reform for Category XI items
RF Design – mixed mode

- Software Defined Radio – Thunder, Microburst
- RF Transceiver and FEM
- Baseband
- Tunable RF filters
Bluetooth, ARM, Power

- Bluetooth v2.1+EDR, LE v4.0
- ARM Cortex A-5, OMAP A-8
- USB charging circuits, regulators
- Secure IP encryption
Android Apps

- BlueLink, SRW Contacts, PLI Cam
- Android kernel, VPN, multicast
- Various devices – Nexus, Atrix, Galaxy, Note, Zoom, Tab, etc.
Industrial Design / Rapid Prototyping

- SideBridge designs for multiple radio models
- Custom 3D Printing with ABS
- Quick-turn metal shops
- Solidworks
Testing facilities

- Complete electronic labs
- Network analyzer, signal analyzer/generator, oscilloscopes, temperature chamber, etc.
- LabView, customized test software, ATE
Automated Test Expertise

- Simulation based Testing
  - OPNET-based test bed
  - Data Collection & Analysis tools
  - HW-in-the-Loop (HWIL) testing
  - SW-in-the-Loop (SWIL) testing

- ATE Design & Development
  - STE design & fabrication
  - PC-based control via GPIB bus
  - Virtual RF Environment
  - LabView and Teststand
  - Data logging & analysis

Radio Emulator design for JTRS AMF

Test Automation using LabView
Waveform Porting/Analysis

- Waveform Development Environment
  - SCA-compliant SDR
  - GPP, FPGA, DSP
  - Drivers, BSP, Loading tools
- SRW, WNW, MUOS
- Waveform Probe Toolbox
  - Data Probe
  - Resource Probe
  - Latency Probe
  - Traffic Probe
  - SCA Adapter Probe
- Portability/Complexity Analysis Tool
- SCA API Compliance verification tool, used by JTEL
Satellite Network Simulator

**Modes & Uses**

- **Hardware-in-the-Loop Mode:**
  - Layer-2 Verification and Validation of real hardware
  - Performance, Reliability, and Scalability metrics derived from realistic scenarios
- **Offline Mode:**
  - Estimate bandwidth and power requirements reliably by simulating years of operation in minutes
  - Accurately predict Capacity and Availability for planned deployments

**Features**

- Real-time simulation of 100’s of links, including satellite-to-ground, ground-to-satellite, and satellite-to-satellite communication
- Support for dynamic modulation (VCM and ACM; DVB-S2)
- Simulates location-based fade and weather effects
- Dynamic, multi-user link power budget analysis
- Windows or Linux Software solution -- runs on commodity hardware
Real-time Embedded Software

ATIP supports Navy NMT

Advanced TDMA Interface Processor (ATIP)
- IP Layer-2 Ethernet bridging device
- Element of Navy Multiband Terminal (NMT)
- Supports ADNS and BMDS Networks
- Features:
  - Rack mounted COTS servers based on RT-Linux
  - Open, modular, scalable architecture
  - IPv4/IPv6 networking & QoS enhancements
  - Information Assurance & Security
  - Prioritization and Dynamic Bandwidth Allocation
  - Framing for multiple data streams
  - Adaptive Coding enhancements
  - Web based control & configuration system
  - CMMI 3 development process

Other experience
- Linux, VxWorks, GHS Integrity
- BSP, PSP, Boot loader, Radio control library
- Device Drivers – Ethernet, audio, USB, UART
- Radio Devices, Radio Control, RF Control,
- DSP modules device drivers and sample apps
NOVA Cyber Security System

- Distributed anti-reconnaissance software for IP-based networks
- Gives network admin time to pinpoint, isolate, and remove threats
- Autonomous agents combine lightweight virtualization, attacker classification, dynamic rerouting for asset protection
- Pre-configured appliance with web-based interface
- Complements Intrusion Detection & Anti-Virus systems