Dataflow Blocks: Modular Time-multiplexing for CGRAs

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Energy-minimal Edge Processor

- Low Energy
- Diverse Applications
- High Performance
Performance Per Area is Low on current CGRA-based energy-minimal processors

hardware resource utilization on RipTide running dense matrix vector multiplication
How to efficiently run diverse applications on energy-minimal edge processors?
Dataflow Blocks: Modular Time-Multiplexing

DFG

RipTide

Dataflow Blocks

instruction list 1:

I0  I1

I2  I4

I3  I5

instruction list 2:

I2  I5

I3  I4
2.4x - 3.3x Performance Per Area Improvement