

## Intelligent Power & Data Ring Avionics Architecture

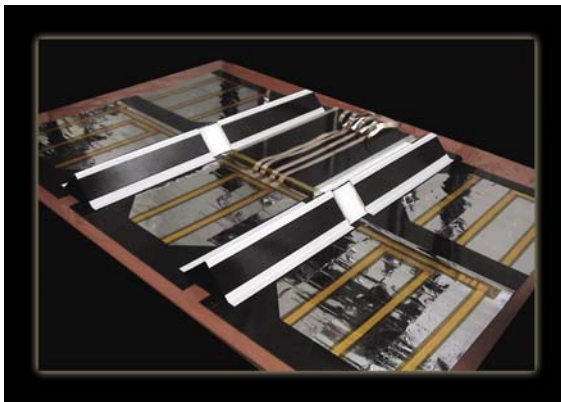
MicroSat Systems, Inc. (MSI) has developed a low-cost configurable avionics system to support its modular bus as well as other bus platforms. Intelligent Power and Data Ring (IPDR) Avionics Architecture is a modular alternative to mission unique, highly specialized, high cost avionics.

IPDR provides inputs and outputs for spacecraft components and the payload interface as well as the power management and distribution function. The system IPDR Nodes incorporate a processor containing a radiation tolerant FPGA. The combination of the radiation-tolerance and the fault-tolerant capabilities makes IPDR suitable for any space application. Demonstrations of this technology are planned for the TacSat-3 and TacSat-4 satellites planned for flight in 2009. Planned as primary avionics for Calibrated Orbiting Objects Project (COOP) and USAF Academy FalconSAT flight in 2009 as well.

## Thin Film Arrays

MSI's unique space qualified thin-film solar array can provide power to a spacecraft from an array that can be stored in a very small volume and weighs far less than comparable rigid arrays. MicroSat was able to fly a small demonstration of this technology on TacSat-2 and is looking at several future missions in which this may be used as the primary array.

MSI has developed a unique space qualified solar thin-film deployment mechanism called the Fold Integrated Thin-Film Stiffener (FITS). This mechanism provides: a very high power density (150W/kg versus standard rigid arrays at 50W/kg), minimum stowage volume (>45kW/m<sup>3</sup> versus standard arrays at 25kW/m<sup>3</sup>) and eliminates the complex rigid structure and deployment mechanisms required for traditional arrays. The FITS thin-film array was also demonstrated on the TacSat-2 program, where the array produced power, data was collected and analyzed.



MSI Thin Film Solar Array and FITS

## Structures

MSI designs and builds advanced, lightweight structures and mechanisms for space and terrestrial applications.

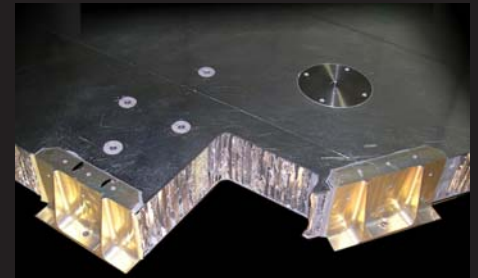
MSI's modular bus was designed and manufactured as a reliable bus structure capable of accommodating a large payload mass. The bus design utilizes components with proven flight heritage that enable parallel processing of components on separate panels which allows for a great deal of the bus and payload production and testing to be performed in parallel.

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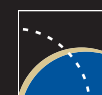
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