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Execution of the DPSNN spiking neural network simulator on the nVIDIA Jetson TK1 platform

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Fast simulation of spiking neural network models plays a dual role: it contributes to the solution of a scientific grand-challenge –i.e. the comprehension of brain activity –and, by including it into embedded systems, it can enhance applications like autonomous navigation, surveillance and robotics.

The DPSNN is a spiking neural network simulator developed at the INFN APE lab. It is coded as a network of C++ processes, and it is designed to generate spiking behaviors and synaptic connectivity that do not change when the number of processing nodes is varied, easing the quantitative study of scalability.

We used the DPSNN as a benchmark for the ARM-based nVIDIA Jetson TK1 platform measuring instantaneous power, total energy consumption, execution time and energetic cost per synaptic event.

Results will be presented and compared against those obtained on an Intel Xeon platform.

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