# 2011 SMALL SATELLITE CONFERENCE EXHIBITOR DESCRIPTIONS

4Links

Booth Space: 13
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4Links design and sell test equipment for SpaceWire that users report is easy to use, reliable, and accurate, and that enabled them to detect and diagnose bugs and interoperability issues that simulation and other testers did not expose. The products include simulators, interfaces, analysis and recording, with a wide range of diagnostics and instrumentation of performance and time. Customers world-wide have extolled the quality and usefulness of 4Links SpaceWire test equipment. 4Links is exhibiting its SpaceWire test equipment along the main aisle between the entrance and registration, and you can buy these products in North America from Aeroflex, exhibiting at booth 13.

AAC Microtec AB Booth Space: 91 Johan Bäckström

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ÅAC Microtec develops and manufactures miniaturized and robust multifunctional electronics systems for aerospace and industrial applications. By combining the best suitable electronics packaging techniques we offer solutions based on state-of-the art microelectronics and MEMS technology, and services for optimal life cycle performance. ÅAC is the first company outside USA to deploy the Space Plug-and-play Avionics (SPA) standard.

ÅAC Microtec was founded in 2005 as a spin-off from Uppsala University's Ångström Laboratory, with focus on developing small and light micro- and nanosatellites, and components for use in these and other aerospace applications. However, early a demand for robust sensors, electronics and systems arose from e.g. heavy industries and military applications.

Customers include US AFRL, Astrium, RUAG Space, Atlas Copco, BAE Systems, Saab Group, NASA, ESA, the Swedish National Space Board and the Swedish Defense Materiel Administration.

AEi Systems, LLC Booth Space 76

Tom Boehler 5933 W Century Blvd Los Angeles, CA, 90045 (310) 216-1144 TomBoehler@aeng.com

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AEi Systems provides ANALOG HEAVY LIFTING services to the military, aerospace, and other industries where high reliability is critical. AEi Systems is the world leader in worst case, stress and derating, signal integrity, FMECA, MTBF, and radiation analysis for all types of linear, power, and RF systems. Founded in 1995, AEi Systems has a hard-earned

reputation for delivering its products and services on time, under budget, and to customer specifications, and serves nearly every significant IC and aerospace manufacturer and many of their customers. AEi Systems prides itself on its WCCA expertise, in addition to its world-class SPICE modeling and radiation-hardened high reliability DC-DC converter design services. AEi Systems is also the exclusive publisher of the Power IC Model Library for PSpice® and is the leading provider of SPICE models in the world. AEi helps customers assess risk, meet deadlines and efficiently solve the tough problems.

## Aeroflex Colorado Springs Booth Space: 73

Teresa Farris 4350 Centennial Boulevard Colorado Springs, CO 80907 Phone: (719) 594-8035

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Aeroflex Colorado Springs is a supplier of integrated circuits and custom circuit card assemblies. We supply a broad range of standard products for high-rel applications including microcontrollers, logic, programmable logic, FPGAs, 4M, 8M and 16M memories, serial communication interfaces for MIL-STD-1553, 1773, RadClock<sup>TM</sup>, an LVDS and SpaceWire family of products and our new UT699R LEON 3FT Microprocessor. Our RadHard-by-Design ASICs handle design complexities up to 3,000,000 usable gates, offers advanced technologies down to 0.25um and are RadHard to 1 Mega rad. Aeroflex offers Circuit Card Assembly capabilities, which consists of full assembly, test and coat in a high mix/low to medium volume operation.

Aeroflex RAD offers radiation testing services along with HiRel offerings such as A-to-D Converters and Power MOSFETs.

#### **Aeroflex Motion Controls**

Booth Space: 74 Karl Anderson 350 Kennedy Dr. Hauppauge, NY 11788 Phone: (661) 799-9363

Email: karl.anderson@aeroflex.com www.aeroflex.com/Motioncontrol

Aeroflex Motion Controls offers a wide range of capabilities in the design and manufacture of components and systems for the space market. Our products include rotary and linear actuators, brushless DC motors, gimbals, scanners, electronic controllers, slip rings and twist capsules Aeroflex provides stepper (both hybrid and permanent magnet), brushless, full and limited-angle torquers, arc segment, zero-cogging, solenoid and voice coil motors.

We offer precision gimbals for pointing and tracking, stabilized platforms and pedestals. Coupled with our electronic motion controllers and adaptive software, Aeroflex can provide a complete turn-key multi-axis system to meet your requirements.

Aeroflex Airflyte slip rings are made in every configuration ranging in size from 0.250 inch diameter capsules to large assemblies with through bores in excess of 36 inches. Our slip rings have been used extensively in pan & tilt cameras, radar platforms, tracked vehicles, rate gyros, down hole equipment, and packaging machinery.

Aeroflex Plainview Booth Space: 75 Teresa Farris 35 South Service Drive Plainview, NY 11803 Phone: (516) 752-5610

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Aeroflex Plainview is a manufacturer of advanced microelectronic Multi-Chip Modules (MCMs) for airborne, space, shipboard, ground based avionics. Our products include Mil-STD-1553, PWM controllers, Motor Drivers, Resolver-to-digital converters, Analog Multiplexer modules, and Voltage Regulators.

Our Battery Electronics Unit (BEU), a Li-Ion battery balancer and cell telemetry electronics unit, performs autonomous cell balancing, high cell limit indication and low cell limit indication. Our latest product family, RadHard-by-Design Analog Function Series offers MUXs, comparators, op amps and D-to-A Converters.

Aeroflex also offers a variety of Broadband, RF and Microwave products for aerospace and space applications.

## Aerojet Booth Space:90

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Aerojet is a supplier of launch, space, and missile systems with a distinguished mission success record. Aerojet delivers high quality products for domestic and foreign customers in the military, civil and commercial markets. Aerojet is an innovator that is developing new products to meet the emerging needs of the small satellite community including modular spacecraft systems and mission enabling subsystem technologies. Through our lean manufacturing techniques and commitment to operational excellence, as proven by our dedicated employees and Centers of Excellence, Aerojet is able to produce a highly reliable and affordable solution to fit any of our customers' requirements. Aerojet produces a large array of motors and engines from the main engines used on NASA launch vehicles to small bi- and mono-propellant thrusters used in station-keeping systems. Aerojet has over 3,100 employees in thirteen states. Aerojet is headquartered in Sacramento, California, with main divisions in Washington, Virginia, Tennessee, and Arkansas.

# Aitech Space Systems, Inc.

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Aitech is the leading supplier for the radiation hardened and ruggedized Space qualified embedded computer subsystems for the satellite bus, payloads and launch vehicles. Aitech offers readily available product solutions with its ready-made Space electronics product line including Space SBC, Gigabit Ethernet, Digital & Analog I/O, SpaceWire, Solid State Memory and power enclosures to fit your immediate mission needs.

Celebrating its 27th Anniversary this year, Aitech has a long and impressive track record delivering superior costperformance, reliability, and time-to-market benefits to our worldwide customers for the launch vehicle, missiles and satellite applications. With line of Space products performing up to 100krad TID and latch-up immune electronics, Aitech truly stands alone in the Space market around world at the most cost efficient solutions with expected robust functionality and performance you demand.

Aldec, Inc. Booth Space: 94 Gary Seely 2260 Corporate Circle Henderson, NV 89074

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www.aldec.com

Aldec, Inc. has been delivering advanced design verification and robust debugging technology to the hardware engineering community for over 25 years. As a global electronic design verification company, Aldec offers industry-proven tools to address design verification challenges with high-quality products such as: RTAX/RTSX (rad-tolerant devices prototyping), DO-254 CTS (in-hardware verification), HES (simulation and acceleration), Active-HDL (simulation/debugging for FPGAs), Riviera-PRO (UVM/OVM based high-end verification methodologies for large ASIC and FPGA designs), ALINT (design rule checking), and SFM (grid-based regression manager). For more information, visit http://www.aldec.com

Andrews Space, Inc. Booth Space: 35-36

John Savage

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Andrews Space, Inc. was founded in 1999 to be a catalyst in the commercialization and development of space. The company is an affordable integrator of aerospace systems and developer of advanced space technologies. To learn more, please visit: <a href="www.andrews-space.com">www.andrews-space.com</a> (206) 342-9934

In 2009, Andrews Space, Inc. formed SpaceFlight Services (SpaceFlight); a service company focused on providing routine access to space for small payloads. SpaceFlight has an affordable price structure by using standard flight interfaces and a streamlined integration process. SpaceFlight's process allows payloads to be rapidly manifested, certified, integrated and flown to space by simplifying launch integration planning and providing a single customer interface. www.spaceflightservices.com (206) 342-9934

Applied Technology Associates

Booth Space: 70-71

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Applied Technology Associates (ATA) is a precision sensing, measurement and controls company providing custom hardware solutions and services to government, aerospace and commercial customers. Our market applications span Acquisition, Tracking & Pointing (ATP); Guidance, Navigation & Control (GN&C); and Test & Evaluation (T&E) solutions

for ground, air and space systems. ATA has expanded to include a new satellite assembly, integration and test facility, and works alongside Space Dynamics Laboratory. ATA is teamed with Northrop Grumman on the Operational Responsive Space (ORS) Modular Space Vehicles program to build and integrate spacecraft at ATA.

ATA Aerospace, ATA's joint venture with ASRC Aerospace, is the prime contractor on the AFRL Space Technology Research, Analysis, Integration and Test (STRAIT) contract. On this contract ATA Aerospace provides the Program Management, Engineering Services, Integration and Test, Launch Support, On-Orbit Support, and Test Facility O&M for satellite and high altitude systems and subsystems including buses and payloads.

Astro- und Feinwerktechnik Adlershof GmbH

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Small satellite busses (up to 200 kg) and components for small satellites (1 to 400 kg) are the core business activities of Astro- und Feinwerktechnik Adlershof GmbH. In this area we focus on high reliable and smart systems for LEO and deep space applications. We are specialized in attitude control components (reaction wheels, IMUs, GPS systems, MFS) and subsystems, power subsystem components (PCU, PDU), structures and mechanism (like booms, solar panels or deployment mechanism) and scientific and optical payloads (primary VIS and IR). Additional to that we offer ground support equipment (EGSE, MGSE, OGSE), like transport containers or AOCS test beds.

The scope of services comprises the complete environmental qualification of space hardware, according to NASA or ESA standards, which also includes vibration, pyro shock, thermal vacuum testing.

### **ATK**

Booth Space: 10,11,12

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ATK Aerospace Systems is an industry leader in small and micro-satellites; satellite components and subsystems; lightweight space deployables and solar arrays; and low-cost, quick to market launch solutions. ATK developed the platform for the successful Earth Observer-1, THEMIS, and TacSat-3 satellites and provided the spacecraft bus for the first Air Force Operationally Responsive Space satellite. Aerospace Systems is the world's top producer of solid rocket propulsion systems and a leading supplier of military and commercial aircraft structures, flares and decoys, energetic materials, and related technologies. The group also has extensive experience supporting human and space payload missions.

Austin Satellite Design Booth Space: 80T

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Austin Satellite Design (ASD)'s mission is to create and manufacture products related to small low cost satellites, such as Cubesats and Picosats with integrated attitude control systems, propulsive thrusters and GPS receivers. These components may be purchased individually or used in satellites that we produce. We also provide technical support and expert consulting in the areas of space systems and satellite design.

# **Ball Aerospace Booth Space: 43**

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Ball Aerospace develops and manufactures spacecraft, advanced instruments and sensors, components, data exploitation systems and RF solutions for strategic, tactical and scientific applications in support of the DoD, NASA and other U.S. government and commercial entities. Ball Aerospace's culture and capabilities foster the agility to innovate, strength to deliver.

# **Berlin Space Technologies**

Booth Space: 2

Tom Segert

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Berlin Space Technologies (BST) is a specialist for small satellite systems and technology. BST offers reliable and cost efficient solutions for high resolution earth observation with up to 1.5 m GSD. All our products including the unique real time video mode can be bundled with comprehensive training and technology transfer programs.

Berlin Space Technologies was founded by senior staff of the Department of Aeronautics and Astronautics of TU Berlin. Our personnel holds key positions in the TUBSAT™ Program of TU Berlin since 2005. We were responsible for the design of key subsystems and operation for multiple missions. These missions include LAPAN-TUBSAT, Orbcomm 2nd Generation, LAPAN-A2 and LAPAN-ORARI.

# **Broad Reach Engineering**

Booth Space: 66-67

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Broad Reach Engineering develops hardware and software for space flight missions and ground systems. Products include spacecraft avionics, science payload electronics, spacecraft flight software, ground and space borne GPS receivers for precision orbit determination and occultation science, ground support hardware and software, and mission design and analysis service. <a href="https://www.broad-reach.net">www.broad-reach.net</a>.

CDA InterCorp Booth Space: 92

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CDA InterCorp has been an industry leader in the design and manufacturing of highly engineered, extremely reliable, Controllable Drive Actuators for technologically advanced control systems for over 40 years. CDA offers seven standard frame sizes of motors from 0.75"-3" (Brushless Permanent Magnet, AC Induction, or DC Stepper motor), nine standard frame sizes of gearheads (0.75"-6"), linear actuation, and velocity/position feedback devices manufactured in Deerfield Beach, Florida.

Clyde Space Limited Booth Space: 33-34

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Clyde Space is a leading supplier of small and micro spacecraft systems. Our core activities include the design and production of high performance power subsystems, lithium polymer batteries and high efficiency solar panels for small and miniature satellites. We are also active in the development of Attitude Control and Determination Systems and are developing advanced nanosatellite platforms based on the 'CubeSat' standard in conjunction with other leading academic and commercial organisations around the World.

The team at Clyde Space has extensive experience in the design and production of systems for small satellite missions and our off-the-shelf, heritage products range from our CubeSat power system for 1kg spacecraft up to our rad-hard SmallGEO power system for ESA/NASA type programmes up to 5kW. Our combined experience in over 50 space programmes enables us to support missions at all levels, from conceptual design, development, integration, through to analysis of data from on-orbit operations.

COM DEV
Booth Space: 56

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Established in 1974, COM DEV is a world-leading provider of space hardware, having designed and manufactured equipment for more than 800 spacecraft including microwave, RF and electronic subsystems, antennas, scientific payloads, sensor instrumentation, and space optics systems. Customers and partners include academia, research institutions, space agencies, commercial primes and the military. COM DEV's Mission Development Group (MDG) offers

turnkey microsatellite solutions from mission analysis to design, manufacture, integration and testing, launch procurement, and mission operations. MDG successfully launched and operated NTS (Nanosatellite Tracking Ships) and is currently developing M3MSat (Maritime Monitoring and Messaging Micro-Satellite) for the Canadian Space Agency (CSA) and Defence Research and Development Canada. COM DEV is certified to ISO 9001:2000 and ISO 14001:96.

Comtech AeroAstro
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Comtech AeroAstro is a leader in satellite systems, components and sophisticated communications technologies. Our spacecraft and components incorporate modular architectures and plug-n-play technologies in an efficient, agile and highly responsive design and integration environment.

Comtech AeroAstro has developed a variety of highly capable spacecraft platforms less than 200 kg. Most recent spacecraft include the STPSat-1 launched in 2007 on the first ESPA, and the STPSat-2 launched in 2010. In March 2010, the United States Navy's Naval Research Laboratory awarded Comtech AeroAstro the bus design and development contract for the Joint Milli-Arcsecond Pathfinder Survey (JMAPS) mission.

Comtech AeroAstro develops enabling technologies, components and sensor systems to support mission needs. We design innovative payload solutions applying systems engineering expertise focused on RF/EO phenomenology, space situational awareness and advanced systems development. In addition, we provide reliable, low SWAP satellite components, all designed and engineered by Comtech AeroAstro for multiple mission applications.

www.AeroAstro.com

Design Net Engineering Booth Space: 55 Gerry Murphy 16080 Table Mountain Parkway Suite 500 Golden, CO 80403

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Design\_Net Engineering specializes in the design, development and manufacture of custom electronics and associated software for aerospace instrumentation and avionics. Responsive space has been our focus providing "End to End" system engineering/development for "space qualified" hardware and software systems with associated testbeds. Our systems design approach with supporting disciplines including FMECA, Structural, Radiation, and Thermal analyses, consistently meets the demanding life cycle needs of customers. Our instrumentation and electronics designs support DoD client missions including Operationally Responsive Space (ORS), AFRL TacSats, and NRL responsive space initiatives as well as NASA missions. Our Software team is a well recognized asset within the responsive space community supporting both the development and implementation of the Space Plug and Play (SPA) Standards. Design\_Net is also very active within the rideshare community having developed substantial enabling technologies and flight hardware including Rideshare adapters and associated deployer electronic subsystems.

**EyasSat** 

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EyasSAT LLC provides classroom satellites for education and industry. Our current Rev C+ EyasSAT has power distribution subsystems, a 3000maH Li-ion battery, torque rods, coarse sun sensors, fine sun sensors, configurable solar arrays, a momentum wheel, thermal experiments, housekeeping with temp, voltages and currents and arming plugs / separation switches that model the prototype. In addition, the EyasSAT has a data handling section, a communications section, an ADCS section, an experimental section, and a GPS section. Each of these can be utilized as a stand-alone module for training. Using the AFA developed coursework; the student can explore most aspects of current satellite technology in the classroom without risking flight hardware in experimentation. With the radio downlink and the free-fall stand (a one axis of freedom environment) the student can experience what actually happens when a command is sent to a satellite and observe real time data being relayed to the "ground".

EyasSATs are used by numerous organizations such as the Air Force Academy and Lockheed, training organizations such as TSTI, and many foreign companies in Japan, Korea, Spain, England, Denmark, Canada and South Africa.

**Georgia Tech Research Institute** 

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Georgia Tech Research Institute (GTRI) is one of the world's leading applied research and development organizations, whose world-class engineers and scientists solve some of the toughest problems facing government and industry across the nation and around the globe. For over 77 years, GTRI has been uniquely positioned within the Georgia Institute of Technology, one of America's top research universities.

With nearly 1600 employees, many of GTRI's experts are recognized worldwide as leaders in a vast array of research domains and conduct more than \$200 million in sponsored research annually. GTRI's core research areas include complex and agile systems engineering, sensor design & integration, information management and cyber security, and defense technology development.

By leveraging access to motivated Georgia Tech students and utilizing the CubeSat specification, GTRI is expanding its expertise in collaborative homo/heterogeneous autonomous systems into LEO. GTRI aims to develop enabling technologies to realize tomorrow's small satellite systems.

Glenair Booth Space: 93 Carl Foote 1211 Air Way Glendale, CA 91201 Phone: (818)247-6000 Email: <u>cfoote@glenair.com</u> URL: <u>www.glenair.com</u>

#### Glenair Lightweight Interconnect Cable Systems

It's possible to reduce the weight of interconnect cabling in satellite systems by pounds—with huge \$ savings at launch—by replacing heavy, metal shielding materials with lightweight composite thermoplastics. Glenair has dozens of weight saving interconnect technologies, from composite EMI braid to ultra miniature circular and rectangular connectors—all designed with one thing in mind: saving weight in mission-critical interconnect systems. If someone were to offer you \$1 bills for 50 cents each, would you say "yes"? That's our offer. When you trade the cost of a one pound weight reduction in interconnect hardware for the much more valuable \$ savings you'll enjoy at launch, you'll literally be buying \$1 bills for 50 cents each. Visit Glenair at booth 93 for the samples and materials that will make you a weight-reduction hero in your organization. Glenair: A World of Lightweight Interconnect Solutions.

**GomSpace** 

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GomSpace is a worldwide leading provider of subsystems, software and turn-key platform solutions for nano-satellite and Cubesat missions.

Our subsystem offerings include: On-board computers, electrical power supplies and distribution units, battery modules, solar panels, communication systems, antennas and camera payloads. Together with our software frameworks for Command and Data Handling and Attitude Determination and Control these products allow very capable nano-satellite platforms and missions to be developed rapidly with low risk and at a reasonable cost.

GomSpace has had experience with Cubesat and nano-satellite projects since 2001 and is today established with base in Denmark and with representation in the US. The company serves customers in more than 20 nations providing commercial-off-the-shelf nano-satellite systems, as well as specialised engineering services to provide fully customized solutions.

**Goodrich ISR Systems Booth Space: 21** 

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Goodrich ISR Systems is a leading supplier of mission critical hardware for various launch and Satellite vehicles. Goodrich provides our products to missile defence programs, commercial, civil and Military spacecraft platforms. Products such as flight computers, command & control, telemetry, up link decoders, data acquisitions, encryption, thrust vector control, stage separation control, flight termination and bus monitoring systems are engineered and produced by ISR Systems in Albuquerque. The Goodrich plant in Ithaca, NY designs and manufactures components for satellite attitude control such as Reaction Wheels, TORQRODs, Magnetometers, Control Moment Gyros, and Earth sensors. Our 50 years of experience

in the development of rugged, man-rated and miniature avionics qualifies Goodrich ISR Systems as the supplier of choice for your Launch Vehicle, Missile and Spacecraft system requirements.

IHI Aerospace Co.,Ltd. Booth Space: 72 Seiji Matsuda

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IHI Aerospace (IA) is an aerospace and defense company. Space systems include development and manufacture of suborbital/orbital rockets, experiment racks and facilities for the International Space Station, re-entry system for recovery of space experiments and samples. Recent notable achievement was Hayabusa asteroid mission returned to home last year. IA and ISAS/JAXA jointly developed the re-entry capsule that contains sample from asteroid Itokawa.

One of important strategic objectives is to successfully develop small launch vehicle to meet emerging applications of small space systems. IA, as a prime contractor, is leading the development of JAXA Epsilon solid rocket. First flight is slated for the year 2013. IA's technical expertise also is vital to METI Air-Launch System Enabling Technology (ALSET) program for micro/mini payload delivery and commercial nano-satellite launch system development.

Instarsat, LLC Booth Space: 1 John J. Webb, Jr. PO Box 3041 Durham, NC 27715

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Instarsat is an innovative space technology company that is developing a new generation of small and medium class satellites for commercial, civil, and military markets.

To address the emerging demand for more cost-effective space systems, Instarsat's focus is on providing value-driven high performance satellites and sub systems that encompass breakthrough improvements in quality and reliability.

Because of our unique product development and test program, Instarsat brings to the space marketplace proven end-toend space systems solutions that make space more accessible and affordable to a wide range of customers and key stakeholders.

**Iridium Communications Inc.** 

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Only one communications company connects the entire globe Iridium commands the world's furthest reaching network, making it the only truly global communications company with solutions that span from pole-to-pole. Iridium voice and data products provide superior communications solutions that allow global companies, government agencies and

individuals to stay connected everywhere. With a unique, global ecosystem of partners, Iridium continues to create new, high-value capabilities that are leading the world into a new era of communication.

## **ISIS- Innovative Solutions in Space**

Booth Space: 4-5
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ISIS – Innovative Solutions In Space is a leading provider of nanosatellite missions, products, and services. Founded in 2006, the company currently employs over 30 engineers and operates state-of-the-art facilities which include a class 10,000 clean room, environmental test facilities, a small satellite ground station and a multi-mission control room.

ISIS provides turnkey missions for institutional, governmental and commercial customers around the world, specializing in low-cost (< 1,000,000 USD), rapid development (<6 months) missions based on standardized systems and components. For new entrants into the space domain extensive support programs with training, development kits and engineer support are also available.

Most of these systems are also available through ISIS' online portal for CubeSat and Nanosatellite component, www.cubesatshop.com). Furthermore, the company offers launch brokering services to third parties as well (www.isilaunch.com), next to the development of cost-effective data gathering satellite constellations for various markets such as shiptracking and sensor network read-out. www.isispace.nl

## JHU/Applied Physics Laboratory

Booth Space: 6/7 Margaret Simon 11100 Johns Hopkins Road Laurel, MD 20723

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The Johns Hopkins University Applied Physics Laboratory (JHU/APL) has built pioneering space missions since its inception in the 1940s. In partnership with NASA and other federal agencies, APL has designed, developed, and launched 64 spacecraft and more than 150 space instruments. Since 2000, JHU/APL has built and launched some of NASA's most efficient and technically challenging missions, including MESSENGER to Mercury, New Horizons to Pluto, and STEREO to study the Sun. The Laboratory is curently building the Radiation Belt Strorm Probes mission for NASA as well as a small satellite. As a non-profit laboratory, JHU/APL often serves as a trusted advisor to the government and provides an analyses, support to government reviews and panels, and membership on science community boards and committees.

**L-3 Communications Booth Space: 52-53**Raymond Robinson
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L-3 Communications is represented by 3 divisions:

Electron Technologies, Inc. (ETI) is featuring their space-qualified, high-reliability, low SWaP, TWTs, EPCs, TWTAs and their XIPSTM, Electric Propulsion Systems. For additional information, go to L-3com.com/eti

- L-3 Telemetry-West is featuring InControl™, Satellite Command and Control Software for On-Orbit, Factory Test and Ground System Monitor and Control. For additional information, go to L-3com.com/TW/Incontrol
- L-3 Communication Systems-West, with headquarters in Salt Lake City, Utah, is a world leader for high-performance intelligence collection, imagery and satellite communications. CSW provides high-data rate, wideband, secure, real-time, network enabling communications systems for surveillance, reconnaissance, other space and airborne intelligence collection systems, and situational awareness directly to tactical users. For additional information, go to L-3com.com/csw

#### **MDA**

Booth Space: 48-49 Wendy Keyzer 13800 Commerce Parkway Richmond, British Columbia Canada V6V 2J3

Phone: (604) 231-2743

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www.mdacorporation.com

MacDonald, Dettwiler and Associates Ltd. (MDA) is at the forefront of operational smallsats, conventional satellite missions, ground systems, satellite communications, on-orbit satellite servicing, airborne surveillance, defense applications and training, and is a leading provider of mechanical systems engineering, composites structures, and space robotics.

MDA programs include the robotics on the International Space Station, XSS-11, Mars Landers, the RADARSAT family of Synthetic Aperture Radar satellites, the RAPIDEYE and SAPPHIRE programs, the recently announced commercial Space Infrastructure Servicing mission (SiS), which will service satellites in need of re-fuelling, re-positioning or other maintenance, a wide array of satellite communications programs, and a broad array of ISR services for the DOD and Intelligence communities.

A premier systems integrator, MDA delivers turnkey solutions that are the foundation of effective decision making. MDA delivers innovation and long-term thinking through its advanced solutions for interplanetary spacecraft, remote sensing and communications satellite missions, and terrestrial applications.

MDA annually generates revenues in excess of \$600 million and employs over 2,200 people.

#### Micro Aerospace Solutions, Inc.

Don Platt 2280 Pineapple Ave Melbourne, FL 32935 Phone: (321) 243-4633 Fax: (928) 396-3256

Email: dplatt@micro-a.net http://www.micro-a.net

Micro Aerospace Solutions, Inc. (MAS) is a small business based in Melbourne, Florida on Florida's spacecoast. Our goal is to provide low-cost yet innovative solutions to new and difficult challenges. Some of our areas of expertise include R&D and system development for small spacecraft attitude detection/control, propulsion systems and sensor systems.

Other areas include the development of command and data handling, embedded systems and electronics systems. We offer consulting services to help with your system design and test needs. We can assist in system design and analysis during any phase of the system life cycle from initial concept through operations including product and engineering development planning. Our talented staff can provide knowledgeable engineering support on a variety of projects at minimal cost. Our solutions offer great performance with low mass, power and cost.

#### **Microcosm Astronautics Books**

**Booth Space: 68-69** Pam Esquinca 4940 W 147th Street Hawthorne, CA 90250

Phone: (310) 219-2700 or (866)-ASTROBK

Email: bookstore@smad.com URL: www.astrobooks.com

Our unique bookstore carries a huge selection of astronautics books, over 300 titles! Our newest publication Space Mission Engineering: The New SMAD, will be released just in time for SmallSat. So it will be available along with the other world renowned books in our Space Technology Library Series. Stop by the booth and receive the Special USU SmallSat Discount!! We pride ourselves on supplying the space industry with high quality books at very low prices, and providing our professional assistance in finding the right book for your astronautical needs. It's easy to order on-line, by phone, or by email or visit us from 8am-5pm PST, Monday through Friday at our near-to-LAX location. Our goal is to make access to our books and services incomparable. We also have wholesale prices for retailers and institutes of higher learning.

### MicroSat Systems Canada Inc.

Booth Space: 32 David Cooper 6870 Goreway Drive Mississauga, Ontario Canada L4V 1P1

Phone: (905) 364-0388 ext. 210 Email: david.cooper@mscinc.ca

www.mscinc.ca

MSCI is Canada's leader in the design, development and delivery of cost-effective, adaptable Multi-Mission Microsatellite Buses capable of hosting a wide variety of remote sensing, communications, scientific and military payloads. Applying dynamics and control technology in the space market, MSCI manufactures reaction wheels and rate measurement units. MSCI's reaction wheels have over 65 years of accumulated flight heritage and more than 21 billion revolutions without failure. MSCI is the founding company of COMMStellation™ - a consortium of companies formed to build and deploy a constellation of 72 low earth orbit (LEO) microsatellites developed to address global Internet backhaul. COMMStellation™ microsatellites are based on the proven Multi-Mission Microsatellite Bus (MMMB) platform with years of flight heritage in the MOST microsatellite and soon the NEOSSat microsatellite. For more information on our microsatellites, please visit www.mscinc.ca. For more information on our reaction wheels, please visit www.reactionwheel.com. For more information on COMMStellation™, please visit www.commstellation.com.

#### **MOOG CSA Engineering**

Moog CSA Engineering provides products and services for ground test, payload accommodation during launch and operation on-orbit. Our offerings in vibration control, structures and motion control include shock test services, zero-gravity simulators, electromagnetic actuators, hexapod positioning systems, SoftRide launch load alleviation, ESPA, CubeSat carriers and other payload adapters, vibration dampers and vibration isolators. Engineering services include

mechanical design, finite element analysis, control design, embedded control, dynamic testing, and magnetic actuator design. More broadly, Moog designs and manufactures fluid control, motion control and avionics components and systems for launch vehicles and satellites. Spacecraft mechanism products include actuation and control for solar array drives, antenna deployment/pointing and payload instruments. Spacecraft fluid control products include systems, subassemblies and components for chemical, electric and cold gas propulsion, with emphasis in high performance green propulsion (HPGP). Launch vehicle components and systems include thrust vector and steering controls, electric and hydraulic actuation and avionics.

NASA - Ames Research Center Mission Design Division

**Booth Space: 58-59** 

BJ Jaroux Mail Stop 202-3 NASA-Ames Research Center Moffett Field, CA 94035-1000 Phone: (650) 604-6312

Email: jaroux@nasa.gov www.nasa.gov/centers/ames

The NASA Ames Mission Design Division is chartered with the rapid development of small, innovative, low-cost, instrument and spacecraft technologies. The key objective is to support NASA and the nation's science, exploration, and space infrastructure by enabling sustainable access to space for game changing, higher-risk, technologies and systems providing maximum return at reduced life-cycle costs.

Using a "Venture Class", "Skunk Works" approach, the focus is on spacecraft sizes from 1--200 Kg, and overall mission costs from \$1-100M. The division's Space Systems and Payload Technologies office continues its legacy of pushing the state of the art at the lower end of these scales and successfully developing and flying autonomous nanosatellite platforms and technologies and delivering crosscutting science.

The division's overall activities are supported by a set of tightly integrated facilities covering entire project life cycles. These include a Mission Design Center, a Center for Engineering Innovation, and a Multi-Mission Operations Center.

# NASA Goddard Space Flight Center Wallops Flight Facility Booth Space: 29

Scott H. Schaire Wallops Flight Facility Wallops Island, VA 23337 Phone: (757) 824-1120

Email: Scott.H.Schaire@nasa.gov

http://www.nasa.gov/centers/wallops/

NASA's Wallops Flight Facility (WFF), located on Virginia's Eastern Shore, provides low-cost, responsive suborbital and orbital flight project services to government, industry, and academia customers. As WFF is dedicated to furthering science, technology, and commercial responsive access to space, WFF provides facilities and expertise to enable frequent flight opportunities worldwide. WFF manages an array of research carriers, including sounding rockets, scientific balloons, science aircraft, unmanned aerial vehicles, and small spacecraft systems. WFF provides operational support through its launch range, mobile range, research airport, and orbital tracking station. In addition to flight projects, WFF is also home to Earth Science researchers as well as engineers responsible for developing flight systems and advanced technologies. WFF has highly capable flight hardware fabrication and testing capabilities used to support both it's NASA and non-NASA customers.

**NASA Launch Services Program** 

**Booth Space: 96**Jessica Scheffman

John F. Kennedy Space Center

Mail Code: VA-A / ATTN: Jessica Scheffman

Kennedy Space Center, FL 32899

Phone: (321) 867-8090

Email: Jessica.M.Scheffman@nasa.gov

http://1.usa.gov/NASALSP.

The Launch Services Program (LSP) was established for NASA's acquisition and program management of Expendable Launch Vehicle (ELV) missions. A skillful NASA / contractor team is in place to meet the mission of the Launch Services Program, which exists to provide leadership, expertise and cost-effective services in the commercial arena to satisfy Agency wide space transportation requirements and maximize the opportunity for mission success. The principal objectives are to provide safe, reliable, cost effective and on-schedule processing, mission analysis, and spacecraft integration and launch services for NASA and NASA sponsored payloads.

#### NASA - Office of the Chief Technologist- Small Spacecraft Programs

Booth Space: TBD Brant Sponberg NASA Headquarters

brant.l.sponberg@nasa.gov

The newly formed NASA Office of the Chief Technologist is chartered with improving the ways NASA explores and discovers our universe. Two of the 10 programs within the Space Technology Program portfolio are the Franklin Small Spacecraft subsystems development program and the Edison Small Spacecraft Demonstration program. These two new programs are structured to fund the development and flight demonstration of small spacecraft and spacecraft subsystems that will demonstrate the utility and development of the technology readiness levels of cross-cutting spacecraft technologies. The outcome of the Franklin and Edison missions will be advanced small spacecraft, related technologies and systems which can be utilized by a number of NASA customers to enable new missions and space architectures.

# Northrop Grumman Booth Space: 101

Nathan Yaris 1 Space Park

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Northrop Grumman Aerospace Systems is a premier provider of manned and unmanned aircraft, space systems, missile systems and advanced technologies critical to our nation's security. The sector's Space Park site in Redondo Beach and Manhattan Beach, Calif., is a world leader in the development and production of military and civil space systems, satellites, and advanced technologies.

#### **Orbital Sciences Corporation**

Booth Space: 6-7 Ken O'Keefe 21839 Atlantic Boulevard Dulles, VA 20166

Phone: (703) 406-5000

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www.orbital.com

As the industry leader in small space and rocket systems, Orbital provides a complete set of reliable, cost-effective products. Our satellites include low Earth orbit (LEO) spacecraft that perform remote sensing and scientific research,

small and medium geosynchronous Earth orbit (GEO) satellites for communications and broadcasting, spacecraft for national security missions, and planetary probes to explore deep space. We also provide light- and medium-class launch vehicles to transport satellites into orbit, interceptor booster vehicles to protect against enemy missile attack, and target rockets to test missile defense systems. Orbital is also supplying commercial cargo resupply services for the International Space Station using our new Taurus<sup>®</sup> II rocket and Cygnus<sup>™</sup> advanced maneuvering spacecraft. In addition, Orbital provides full service engineering, production and technical services for NASA, Department of Defense, commercial and academic space programs. Since 1982, Orbital has developed, built and delivered nearly 750 satellites, launch vehicles and other space systems.

**Operationally Responsive Space Office** 

Booth Space: 21
Patricia Nixon
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Denver, CO 80222

Phone: (303) 726-8416

Email: patricia.nixon@cobham.com

The Operationally Responsive Space Office is working with the broader space enterprise to provide assured space power focused on the timely satisfaction of Joint Force Commanders' needs. The overarching objective of the Office is to address emerging, persistent, and/or unanticipated needs through timely augmentation, reconstitution, and exploitation of space force enhancement, space control, and space support capabilities.

The ORS Office is implementing a rapid innovation process using a Modular Open Systems Architecture (MOSA) to facilitate rapid acquisition, integration, test, deployment, and operations of space assets into the current space architecture in operationally relevant timelines. The ORS Office focuses on material (spacecraft, launch, range, payloads) and non-material solutions (business model, acquisition, policy, industrial base, training, command and control, tasking, exploitation, processing, & dissemination, concept of operations), and collaborates with national and international agencies to leverage existing investments and develop long-term partnerships.

#### **PASCO**

Booth Space: 88-89 Ken Miyakawa 2-8-10 Higashiyama, Meguro-ku Tokyo, Japan 1530-043

Phone: 81-3-4570-3065

Email: <u>kaewna1023@pasco.co.jp</u> http://www.pasco.co.jp/eng/

At Small Satellite Conference 2011, we are pleased to present ASNARO System, Japanese high resolution small satellite and its ground operation system. We will display following system compositions.

- 1. High Resolution Small Satellite (miniature model)
- 2. Small Satellite Bus (NEXTAR)
- 3. ASNARO Satellite Series
- 4. ASNARO Integration System
- 5. Mobile Data Processing System

Please visit our booth #88-89 to meet our representatives.

Planetary Systems Corporation Booth Space: 46

Walter Holemans 2303 Kansas Ave Silver Spring, MD 20910

Phone: (301) 495-0737

Email: holemans.walter@planetarysystemscorp.com

www.planetarysystemscorp.com

PSC of Silver Spring MD designs, assembles and tests advanced space vehicle separation systems called "Lightbands". Over thirty Lightbands have flown on all US launch vehicles without failure or anomaly.

PnP Innovations
Booth Space: 64
Don Fronterhouse
2017 Yale Blvd Ste A
Albuquerque, NM 87106
Phone: (505) 503-1563

Email: sales@pnpinnovations.com
URL: www.PnPInnovations.com

Plug and Play (PnP) satellites.

PnP Innovations provides the hardware components and software modules to enable users to rapidly develop modular

Our modular PnP is based upon research and standards originated by the Air Force Research Laboratory (AFRL). A modular approach to designing and building satellites offers a considerable cost and assembly time advantage when compared to traditional satellite architectures. This design and build approach is a key technology to rapidly deployable tactical satellites. The enabling components to support PnP satellites can be found in the SPA Component Catalog, which includes individual PnP satellite support devices (such as reaction wheels, torque rods, magnetometers, etc), PnP structural panels containing embedded power & data routers on which devices may be mounted, and flight software modules consisting of core support elements and autonomy agents that can run on networked PnP processors.

**Pumpkin, Inc. Booth Space: 16**Dr. Andrew E. Kalman

750 Naples

San Francisco, CA 94112 Phone: (415) 584-6360

Email: info@pumpkin-space.com Pumpkin Space inquiries

Email: <u>info@cubesatkit.com</u> *CubeSat Kit inquiries* www.pumpkin-space.com and www.cubesatkit.com

Pumpkin is the leading provider of CubeSat components and technologies. Pumpkin's COTS CubeSat buses and solar arrays provide a rapid and low-cost means of conducting science, testing new technologies, and raising your systems to TRL-7 and beyond. Focus on the mission, and use a flight proven bus.

Pumpkin's 3-Axis stabilized MISC 2 buses are built using the space-proven and widely adopted CubeSat Kit• architecture. Pumpkin designed, tested and delivered twelve Colony-class CubeSat buses to the U.S. Government within a nine-month period, and the first two Colony flights in December 2010 were successes. While MISC provides a standard bus for any variety of 1.5U payloads, multiple options are available as to choice of C&DH processor, deployable panel configurations, comms and other system specifications tailored to your requirements. Our engineering team is available to assist in configuring the bus and to develop your payload for upcoming nanosat missions.

Raytheon

Booth Space: 59
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Missile Systems
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Raytheon Company is a space systems provider with global space sales ranking number five in 2010. The combined strength of Missile Systems, Space and Airborne Systems, Network Centric Systems, Intelligence and Information Systems, Integrated Defense Systems and the Raytheon Technical Services Company provides a vast array of innovative full system solutions for the space community including the emerging Operationally Responsive Space and growing Space Control markets.

Raytheon offers leading technologies in areas including satellite command and control, mission and resource management, end-to-end information and network management, modeling and simulation, systems engineering, producibility and space sensors.

Other areas of expertise include space packaging and quality, radar and communication technologies, directed energy, plug-and-play designs, networking technologies, missile/space vehicle and avionics design, mission assurance and manufacturing.

Raytheon's focus on low-cost, versatile products and programs allows our customers to expand the envelope of space capabilities.

#### **Rockwell Collins Deutschland GmbH**

**Booth Space: 62** 

Wolfgang Kupferschmitt, Director Space Products / TELDIX ® Space Wheels

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Heidelberg, Germany Phone: +49 6221 512 293

Email: wkupfers@rockwellcollins.com

www.rockwellcollins.com

Rockwell Collins is a world leader in the production of momentum and reaction wheels for spacecraft applications and the European market leader in airborne data processing for tactical military aircraft.

Our standard wheels feature lightweight design, 15+ year life time. Delivery time is less than 12 months for off the shelf products.

Rockwell Collins TELDIX <sup>®</sup> Space Wheels are available in five different sizes with an angular momentum storage capacity spanning a range between 0.04 Nms and 68 Nms. The wheels accommodate the requirements of attitude control systems for satellites weighing less than 65 kg as well as for geostationary satellites reaching a mass of three tons or more.

To date, 961 wheels installed in 347 satellites have been launched, representing more than 4,800 years of in-orbit operation (as of April 2011).

**RT Logic** 

**Booth Space: 17** 

Michael Reising 12515 Academy Ridge View Colorado Springs, CO 80921 Phone: (719) 598-2801

Email: mreising@rtlogic.com

www.rtlogic.com

RT Logic will demonstrate its T400CS Channel Simulator that enables comprehensive RF/IF testing of ground and flight communication systems and components without actual flights. The instrument adds precise signal propagation effects to user- or T400CS-generated signals, including smooth phase-continuous Doppler shift (carrier and signal), range delay, range attenuation, fading and noise.

An advanced signal generator produces test and interference signals in many modulation formats. A sophisticated spectrum/interference analyzer displays modulation type, data rate, C/No, BER, Eb/No and C/I along with advanced carrier-under-carrier analysis.

The instrument is controlled locally or remotely by GUI, TCP/IP connections from user-written software, from precreated profiles, and through Analytical Graphics, Inc.'s STK software.

The T400CS is used for laboratory test, classroom/lab demonstration and instruction, and on-air work with on-station satellites.

RUAG Space Booth Space: 3

Hans Fritz RUAG Space AB 405 15 Gothenburg, Sweden Phone: + 46 31 735 4090 Email: hans.fritz@ruag.com

www.ruag.com

RUAG Space is an independent supplier of highly qualified space equipment including former Saab Space with subsidiary Austrian Aerospace, and now also Oerlikon Space. The new constellation has expertise in Command & Data Handling Systems, Computers, Signal processing, Scientific Instruments, Structures, Mechanisms, Microwave Electronics, Antennas, MLI, GSE. RUAG is a leading supplier of adapters and separation systems for launchers offering modular designs with low-shock separation system technology and multiple spacecraft launch solutions. RUAG computer systems and signal processing know-how contributes to a large number of scientific, earth observation and navigation missions. RUAG mechanisms are used in hold down, release and pointing functions. RUAG slip rings transfer power and electrical signals through rotary joints. RUAG family of wide coverage and reflector antennas offer 30 years experience and with frequencies from UHF- to Ka-band.

SEAKR Engineering
Booth Space: 15
Dave Jungkind
6221 South Racine Circle

Centennial CO 80111 Phone: (720) 951-2283

Email Address: Dave.Jungkind@SEAKR.com

www.SEAKR.com

SEAKR Engineering, Incorporated is a world-leading provider of advanced state-of-the-art electronic avionics for space and airborne applications. Since its inception in 1982, SEAKR has delivered over one hundred flight units. More than

ninety of these units have launched and are operating as designed. SEAKR's leading edge space electronics includes IP routers, reprogrammable MODEMS, high-performance payload processors, modular command and data handling systems, solid state recorders, and manned space avionics. SEAKR has a reputation for high-level performance and reliability in severe environments. SEAKR is a small business proud to serve its customers and country.

For more information about this and other SEAKR products, call, or write SEAKR Engineering, Incorporated, 6221 South Racine Circle; Centennial, CO. 80111-6427, 303.790.8499 or email at dave.jungkind@seakr.com and visit our Web Site at www.seakr.com.

# Sierra Nevada Corporation

**Booth Space: 40-42**Krystal Scordo
Space Systems Group
1722 Boxelder St., # 102
Louisville, CO 80027

Tel: 720.407.3223 Cell: 303.810.9382

Krystal.Scordo@sncorp.com

Sierra Nevada Corporation's (SNC) Space Systems group provides customers with innovative, responsive and cost effective space products including: Spacecraft Systems, which includes the 18-satellite ORBCOMM Generation 2 constellation; Propulsion Systems, which include SNC's own green, safe, reliable, hybrid rocket motor currently used on Virgin Galactic's SpaceShip2; Space Technologies, sending a mechanism or component to space every 14 days on average totaling 4000 devices flown on 300 missions without a failure; and Space Exploration, partnering with NASA as part of the Commercial Crew Development Program to design and build a commercial system capable of transporting crew and cargo to and from low Earth orbit.

# Sinclair Interplanetary

Booth Space: 77
Doug Sinclair
268 Claremont Street
Toronto, ON
Canada M6J 2N3

Phone: (647) 286-3761

Email: dns@sinclairinterplanetary.com

www.sinclairinterplanetary.com

Sinclair Interplanetary has supplied sensors and actuators to satellite programs ranging in scope from large commercial constellations to small university missions, with 14 satellites currently on-orbit. Qualified off-the-shelf products include star trackers, reaction wheels, and magnetic torque rods. Custom avionics such as power supplies, actuator drives and C&DH components are available on extremely aggressive schedules.

Whether you are getting ready to start phase A of your satellite project, or you are in a last-minute panic as the launch looms, Sinclair Interplanetary can lend a hand. Please take a moment to visit the booth, say 'hello,' and see if we can solve your problems.

# Southwest Research Institute

Booth Space: 61 Don Heihn Southwest Research Institute 6220 Culebra Rd. San Antonio, Texas 78238 Phone: 210-522-2894 wk Email: don.heihn@swri.org

www.swri.org

Southwest Research Institute® (SwRI®) was founded in 1947 as a public service scientific corporation to provide contract R&D to both industrial and government clients. The Institute provides extraordinarily technical capabilities through 10 technical operating divisions, with approximately 3300 staff members and gross annual revenue of \$540 million.

SwRI's Department of Space systems has a long and distinguished track record of producing high quality, high reliability spacecraft avionics for NASA, DoD, ESA, and commercial space missions. Since the first SC-1 spaceflight computer was developed in 1979, SwRI has developed hardware for over 53 space flight missions without a single on-orbit failure. The track record of the last 32 years is a product of a strong commitment to support the current and future needs of the space community. SwRI is recognized as one of the leaders in space instrument design and development, command and data handling (C&DH) systems and mission management.

**Space Dynamics Laboratory** 

**Booth Space: 26-27**Jim Marshall
1695 North Research Park Way

North Logan, UT 84341 Phone: (435) 713-3565

Email: <u>jim.marshall@sdl.usu.edu</u> URL: www.spacedynamics.org

Since 1959, Space Dynamics Laboratory (SDL) has been a leading university-affiliated research and engineering laboratory, developing innovative solutions for scientific and defense remote sensing challenges. SDL's expertise includes space, air and ground-based IR, visible, UV, and hyperspectral sensors, small-satellite technologies, concept validation studies and demonstrations, and solutions for all stages of intelligence, surveillance, and reconnaissance operations – from data acquisition to end-user data exploitation. SDL's products include a family of miniaturized spacecraft systems and components such as the Digital Imaging Space Camera (DISC), a compact modular avionics system (MODAS), and the PEARL CubeSat platform. SDL is also developing CubeSat technologies and test capabilities to fill capabilities gaps in attitude control and processing performance required for high-value science missions. Headquartered in North Logan, Utah, SDL also has facilities in Albuquerque, NM; Bedford, MA; Huntsville, AL; Colorado Springs, CO; Los Angeles, CA; Houston, TX; and Washington, DC, and employs 450 professional and technical personnel.

Space Electronics
Booth Space: 28
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Space Electronics is the Leader in Mass Properties Measurement Instruments. Our line of products comprises high accuracy instruments to measure mass, center of gravity, moment of inertia, and product of inertia, and perform dynamic balancing. Over the last 50 years we invented most of the concepts in use in modern instruments.

Space Electronics also manufactures spherical and hemispherical air bearings used as space simulating platforms for testing attitude control systems.

Other products include igniter circuit testers, gimbal balancing instruments, moment weight scales, and inertial decay measurement systems.

#### **SPACE-SI**

### SLOVENIAN CENTRE OF EXCELLENCE FOR SPACE SCIENCES AND TECHNOLOGIES

**Booth Space: 97-98** 

Tomaz Rodic Askerceva 12, 1000 Ljubljana, Slovenia

Phone: +386-40-866-945 Email: office@space.si

www.space.si

The SPACE-SI Slovenian Centre of Excellence for Space Sciences and Technologies has been successfully initiated in 2010 with the main focus on nano and micro satellite technologies and applications. The RTD goals of the consortium consisting of academic institutions, high-tech SMEs and large industrial and insurance companies are focused on high precision interactive remote sensing, precise maneuvering of small spacecraft in formation flying missions and network based services for near real time processing of remote sensing data. To achieve this a ground control RX/TX infrastructure GCS and a new multidisciplinary laboratory for closed loop investigations of materials, structures, micropropulsion systems, electronic components and visual based control algorithms in simulated space environments is currently in construction. The experimental techniques in the laboratory will be combined with virtual models for primal and sensitivity analyses of components, subsystems and platforms as well as for their characterisation by inverse numerical analyses and optimisation of their design with respect to performance and reliability. SPACE-SI is also the host of the next ESA 4S symposium, to be held in Portoroz, Slovenia from June 4 – June 8, 2012.

# Space Micro Inc. Booth Space: 28

10401 Roselle Street, Ste 400

San Diego, CA 92121 Phone: (858) 332-0700

Email: <a href="mailto:sales@spacemicro.com">sales@spacemicro.com</a>
URL: <a href="mailto:www.spacemicro.com">www.spacemicro.com</a>

Space Micro offers best-in-class affordable Radiation Hardened/Tolerant Digital and RF products for size, weight and power (SWaP) utilization. For Small and Nano Satellites:

### **Digital Products:**

- ProtonX-Box™ Avionics Suite with choice of processors from Multi-core PowerPC to DSP and accessory board from valve/.relay drivers, DIO, AIO, GPS, EPS, Power Switch, 1553, Spacewire /router
- Proton Series Radiation Hardened Space SBCs with choice of RTOS from VX Works™ to Integrity™ and language support from C to Linux
- IPC5000 Image Processing System takes high speed sensor inputs and compress or custom process to user needs. Programmable on ground or in space. An application of Proton300k FPGA based Reconfiguration Computer

#### **RF Products:**

- S-Band: USB; STDN and SGLS Transponders
   X-Band: Transmitter/Receiver/Power Amps
- Ka-Band: Transmitter
- UTR: Universal Transmit/Receive multi-frequency radios in development

### Our Heritage:

- ORS-1
- NASA LWS

- NASA LADEE
- NASA IRIS
- Tacsat2
- Tacsat4

**SpaceX** 

**Booth Space: 44-45** 

Space Electronics Technology 1 Rocket Road Hawthorne, CA 90250 Phone: (310) 363-6000

www.spacex.com

SpaceX is revolutionizing access to space with our Falcon line of highly-reliable, low-cost launch vehicles. SpaceX offers light, medium and heavy lift capabilities for spacecraft insertion into any orbital altitude and inclination. After the Space Shuttle retires, the Falcon 9 and SpaceX's Dragon spacecraft will start carrying cargo, including live plants and animals, to and from the International Space Station for NASA. Falcon 9 and Dragon were developed to one day carry astronauts." SpaceX is committed to improving access to space becoming the world's premiere space services company by substantially improving both the reliability and cost efficiency of space transportation, ultimately by a factor of ten. For more information, visit the SpaceX website at SpaceX.com.

Spectrum Laser & Technologies, Inc.

Booth Space: 87 Tom Radebaugh 3855 Interpark Drive Colorado Springs, CO 80907 Phone: (719) 264-7632

Email: tradebaugh@spectrumlaser.com

www.spectrumlaser.com

Spectrum Laser & Technologies, Inc. is a small business contract manufacturing and engineering firm that has been building highly reliable electronic assemblies since 1997. Our capabilities include prototype to production quick turn circuit card assembly and cable manufacturing. Soldering, staking, conformal coating, and crimping to J-STD-001D, MIL-STD, and NASA-STD-8739.1/2/3/4 criteria provides our customers with a range of workmanship standards to choose from. We provide turnkey assemblies or assemble using consignment material. A 4,000 square feet of satellite harnessing area provides class 10,000 cleanliness, and class 100 flow benches provide for clean unit, box, or chassis assembly for our aerospace customers. Successful programs for which we have provided hardware include Deep Impact, Mars Exploration Rovers, and Kepler. In-house cable and circuit card design and layout capabilities provide for a true turn-key solution. For additional information, please visit www.spectrumlaser.com or contact Tom Radebaugh or Jeff Riggs at (719) 264-7632 or inform@spectrumlaser.com.

**SSBV Space & Ground Systems** 

**Booth Space: 60** 

James Barrington-Brown Building 1, Anchorage Park, Robinson Way Portsmouth, PO3 5SA, United Kingdom

Phone: +44 2392 626300 Email: marketing@ssbv.com

www.ssbv.com

SSBV SGS designs and manufactures on-board sub-systems for high reliability smallsat and cubesat applications. Products include Attitude Sensors and Actuators, GPS receivers and TM/TC units. SSBV SGS also supply a wide range of space related ground based products such as TM/TC modems, high speed (>1Gbit) modems for EO data reception and spacecraft and RF systems test equipment.

SSBV SGS has an extensive network of partners and sub-contractors across the globe, which enables the company to offer products in a highly cost efficient way. SSBV SGS is part of the multi-national SSBV Aerospace & Technology Group. The parent company is based in The Netherlands with SSBV SGS based in Portsmouth on the South coast of Great Britain.

## STAR-Dundee Booth Space:86

Gregor Cranston
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www.star-dundee.com

STAR-Dundee specializes in supporting the users and developers of SpaceWire equipment. With unrivalled expertise in the SpaceWire standard, including authorship, STAR-Dundee offer high performance development and test equipment with acclaimed technical support.

SpaceWire is a data-handling network designed to connect together instruments, processors, memory and telemetry / telecommand units. It is present in over 40 high profile missions including BepiColombo, ExoMars, and the James Webb Space Telescope, and is used by every major space agency.

STAR-Dundee's interface boards and units are used in EGSE for integrating and testing spacecraft across the world. SpaceWire training and IP Cores are also available.

#### Surrey Satellite Technology Ltd

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Celebrating 25 years of space innovation, where an innovative approach to the design, build, launch and operation of satellites, has propelled Surrey Satellite Technology to the forefront of the small satellite industry. Surrey's drive to change the economics of space means that we continue to push the boundaries of space, exploiting advances in technologies and continuing to challenge conventions, bringing affordable space exploration to our customers. Surrey Satellite Technology delivers complete mission solutions for remote sensing, science, navigation and telecommunications as well as supplying avionics suites, subsystems and ground infrastructure. Surrey's vertically integrated programs have given us a reputation for delivering to short schedules and within tight budgets. We have delivered 34 satellites to international customers, increasing to more than 40 by the end of 2011. SST-US serving the US market www.sst-us.com; SSTL-UK serving the rest of the world <a href="https://www.sstl.co.uk">www.sstl.co.uk</a>.

**SRI International Booth Space: 102**Drew Hanser

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SRI International is an independent, nonprofit research institute conducting client-sponsored research and development for government agencies, commercial businesses, foundations, and other organizations. SRI brings its innovations to the marketplace by licensing its intellectual property and creating new ventures. For 65 years, since our beginnings when we were Stanford Research Institute, our strengths have been our staff's world-leading expertise and passion for working with clients on important challenges. SRI has active research and development programs in space and satellite technology including sources and sensors, power systems, networking and communications, launch integration services for CubeSats, and ground operations.

#### SSC

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SSC has been a trusted partner in hundreds of successful space programs by providing cost-effective mission critical solutions. Through Universal Space Network, ECAPS, and NanoSpace, we imagine, design and deliver products/services that enhance the global space community. We propel our customers to the leading edge of space enterprise with trusted experience, extensive competence and a broad range of solutions.

**Universal Space Network** is an U.S. independent U.S.-based subsidiary of SSC with Defense Security Service approval and oversight. USN and its corporate partners are the world's largest commercial satellite ground network service providers offering a full suite of space communications services.

**ECAPS** is an innovative company with a focus on green propulsion-based products. As the market leader in proven, flight-demonstrated green propulsion, the technology greatly reduces hazards to people and our planet.

**NanoSpace** develops Micro Electro Mechanical Systems-based products such as micro-propulsion and propellant gauging systems.

The Boeing Company Booth Space: 24

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Nearly a century of expertise and continuing innovation make Boeing the leader in the aerospace and defense industry. Boeing combines global resources and a spirit of innovation to provide best-of-industry, network-enabled solutions to military, government and commercial customers around the world.

From battle-proven aircraft, unmanned vehicles, space systems and beyond, Boeing is the world's leading space and defense business and the world's largest and most versatile manufacturer of military aircraft. Boeing also is the world's largest satellite manufacturer, an emerging leader in support systems and services, and a leading global supplier of human space exploration systems and services.

The SI Organization, Inc. Booth Space: 81T

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The SI Organization, Inc. is a leading provider of full life cycle, mission-focused systems engineering and integration services to the U.S. Intelligence Community, Department of Defense and other agencies. Our scalable platform for modeling, simulation and analysis helps customers optimize resources and manage risk. We have a 40-year history of su ccessfully delivering unique system-of-systems technology solutions. In November 2010, the SI separated from Lockheed Martin and became an independent company. The SI, which employs more than 2,000 people, is headquartered in Valley Forge, Pa., with other major locations in Maryland and Northern Virginia.

Tiger Innovations, LLC

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Tiger Innovations, L.L.C. is a well-qualified small business with a broad range of experience in specialty software/computer architecture design and implementation. We have extensive experience with custom hardware, software, and communication protocol design and implementation. Our focus is on providing highly capable, low cost spacecraft avionics and ground support equipment ideally suited for small satellite missions. Our proven products include: compact control boxes and solar array simulators for use during integration and test; StreamLINK ground control software for spacecraft command and control; micro-satellite class C&DH and EPS solutions; as well as our line of CubeSat components. In addition to these standalone products, we offer integrated solutions to challenging space missions, including our proprietary CubeSat design which provides a high performance avionics bus in a ½ U form factor (C&DH, RF, EPS).

## **Trident Space and Defense**

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M2 Antenna Systems and Trident Space & Defense have partnered to produce a low cost, mid-performance antenna positioner designed for the small satellite community.

The system software is designed around the LINUX operating system providing stability and flexibility. The software includes an extensive Application Program Interface (AVI), developed under the GNU General Public License (GPL). The positioner can be completely operated from the customer's desktop or laptop computer over an Ethernet link. The feature filled intuitive GUI provides the user with an easy means of setup and control. A complete "Interface Control Document" is provided to enable the customer to design their own remote control interface. Positioner installation is simple and in most cases can be completed in 1 to 2-hours.

Trident Space & Defense has been integrating ground stations for over 33 years; M2 Antenna Systems has specialized in commercial amateur radio and wireless antenna products since 1986.

# TriSept Corporation

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TriSept Corporation is a leading technical services small business comprised of elite industry and technology veterans possessing broad-based space experience to integrate the full program lifecycle. TriSept's primary areas of expertise (space systems, software engineering and security services) provide the satellite and launch vehicle communities with seasoned program managers, systems engineers, and technical consultants.

TriSept's personnel have an average of 28+ years experience in all aspects of mission integration. Having performed launch integration services for a wide variety of missions on many different boosters at a variety of different launch sites, TriSept has successfully integrated payloads ranging from over 22,000kgs to P-PODs, including dedicated primary, multi-payload, and rideshare missions.

Launch brokering through TriSept enables seamless multi-payload mission planning, execution and contracting, allowing each individual payload to buy their own piece of a mission. We have missions in the planning stage, so please ask about our open slots.

TriSept Corporation: Integrity, Expertise, Innovation...

### U.S. Army Space and Missile Defense/ ARSTRAT

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USASMDC/ARSTRAT conducts space and missile defense operations and provides planning, integration, control, and coordination of Army Forces and capabilities in support of US Strategic Command missions. The SMDC/ARSTRAT Technical Center is focused on the development and transition of space technologies for the Army and Joint Warfighter. Due to the increasing demand by Army and Joint commanders for persistent and responsive Intelligence, Surveillance and Reconnaissance (ISR), and Beyond Line of Sight (BLOS) communications, the Techical Center is investing in technology development of small satellites and launch options that can help relieve some of those Warfighter demands.

Our role is to provide our Soldiers and Joint Warfighters with superior technical advantages in time to meet rapidly evolving threats.

University of Toronto – Space Flight Laboratory

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The Space Flight Laboratory (SFL) is Canada's premier microspace organization. SFL builds low-cost microsatellites and nanosatellites that continually push the performance envelope. Missions are typically developed with stringent attitude control and data requirements that are striking relative to the budget available. SFL must be innovative while adopting a highly focused approach to development in order to achieve costs as low as 1/100th the price of similar satellites developed elsewhere. SFL's credits include: MOST, Canada's first space telescope; CanX-2, a technology demonstrator and atmospheric science satellite; and NTS, a ship-tracking satellite developed in only six months and launched in the seventh. SFL arranges launches through its Nanosatellite Launch Service (NLS) and provides customizable separation systems called "XPODs" for those launches. As part of its complete end-to-end mission capabilities, SFL maintains a mission control center consisting of multiple ground stations. Come visit us to discuss your microspace mission needs today!

Vanguard Space Technologies, Inc.

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Vanguard Space Technologies specializes in the application of advanced composites for spacecraft structures that need stiffness, precision and stability, as well as multi-functional applications such as electronic packaging and space power.

Vanguard specializes in spacecraft bus structures, antenna reflectors, dimensionally-stable optical benches for space telescopes and sensors, and multi-functional composite structures including lightweight thermal management electronics enclosures. Vanguard's capabilities include full engineering, with extensive capabilities in advanced composites design and analysis. We can work in a design-to-spec or build-to-print environment, to build, test, and deliver anything from simple composite components to challenging structural assemblies.

Vanguard also has an emerging business in Space Power, Optical and Thermal products which includes advanced, low cost solar panels, high accuracy ultra-lightweight reflective optics, and thermal control radiators. Ongoing SBIR efforts have developed these technologies for small spacecraft and special applications. This area features high performance advanced technology products such as standardized modular solar arrays, loop heat pipe radiator panels, infra-red and submillimeter mirrors, and solar concentrators.

Virginia Commercial Space Flight Authority / Mid-Atlantic Regional Spaceport (VCSFA / MARS) Booth Space: 25

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The Mid-Atlantic Regional Spaceport (MARS) is an FAA licensed, operational spaceport located at the NASA Wallops Flight Facility on the mid-Atlantic coast. MARS provides low cost access to mid-inclination orbits for small, medium and medium-heavy class ELVs, sub-orbital launchers, RLV launch and landing, and payload recovery. Its location provides unobstructed access to the ISS orbit and is the primary launch site for Taurus II ISS cargo re-supply services. MARS offers two FAA licensed launch pads, sub-orbital launch rails, vehicle/payload storage and processing facilities, horizontal vehicle assembly facility, hypergolic fueling facility, large capacity ELV liquid fueling facility, co-located airport, flexible mission support, and an accommodating schedule for commercial and government aerospace customers. The MARS facilities readily support the Pegasus, Minotaur, Taurus, and Taurus II family of LVs. Its unique location, capabilities, and cost advantages make it the test, demonstration, and operational launch site of choice for government, commercial, and academic missions.

# Vulcan Wireless, Inc. Booth Space: 100

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#### A Proven Partner in Digital Communications.

Vulcan Wireless Inc. provides complete turnkey wireless designs for our domestic and international customers. We provide comprehensive, cost effective, engineering services as well as product development. We enable our customers to smoothly transition from marketing concept to mass production. We enable our customers to meet the critical market window and aggressively support our customers scheduling needs.

Vulcan Wireless Inc. is focusing on advanced communications and software defined radios for the small satellite and CubeSat applications. Vulcan provides turnkey radio and antenna systems and ground terminals for small satellite systems.

Our designs are capable of operating in harsh space environments such as radiation, vibration, vacuum and thermal cycling. Our radios are software defined which provides the customer flexibility in waveforms, protocols, and encryption. The radios implement high performance RF transceivers which provide improved sensitivity, wideband acquisitions, high intercept points and adjacent channel rejection.

Our second generation space flight product, the CSR-SDR, is a software defined radio and has expands the waveform set and functionality. The CSR-SDR is part of a complete turnkey telemetry system including flight antenna, tracking ground terminal, AES encryption, and web based control of ground terminal. VHF to S-Band telemetry options are available. The CSR-SDR is compatible with many CubeSat form factors.

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ZARM Technik AG was founded in 1997 as a spin-off from the Centre of Applied Space Technology and Microgravity, an institute at the University of Bremen.

As the institute successfully contributes to German and European Space missions the field of work of ZARM Technik focused on the development and manufacturing of components for the attitude control system of satellites. Since its founding ZARM Technik became one of the leading manufacturers of magnetic torquers in Europe and worldwide.

Components produced for satellites are in use on most European and numerous international spacecraft. ZARM Technik AG manufactures for most large system integrators, and several universities and Space agencies worldwide. By now more than 70 missions have been supplied with high performance products.