BIOINFORMATICS SYSTEMS, APPARATUSES, AND METHODS FOR PERFORMING SECONDARY AND/OR TERTIARY PROCESSING

Abstract

A system, method and apparatus for executing a bioinformatics analysis on genetic sequence data is provided. Particularly, a genomics analysis platform for executing a sequence analysis pipeline is provided. The genomics analysis platform includes one or more of a first integrated circuit, where each first integrated circuit forms a central processing unit (CPU) that is responsive to one or more software algorithms that are configured to instruct the CPU to perform a first set of genomic processing steps of the sequence analysis pipeline. Additionally, a second integrated circuit is also provided, where each second integrated circuit forming a field programmable gate array (FPGA), the FPGA being configured by firmware to arrange a set of hardwired digital logic circuits that are interconnected by a plurality of physical interconnects to perform a second set of genomic processing steps of the sequence analysis pipeline, the set of hardwired digital logic circuits of each FPGA being arranged as a set of processing engines to perform the second set of genomic processing steps. A shared memory is also provided.

Figure 43A