



SEAKR Announces Successful In-Orbit-Test of On-Board Processors Hosted on the IS-14 Satellite

Centennial, CO, December 17, 2009 – SEAKR Engineering, Inc., a privately held company, today announced that SEAKR's Application Independent Processor (AIP), which is a component of Cisco IP Routing in Space (IRIS) payload hosted on Intelsat's IS-14 commercial GEO communication satellite, has successfully passed In-Orbit-Testing. IRIS is the first space router onboard a GEO satellite and will be used in a Joint Capabilities Technology Demonstration (JCTD) for the DoD in the first quarter of 2010.

The IRIS program, lead by Cisco, will provide the ability to integrate terrestrial and space communications nodes through a common network layer protocol and enable U.S. and allied military forces to communicate seamlessly. Having an IP network node in space will avoid the latency and cost associated with a double-hop to the teleport, thereby dramatically increasing the efficiency, flexibility, and data throughput of satellite links and communication networks. IP-based routing in space is a path to achieve multi-protocol interoperability while enhancing operational performance.

SEAKR Engineering developed and delivered the IRIS payload processors that are used to host the Router and Software Defined Radio functions necessary for on-board routing. Due to a tight schedule, driven by commercial communication satellite procurement cycle, and the significant processing requirements, SEAKR selected their AIP architecture for this mission. Paul Murray, SEAKR's Director of IP and Reconfigurable Processors states, "Our ability to meet the demanding processing requirements and tight schedule is a testament to the scalability and flexibility of the AIP processing architecture. IRIS represents the most powerful reconfigurable processor ever flown, and was delivered on a time frame consistent with commercial communication satellite procurement. The on-board processing performance that this architecture provides enables new capabilities for future space borne assets. For instance, IRIS is flying the processing horsepower to provide over 48 Gbps of real-time JPEG2000 compression, or the equivalent to a TeraFlop of processing. This level of processing performance really opens up new capabilities for our customers."

Traditionally, signal processing in space has been performed by Application Specific Integrated Circuits (ASIC) which are hardwired and not reconfigurable. A challenge with putting processing on on-board a commercial communication satellite is that they are normally designed for 10 to 15 year lifetimes, where protocols and applications can change dramatically over the course of a decade. In order to overcome this challenge, and "future proof" the system, the processor needed to be reconfigurable. "The AIP processors were specifically designed to allow for complete reconfiguration on-orbit and supports multiple simultaneous images," Murray said. "This means that you can upload new applications, OS, or waveforms without removing the original "golden" images. This fault tolerance and reliability is critical for high reliability

missions and is native to our AIP processors architecture. As protocol and standards change new waveforms can be uploaded to address the changing mission or customer base.”

Another challenging aspect of IRIS was the qualification of a high performance reconfigurable computer for a 15+ year GEO mission. Stringent requirements for shock, vibration, thermal, and radiation environments had to be tested and qualified. Scott Anderson, SEAKR Engineering President said, “The IRIS AIP processor is the culmination of more than a decade worth of technology development and qualification. We’re honored that our investment in this area enabled us to work with Cisco Systems and deliver a product of this capability to the IRIS program. This is the second successful flight of the AIP architecture with the first flight being used as a Hyperspectral Image Processor. To date, we’ve used this architecture for software defined radios, HSI processors, JPEG2000 image compression, as well as other payloads. We’ve proven that our investment in this area has developed a flexible and scalable architecture that we can build on for our next generation systems.”

About SEAKR Engineering

SEAKR Engineering 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 sixty of these units have launched with all having met or exceeded mission objectives. SEAKR leading edge space avionics include Cisco IP routers as well as software-defined radios, high-performance payload processors, modular command and data handling systems, and solid state recorders. SEAKR is a small business proud to serve its customers and country. Contact: Dave Jungkind, 1+ (303) 784-7734, dave.jungkind@seakr.com