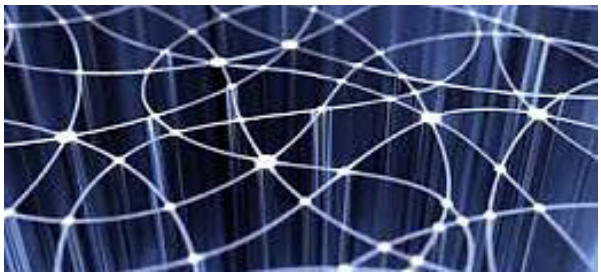

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Mathematizing the problem of high-throughput computing

The introduction of ARM processors to high-throughput computing requires quantifying the output rate. Data-flow in high-throughput computing can be evaluated analytically provided a number of assumptions. Provided that data distribution to the RAM, or input rate, can be sustained at a rate higher than the output rate, a number of expressions can be derived. These formulae can be expressed in terms of a dimensionless quantity related to the RAM frequency and the CPU clock frequency. Features of these formulae will be discussed. The problem of data-flow in a more general application can be approximated to a problem of fluid dynamics. The prospects of developing the corresponding differential equations will also be discussed.

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