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Generic Technologies for Nano/Pico Platforms (6B)

Author: Mr. Daniel Smith
GomSpace ApS, Denmark

Ms. Laura León Pérez
GomSpace ApS, Denmark

Mr. Per Koch
GomSpace ApS, Denmark

Dr. Morten Bisgaard
GomSpace ApS, Denmark

THE NEXT GENERATION NANOSATELLITE: THE MODULAR GOMSPACE 6U NANOSATELLITE
BUS

Abstract

As the small satellite sector grows and expands into new business opportunities, new technical solutions are required to address the needs of customers with complex goals. Current small satellite architectures are challenged by new missions from IOT and communications constellations to highly specialized defense systems. These missions demand advanced capabilities in all areas of satellite design including higher power, higher data rate communications, and payload integration flexibility. GomSpace has developed a cutting edge nanosatellite bus to address these demanding missions.

The GomSpace 6U platform uses a common core of modular components to satisfy mission requirements. The platform starts with a new mechanical structure, built to allow standard systems flexibility in placement and can accommodate new payload designs that would be difficult to integrate in many current CubeSat buses. The platform is compatible with standard CubeSat components, but also paves the way to integrating new system architectures with higher reliability, faster interconnect speeds, and easier integration. Similarly, the new GomSpace solar panel architecture provides a less expensive and faster design on new customized panels, reducing risk to larger nanosatellite missions which frequently require customized solar arrays. Internally, GomSpace has developed a new modular and high power EPS, an innovative software defined radio for both ground link and inter-satellite link communications, and advanced reaction wheels designed to have industry leading reliability and lifetime. These new systems add significantly improved performance to in-orbit nanosatellite assets, while platform flexibility can dramatically reduce development time for new missions.

Debuting on the tandem GOMX-4A/GOMX-4B mission, GomSpace has leveraged the strengths of this new platform to develop two highly specialized missions in a single, affordable platform with maximum design reuse. Going forward, GomSpace will increase performance and reliability while keeping mission design costs down for customers using the new GomSpace 6U platform.