



Contribution ID: 12

Type: **Poster Presenter**

Real-Time Image Compression Subsystem for satellites using Xilinx Virtex-5QV space graded FPGA

Abstract—The paper unfolds a methodology for compression of real time images received from the on-board satellite cameras using the JPEG2000 image compression algorithm. It will enable the satellite image data to be transmitted much quickly and will help in efficiently utilizing the available bandwidth. The JPEG2000 compression scheme was chosen due to its better compression capability as well as allowing for both lossy and lossless image compression. Due to its usage of wavelets, multiple resolution decompressed images can be obtained as required. The compression rate can be adapted in orbit for transmission bandwidth, compression ratio, decompressed image quality and other features through user-supplied parameters. The system prototype is visualized to be implemented on Xilinx Virtex-5QV space graded FPGA during its development stage. The hardware platform is dynamically reconfigurable, fault-tolerant and scalable. It enhances the robustness, flexibility and survivability of the satellite system. This subsystem will be significant for development of real-time image processing systems for satellites which can be utilized for e-agriculture, road mapping, surveillance, and estimation of damage in case of natural disasters e.g. earthquakes, floods etc.

Authors: Ms SAID, Naina (UET Peshwar); KHAN, Waleed (UET Peshawar); Ms AMJAD, Nayab (UET Peshawar)

Presenters: Ms SAID, Naina (UET Peshwar); KHAN, Waleed (UET Peshawar); Ms AMJAD, Nayab (UET Peshawar)

Track Classification: Geological Engineering