

ONBOARD PROCESSING FOR IMPROVEMENT OF PAYLOADS PERFORMANCE ON LTA PLATFORM

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Abstract

Lighter Than Air (LTA) refers to material (helium, hydrogen, etc.) that are buoyant in air because of density 'lower than air' and the LTA platform acquires its lifting capability from the static lift endowed by these gases. Being a stable, long endurance platform located above ground level, these platforms are generally utilized for Intelligence gathering, Surveillance, and Reconnaissance (ISR) mission by tri services and other law enforcement organizations. Today's ISR needs are extremely strategic, demanding a high level of persistence and the ability to locate and identify individual objects in the field of interest. LTA system is typically configured with Radar, Sigint and Electro-Optical sensor to provide low-maintenance cost, wide-area and long range surveillance. To make these sensors efficient and effective high end computations onboard the LTA platform becomes a necessity. Data Communication System (DCS) designed and developed at Bharat Electronics, is an example of onboard processing where different types of data from various payloads are handled by a single processor for establishing bi-directional communication at a data rate of 4.2 Gbps between systems/subsystems on LTA platform and Ground Control Station (GCS). Processor used for the development of DCS can be used for deployment of advance algorithms thereby avoiding additional hardware, achieving Size Weight and Power (SWaP) compliance and reducing the cost. General-Purpose Graphics Processing Unit (GPGPU) brings embedded parallel processing which offer a significant increase in the performance when processing ISR data from Radar, EO/IR, or other payloads and will also aid in alleviating the SWaP constraints.