

## **Advatech Pacific Develops Virtual Satellite Integration Environment. (January 18, 2008)**

Advatech Pacific has been awarded a contract to develop a Virtual Satellite Integration Environment (VSIE) for the NASA Ames Mission Design Center. The VSIE introduces into NASA Mission Design Commercial Off-The-Shelf (COTS) Product Lifecycle Management (PLM) tools and processes, which have proven themselves in the industrial manufacturing world. In addition to COTS PLM tools, the VSIE hinges on two key concepts: an enhanced Digital Mock-Up (termed DMU++) and the so-called Common Geometry Strategy.

The DMU typically only addresses mechanical form, fit and function of a component or sub-assembly in the assembly context. Advatech Pacific's DUM++ goes considerably further and addresses electrical power, data, and other similar interfaces to automatically detect compatibility issues beyond merely the mechanical fit. The DMU++ will be an enabling functionality for rapid mission design and integration of components from a database of existing off-the-shelf hardware such as the database currently under development at the NASA Ames Mission Design Center.

The Common Geometry Strategy was introduced in the late 1990s in both the commercial aircraft engine and automotive industries. However, until now it has not found its way into satellite design or satellite mission design. The fundamental approach is that the same Master Model geometric information is readily available to all engineering disciplines and individuals that need geometric information to perform their job. Since a particular disciplinary specialist may require only an abstraction of the detailed 3D-geometry, Advatech Pacific is introducing a "Context Model" concept. The Context Model is a simplified representation of the detailed 3D CAD model, which is simplified precisely to the level of detail required by the specialist, while maintaining full associativity to the Master Model geometry.

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