Embedded GPUs can provide significant computational power at a low-power envelope for large amounts of data. For this reason, they are employed in a wide-range of embedded devices that can benefit from these properties, from handheld devices to autonomous cars to prototype supercomputers. This widespread COTS technology opens a window of opportunity to satisfy the ever increasing needs of performance for on-board data processing in space, both for increased autonomy of future missions, as well as for more advanced data processing and analysis.

In this talk we present preliminary results obtained in the framework of the GPU4S (GPU for Space) activity funded under the ITT AO9010 ESA call on Low Power GPU Solutions for High Performance On-Board Data Processing. We benchmark several latest generation embedded GPUs which have the potential to satisfy the on-board performance and power requirements. We use common algorithm building blocks extracted from a variety of space application domains such as Observation, Telecom, Radar processing and Vision-Based Navigation and present the obtained results. This work is one of the first benchmarking reports on the examined embedded GPU platforms, including Nvidia’s recently released Jetson Xavier (2018 Q4), which is used in autonomous vehicles.

Summary

Paper submission

No

Primary authors: Dr KOSMIDIS, Leonidas (Barcelona Supercomputing Center); Mr RODRIGUEZ, Iván (Barcelona Supercomputing Center); Mr LACHAIZE, Jérôme (Airbus Defence and Space); Dr ABELLA, Jaume (Barcelona Supercomputing Center); Mr NOTEBAERT, Olivier (Airbus Defence and Space); Dr CAZORLA, Francisco (Barcelona Supercomputing Center and IIIA-CSIC)

Co-author: Mr STEENARI, David (ESA)

Presenter: Dr KOSMIDIS, Leonidas (Barcelona Supercomputing Center)

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