

Benchmark

Benchmark	Kernel Parameters	Loop kernel
MM (Matrix multiplication)	matrix size: 100×100	100 × 100 × 100
FIR	# of input: 10000 # of Taps +1: 50	10000 × 50
SE (Sobel edge detector)	# of vertical pixels:128 # of horizontal pixels: 128	128 × 128 × 3 × 3
KM (Kmean)	# of nodes: 5000 # of centroids: 4 # of node dimension: 2	5000 × 4 × 2

Basic SCGRA Configurations

SCGRA Topology	2D Torus
Instruction Memory Data Width	72 bits
Data Memory	256 x 32 bits
I/O Buffer Data Width	32 bits
I/O Addr Buffer Data Width	18 bits

DMA Latency

DMA Size	≥512	256	128	64	32	16	≤8
Latency/Word (ns)	10.08	11.28	13.32	15.18	21.45	36.24	63.00