

# Towards (even more) hybrid processors using reconfigurable technology

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## Abstract

Since introducing the digital electronic computers, the need for computing power always exceeded the possibilities. This situation forced designers to introduce solutions (in form of new components), accelerating some little parts of the task execution. For efficiency, these components usually work following non-Neumann principles, because following the Neumann principles leads to some unwanted limitations in functionality. Since introducing the principles of computer operation, a lot of components working on non-Neumann principles, have been introduced. The examples include, but not limited to, program interrupt, DMA, device drivers, communication units, etc.

Since today almost all tasks are running under operating systems, it seems to be reasonable to search for accelerators for the OS functionality. The presently available and widespreadly used reconfigurable technology, combined with traditional CPUs, offers new possibilities for the end users of the computers, to implement their ideas. This technology allows to use optimal share between hardware and software and reach more computing power. As usual, some of the components are producing a "quantum leap" in the behavior of the processor.

*Keywords:* FPGA, reconfigurable computing, hardware accelerator, hybrid computer

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