

Top Level quality. Space technology.



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**We are experts in
massive data processing**

**DAPCOM offers software engineering
solutions with special focus on handling
and processing large data sets.**

DAPCOM was selected to take part in the ESA BIC

DAPCOM was one of the first companies in Spain selected to take part in the European Space Agency Business Incubation Centre Programme in Barcelona. The aim of this programme is the technology transfer from space developed technologies to terrestrial applications.

DAPCOM Data Services is a software engineering company participated by the University of Barcelona (UB) and the Technical University of Catalonia (UPC). It produces highly efficient software solutions mainly focused on HPC environments and data compression strategies, including our own implementations, for both general and specific cases and sectors. DAPCOM commercializes FAPEC (Fully Adaptive Prediction Error Coder), a patented lossless data compression algorithm originally created for space communications.

Data compression

At DAPCOM we have a wide range of experience and knowledge on data compression technologies and strategies, including our own patented technology (FAPEC). We can analyse the customer scenario to understand the problems associated to the data types and volumes, computing restrictions, latencies and throughputs, and provide a detailed study with the recommended strategy and its envisaged performance.

Compression engineering Massive data handling

We provide data handling and compression engineering services, either off-the-shelf technologies adequately integrated into the customer systems, or tailored implementations optimized to fulfil specific requirements. We ultimately identify and provide the most optimized solution for each case.

Software engineering

DAPCOM offers software engineering services for High-Performance Computing, scientific data handling, mission and systems simulations, large data processing pipelines and Big Data. Our customers include the European Space Agency (ESA), space research institutes and private companies from other sectors including biotech.

Space

Our data compression technology is particularly suited for satellite payloads, either large-sized missions or nanosatellites. Its on-board feasibility and correct integration has been assessed, providing 15% better ratios at half the computing time in an Earth Observation cubesat, and 10% to 40% better ratios in a medium-class astronomical satellite when compared to the current lossless data compression standard for space.



Our technology

Our expertise in efficient data compression systems for space provides the necessary knowledge base for the development of an optimized solution for each scenario depending on the customer needs.

We combine several compression technologies, including our quick Prediction Error Coder (PEC) and its patented adaptive extension FAPEC, as well as efficient pre-processing stages that can be completely adapted to each case in order to boost the achievable ratios.

Affordable space technology for your project.

DAPCOM
Data services

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Research is in our genes

DAPCOM is the first Spin-Off company participated by both the Technical University of Catalonia (UPC) and the University of Barcelona (UB), two of the top-ranked universities in Spain. The research work done by our team members is internationally acknowledged. We have a deep background on scientific research projects, Space missions (both space and ground segments), modelling of complex theoretical models, high-quality software development for massive data processing, and high-performance computing, data handling and compression systems.

FAPEC

All-in-one high-performance data compression for ground and Space.

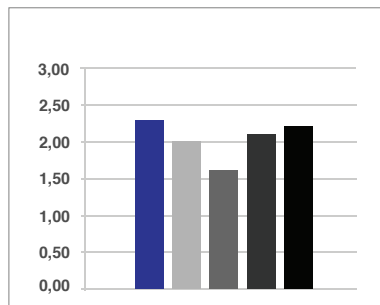
Our patented Fully Adaptive Prediction Error Coder offers an optimum compromise between compression speed and ratio. FAPEC achieves good ratios even on data severely contaminated by noise and outliers. Its ANSI C implementation ensures a straightforward integration in a variety of on-board and on-ground systems.

Compression ratio. FAPEC is able to achieve higher ratios than existing compression technologies.

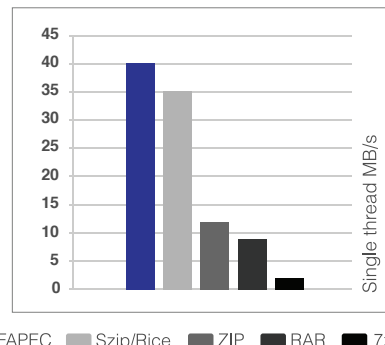
Compression speed. Its highly optimized implementation ensures an excellent compression throughput even with a single thread.

Versatility. Lossless or lossy. Data or text. Monochrome or many-band images. You choose.

Compression ratio



Compression speed



Pre-processing stages

FAPEC companions you can trust.

You will be able to get the most from FAPEC thanks to its large variety of pre-processing stages and options. It can automatically choose the most appropriate one for your data with a lightning fast analysis. Or you can manually select and configure it from our catalogue:

simple differential stages, linear filters, interleaving, pattern recognition, multi-band prediction, Discrete Wavelet Transform, or our Hierarchical Pixel Averaging algorithm. If that is not enough we will design a tailored stage for your case. Multi-threading is also provided for an amazingly fast operation.