# Weird Processing Units – New outlook on processors

Conventional central processing units found in contemporary computers or mobile devices are using similar basic principles of program execution flow for decades and increasing the speed and efficiency is too complex. Weird Processing Units are processing units with a new and original way of processing machine code and programming with their associated programming languages, giving us alternate outlook on the processors and useful features that can be further developed.

Each of the Weird Processing Units starts with an initial idea, which is expanded into a full architecture and programming language specification. A set of development tools is developed, allowing to create programs for given architecture and simulate it, in order to collect data about its behavior with specific tasks. A hardware version of the processor is implemented as a softcore for FPGA devices.

Architecture called 2DWPU was picked from several Weird Processing Units, for its interesting traits and features. Due to its different program flow, it is challenging for the programmers and helps to train their thinking and at the same time it makes it suitable for specific tasks, especially heavy mathematical calculations and artificial intelligence, due to the ability to automatically and naturally spread the workload over several cores.

A simulation of simple virtual organisms was implemented on the 2DWPU architecture, where the behavior of each one of them is defined by a set of variables. Architecture was capable of increasing the speed of execution by simply adding additional cores by automatically dividing the calculations between them, without any special effort from programmer to allow parallel execution of his code, thus simplifying the programming as well.