

General Reconfigurable Architecture for the BLAST algorithm

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BioITWord has announced that the 5th BioIT trend for 2007 is to develop Reconfigurable Accelerator Boards for Bioinformatics based on Field Programmable Gate Arrays technology. Towards this direction the Microprocessors and Hardware Laboratory at the Technical University of Crete continues its research activities.

A new architecture that implements the BLAST algorithm for all its versions and for any size of database and query is presented. Previous architectures developed by our group have been extended in order to build a general one. The new system has been fully designed and partially implemented using FPGAs and consists of software and hardware parts. A speedup of up to thousands of times vs. general purpose computers has been achieved. This work summarises the effort for building a reconfigurable biochip platform of TUC. Some of the experiments that will be presented are conducted in collaboration with the Configurable Computing Lab at Virginia Tech.