

عنوان مقاله:

A Conceptual Custom Super-Computer Design for Real-Time Simulation of Human Brain

محل انتشار:

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خلاصه مقاله:

In this paper, we introduce BRIC, a novel custom multi-chip digital computer architecture for simulating in realtime a model of human brain in form of a spiking BayesianConfidence Propagation Neural Network (BCPNN). The design is conceptually dimensioned for available technology in 2015-2020 with the estimated size of a pizza box, consuming less than3 kW of power, delivering 800 Teraflops/sec (single precision multiply operation) and 30 TBs of memory. To the best of ourknowledge, this will be the smallest and lowest power real-time brain simulation engine if manufactured. The silicon andcomputational efficiencies come from use of 3D memory stacking, innovation in algorithm and architectural customization. The chip will be programmable allowing experimentation with variants of the BCPNN brain model

کلمات کلیدی:

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