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High-performance on-board computer, data handling and SDR platform for cubesats

Built upon the successful expertise of LISA Pathfinder, the 3Cat series cubesats (from UPC NanoSat Lab), Solar Orbiter and Gaia, the Institute for Space Studies of Catalonia (IEEC) is designing and implementing a high-performance multipurpose platform for cubesats that can be adapted to different commercial and scientific uses. It provides a robust on-board computer with redundancy to control the spacecraft state and telecommands, a versatile software-defined radio based on a high-end FPGA SoC providing high-speed downlink capabilities, a powerful on-board data handling system, and an efficient on-ground telecommand and basic data handling framework. This solution will push the cubesat concept to its limits, allowing to achieve performances for which larger-sized missions would be required otherwise. We present the overall features of this platform, its capabilities, and some possible use cases.

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