IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Technologies for Future Space Transportation Systems (5)

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LOW COST AVIONICS FOR A EUROPEAN MICRO LAUNCHER

Abstract

European operational launchers and current launchers under development in Europe (ARIANE 6 and VEGA C) will guarantee independent access to space for the high-end satellite market. These launchers are, however, less focused towards small and micro satellites classes services, especially in terms of offering a dedicated launch service within affordable price. In order to foster the dynamic growth observed since 2013 and up to 2018 in the small satellite domain, the market will need to provide more launch opportunities and increase the portion of launches servicing secondary payloads or to develop Microlaunchers fully dedicated to the small satellites market.

In this view, PLD Space is developing a two stages micro launcher (MIURA 5) based on liquid propulsion with a reference mission delivering a payload mass of 300 kg into LEO, 500 km circular orbit. Since beginning 2017 GMV has decided to back the project of PLD Space and take a stake in this space company. GMV is also developing key technology systems for the Microlaunchers under development. In particular GMV is in charge of the complete avionics including all vital subsystems as Power subsystem (from energy storage up to power distribution), Data Handling subsystem (from sensor conditioning and acquisition up to telemetry transmission to ground including bus communication and processing capability), Guidance, Navigation and Control (GNC) subsystem (based on COTS inertial sensors), Onboard Software, and harness for both launchers under development. GMV is also in charge of the flight segment of the Safety System (Flight Termination System). GMV's team will also be participating jointly with PLD Space in the microlauncher integration, qualification and launching-support operations, during the phase of test flights and commercial flights. These operations are scheduled to start in the last quarter 2019 with the maiden flight of the suborbital launcher MIURA 1 from the "El Arenosillo" launch base in Huelva, Spain