



Aeroflex to Implement Goddard's SpaceWire Router to Benefit Aerospace Electronics



A new Space Act Agreement (SAA) between Goddard Space Flight Center and Aeroflex, Inc., will enable the company to develop a SpaceWire router with guidance from the NASA Center. The company will translate the multi-port router into application-specific integrated circuits (ASICs), enabling a variety of applications to connect through the router and communicate with each other, benefiting spaceflight applications for both organizations and the aerospace industry as a whole.

Benefits of Technology Transfer

- Aeroflex can benefit by building SpaceWire-based aerospace electronics for its own use and to sell to NASA and other organizations, creating a competitive advantage.
- NASA will benefit from being able to purchase ASICs from Aeroflex at a much more affordable rate than producing them in house.
- Multiple NASA missions may benefit from the ASICs provided by Aeroflex, such as the James Webb Space Telescope, Magnetospheric MultiScale (MMS) missions, and other satellite operations.
- Other government organizations' work may benefit from the future availability of the new ASICs for space applications.
- Other aerospace companies and the industry as a whole may benefit from the increased availability of the SpaceWire router and integrated ASICs.
- NASA will benefit by promoting further industry acceptance and availability of SpaceWire-based aerospace electronics, providing a more competitive environment for aerospace parts and demonstrating the value of the technology to NASA and the industry.

On the Record

“The more companies we can work with to integrate SpaceWire into more aerospace applications, the better for NASA, for the SpaceWire protocol, and for the industry overall.” - *Ted Mecum, NASA Goddard’s Innovative Partnerships Program Office*

“Technology transfer agreements with companies like Aeroflex can help NASA glean far more benefits from the SpaceWire technology for specific NASA missions and for the future of the technology itself than we would be able to achieve working on our own.” - *Glenn Rakow, SpaceWire innovator, NASA Goddard*

About Aeroflex, Inc.

Aeroflex designs, manufactures, and markets a diverse range of microelectronic and test and measurement products to support communication systems, networks, and automatic test systems. Based in Colorado Springs, the company has achieved much success in the semiconductor market through its advanced, space-qualified and radiation-hardened products for satellite communications. Having developed a cost-efficient process for producing semiconductors capable of operating in the harsh environment of space, Aeroflex has earned a formidable reputation in the aerospace industry.

Technology Origins

The SpaceWire specification is a set of serial links that describe a network fabric used to move information defined in packets. Specific to Goddard’s SpaceWire design, the link and switch (“router”) is a unique implementation that enables avionics computers to communicate seamlessly at varying data rates (2 Mbps to more than 200 Mbps), minimizing interconnects. The communication allows resources to be distributed and provides for redundancy across spaceflight applications.

Developed in beta form in 2000, the protocol standard was released in January 2003 and was first implemented at NASA in 2004 on the SWIFT mission, a gamma ray burst-alert telescope.

The Transfer Process

Agreement discussions with Aeroflex began in 2005. The company had been familiar with Goddard’s Glenn Rakow and his pioneering work with SpaceWire and promotion of the standard throughout the industry. The company worked with Goddard’s Innovative Partnerships Program Office to negotiate an in-kind agreement that benefits both organizations as well as current and future NASA missions.

Looking Ahead

Aeroflex is well positioned to create a competitive advantage through marketing SpaceWire-based aerospace electronics. As part of the agreement, Goddard will provide technical assistance for the company to build the SpaceWire router and integrated ASICs and will consult with engineers about the features NASA would like to see in the chips, helping to ensure that the end result will be beneficial to both organizations. Finished product is expected by 2008.

For More Information

If you would like additional information about Goddard’s technology transfer opportunities, please contact:

Innovative Partnerships Program Office

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