

CMOS Solid-State Nanopore DNA System-Level Sequencing Techniques Enhancement

Authors : Syed Islam, Yiyun Huang, Sebastian Magierowski, Ebrahim Ghafar-Zadeh

Abstract : This paper presents system level CMOS solid-state nanopore techniques enhancement for speedup next generation molecular recording and high throughput channels. This discussion also considers optimum number of base-pair (bp) measurements through channel as an important role to enhance potential read accuracy. Effective power consumption estimation offered suitable range of multi-channel configuration. Nanopore bp extraction model in statistical method could contribute higher read accuracy with longer read-length ($200 < \text{read-length}$). Nanopore ionic current switching with Time Multiplexing (TM) based multichannel readout system contributed hardware savings.

Keywords : DNA, nanopore, amplifier, ADC, multichannel

Conference Title : ICBCBBE 2015 : International Conference on Bioinformatics, Computational Biology and Biomedical Engineering

Conference Location : Montreal, Canada

Conference Dates : May 11-12, 2015