SCIMA: Experimental Results

How to use On-Chip Memory

- SCIMA provides various data placement and utilization scheme according to the characteristics of data access

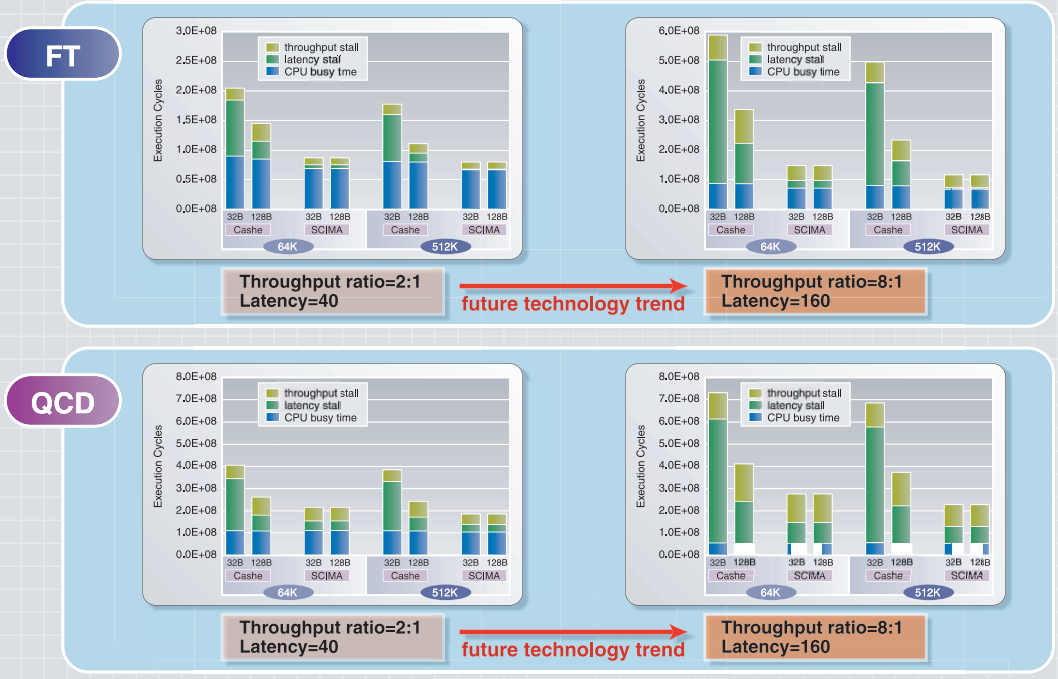
consecutiveness \ reusability	not-reusable	reusable
consecutive	use On-Chip Mem. as a stream buffer	reserve On-Chip Mem. for reused data
stride	use On-Chip Mem. as a stream buffer	reserve On-Chip Mem. for reused data
irregular	use cache	reserve On-Chip Mem. for reused data

latency-stall reduction by burst transfer
latency & throughput-stall reduction by stride transfer
throughput-stall reduction by software controllability

- Latency/Throughput stall is reduced for wide variety of data access

Evaluation Results

- Throughput Ratio = Ratio between on-chip and off-chip memory throughput
  Latency = Memory access latency for off-chip memory (latency for the first data)



SCIMA is robust to large throughput ratio and long memory access latency caused by current technology trend of CPU-memory speed gap