



# Honeycomb: A Software Defined Data Analytics System with Unprecedented Efficiency

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## Specialized Functions: Software Defined Hardware (SDH)



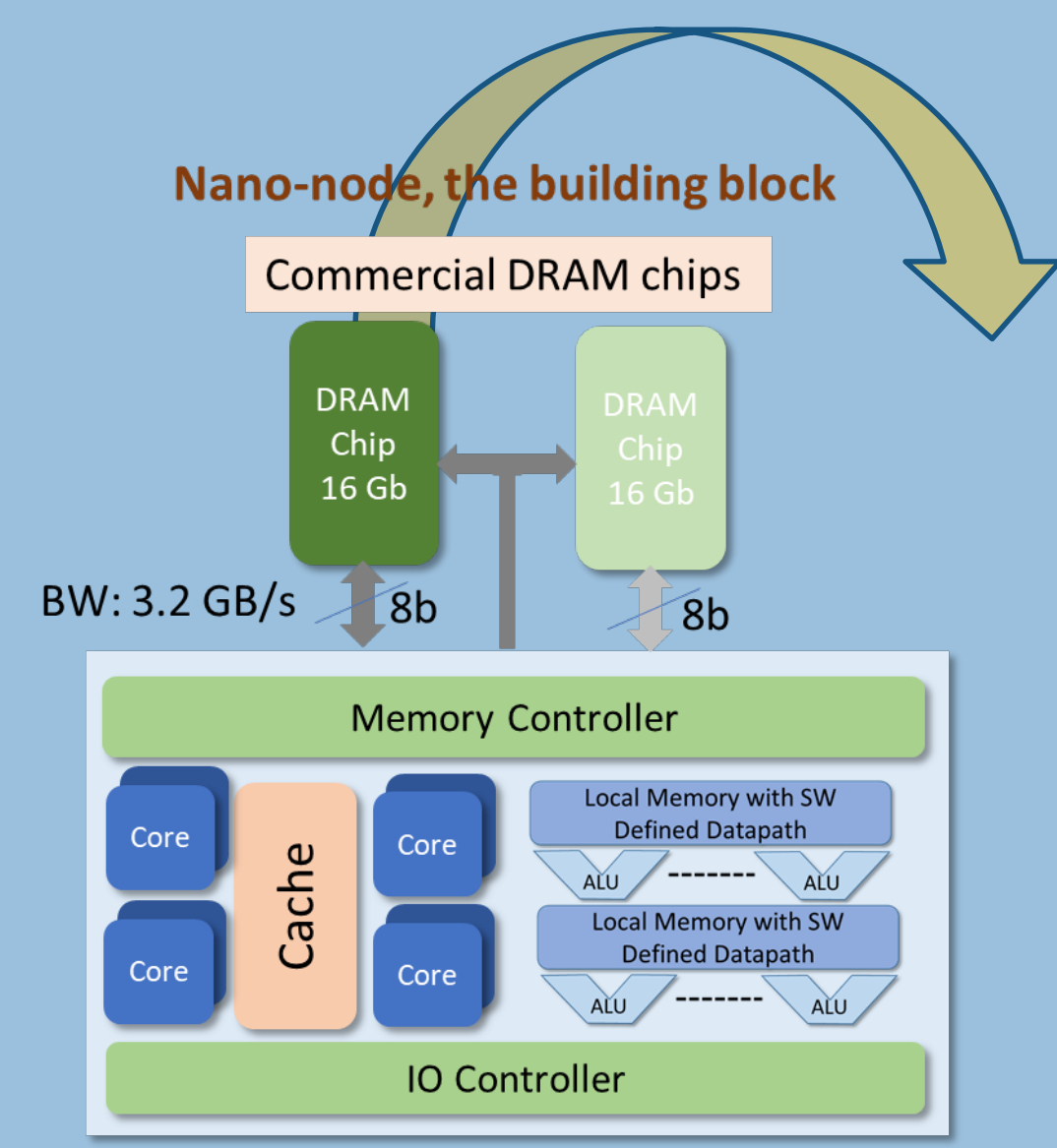
### Processor Architecture

*Deliver near ASIC performance for the spectrum of DoD workloads*



#### Value Proposition

	CPU	ASIC	FPGA	SDH
Performance	Yellow	Green	Red	Green
Energy Efficiency	Yellow	Green	Red	Green
Reconfigurability	Green	Red	Green	Green
Design spin time	Red	Orange	Green	Green
NRE cost	Red	Orange	Green	Green
Unit cost	Orange	Green	Red	Green

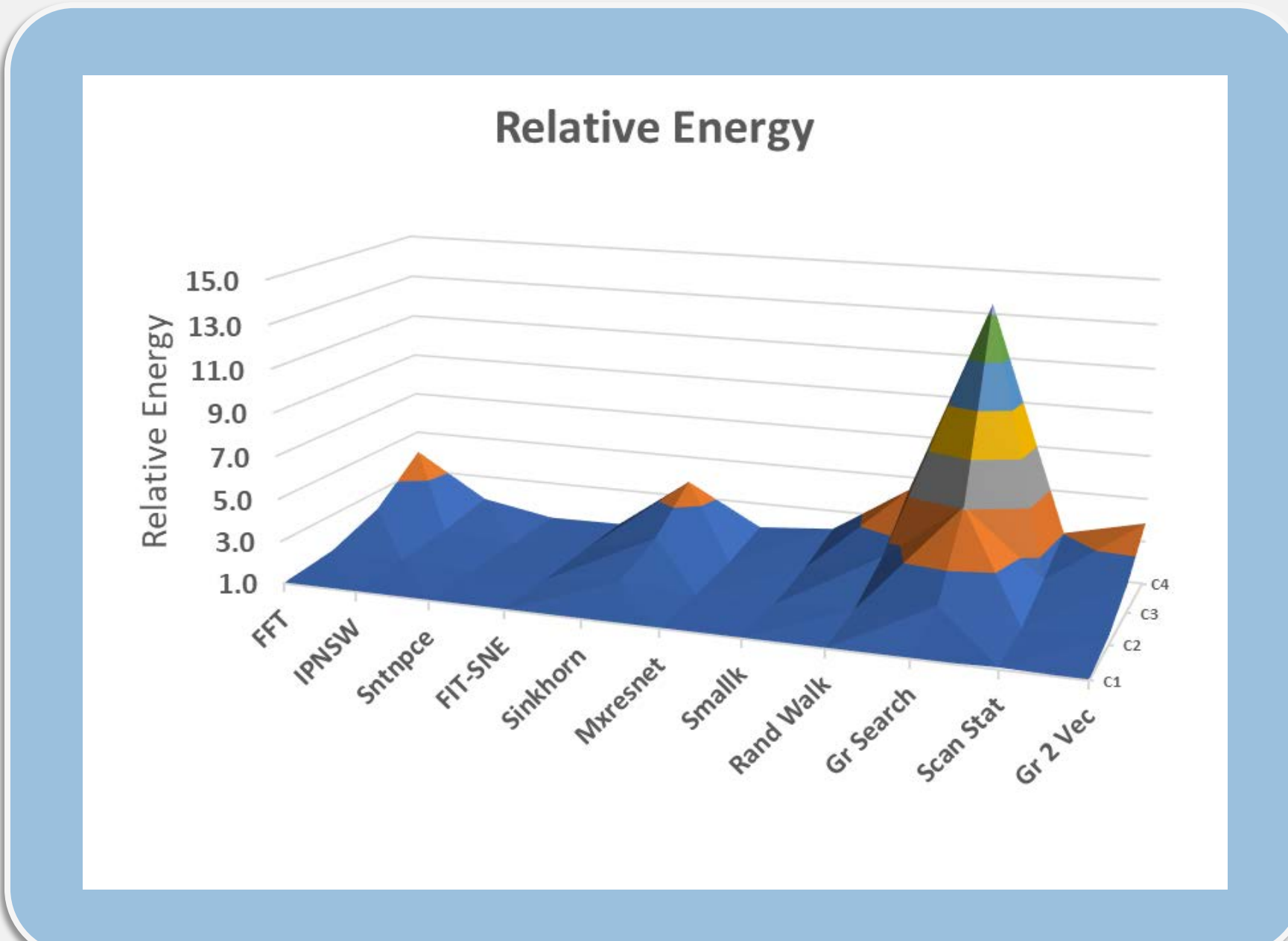
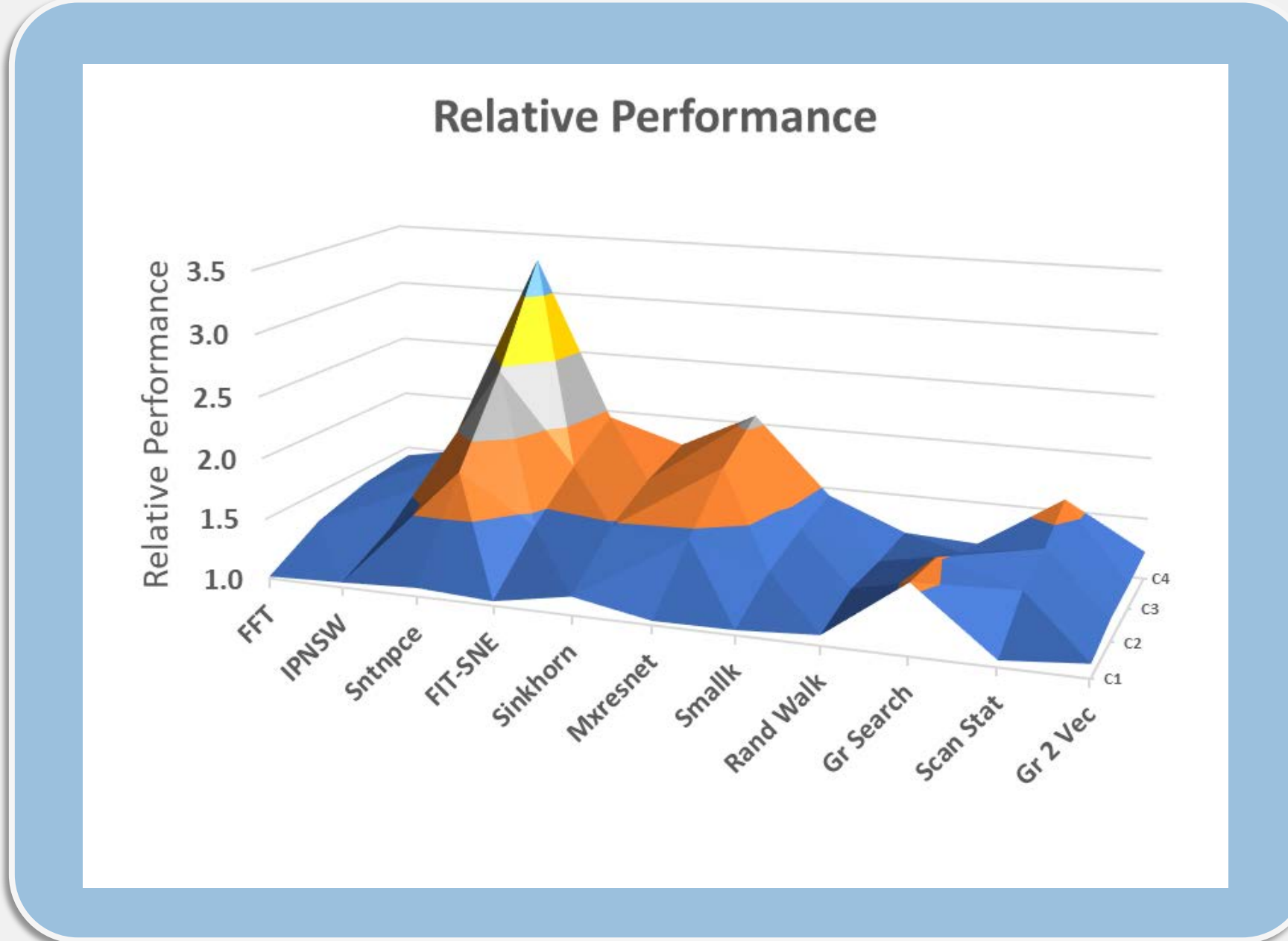


**Embedded, low volume custom**  
Avionic instruments

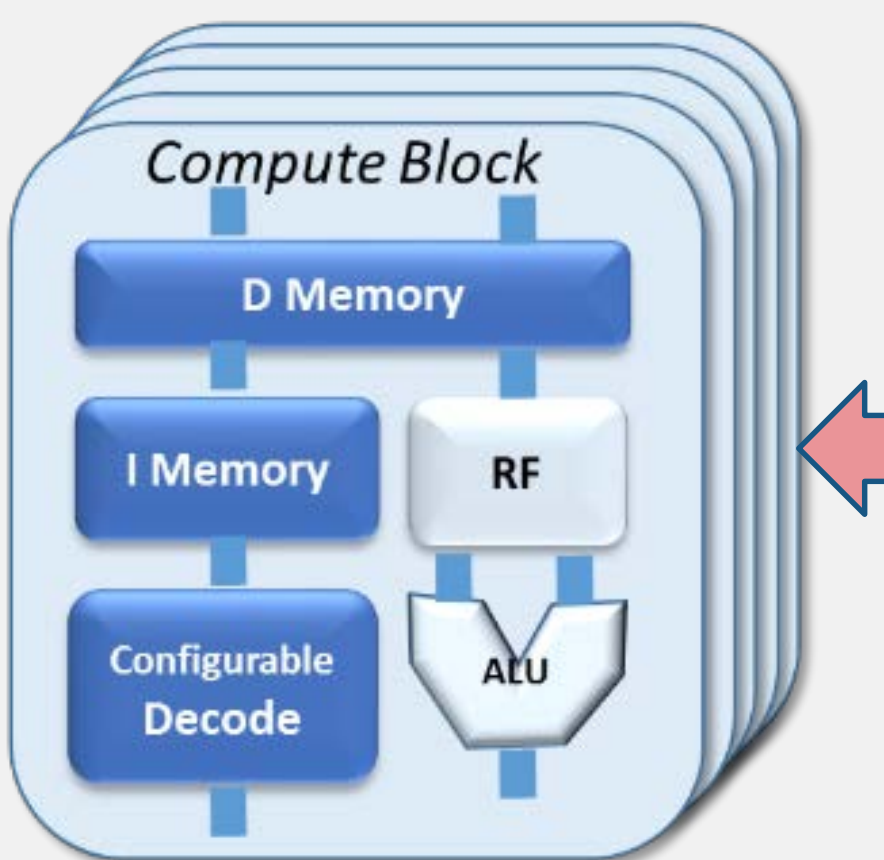
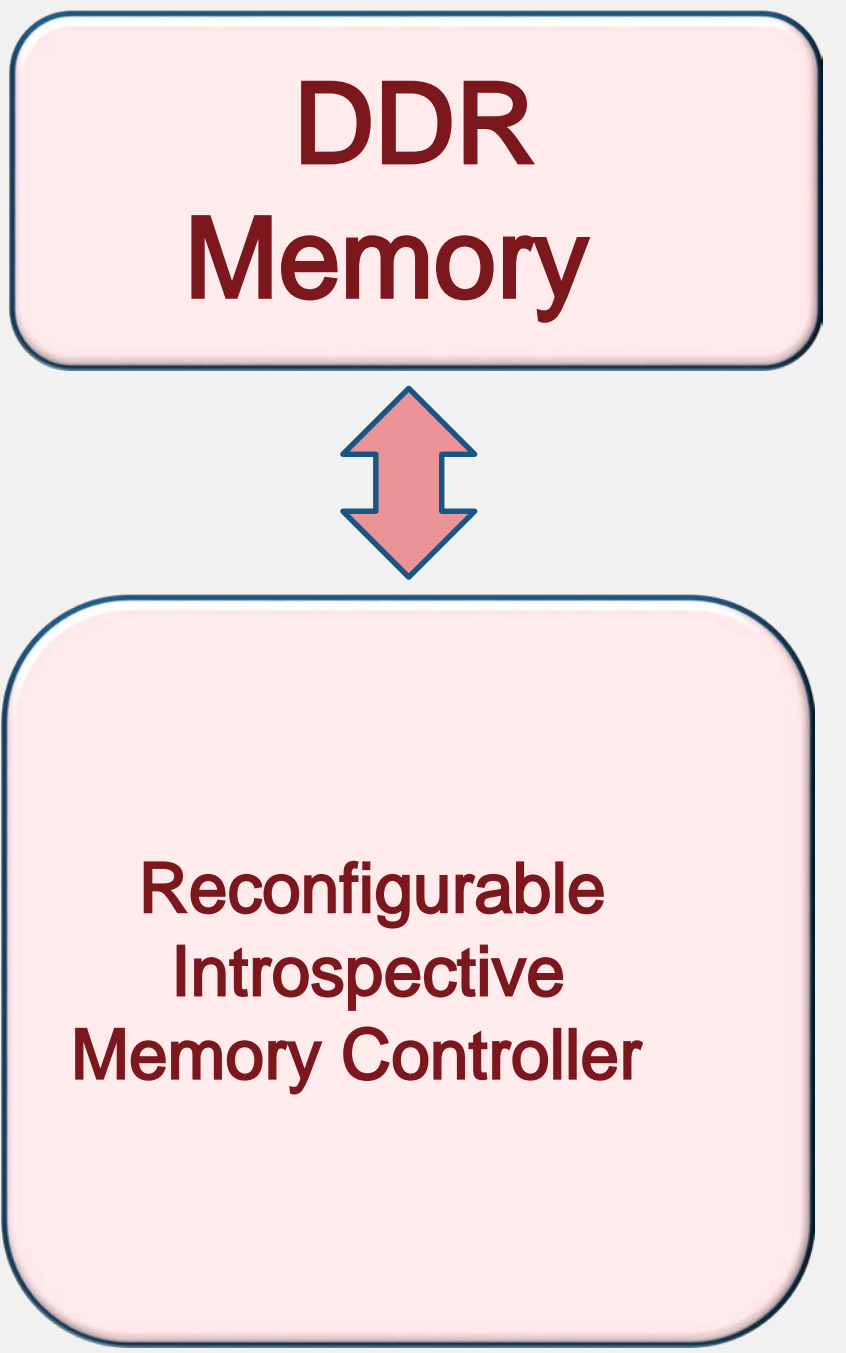
**Signal processing, networking**  
Speech, Image recognition, Battlefield Networking, Security

**Information processing**  
RADInformation, Processing at the edge, AR, Avionics

**Advanced embedded control**  
Robotics, Autonomous Vehicles



Technology node: 7 nm (TSMC)  
Processor frequency: 1-2 GHz  
Processor power: < 500 mW  
DRAM power: < 10 W

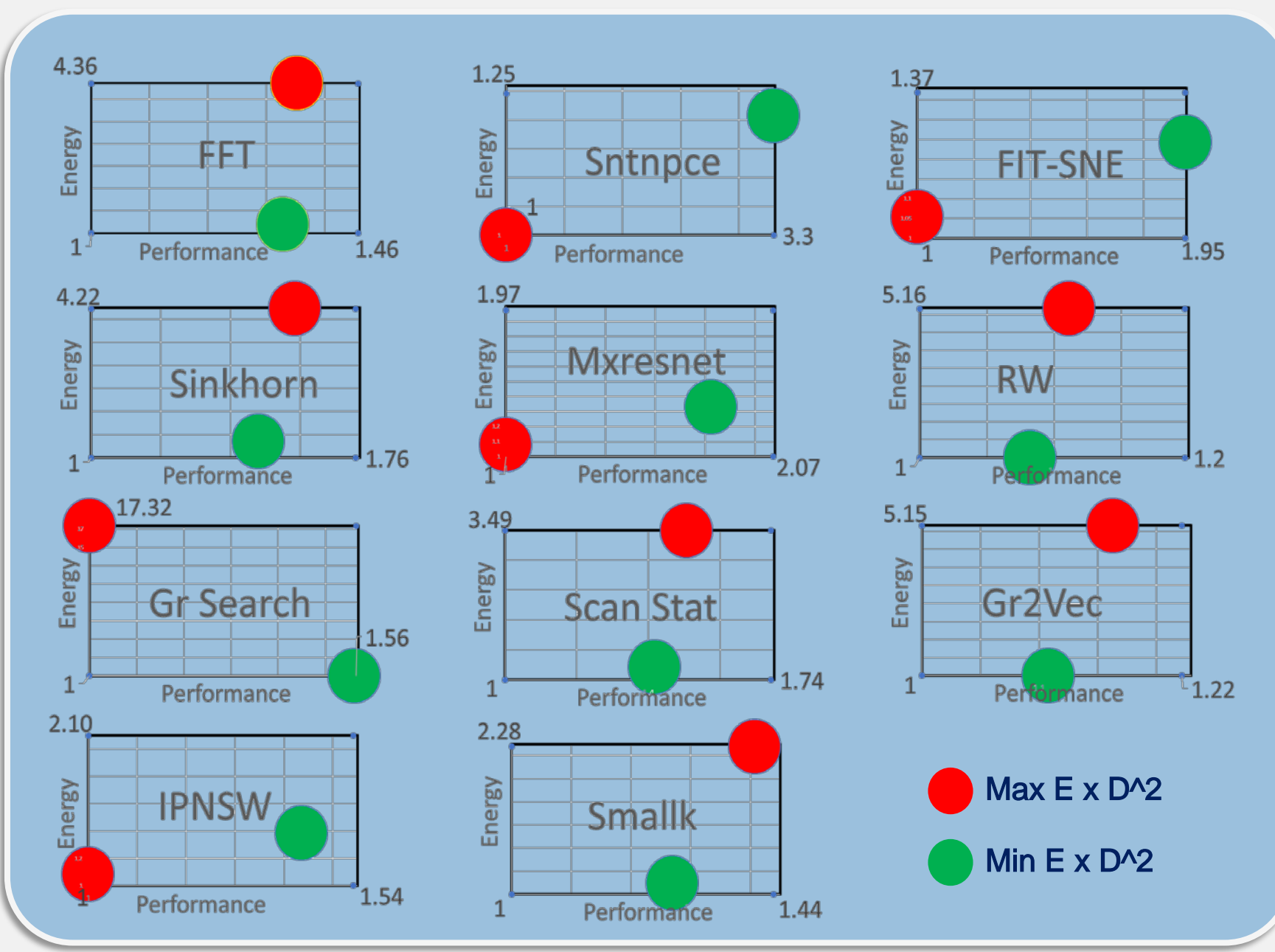
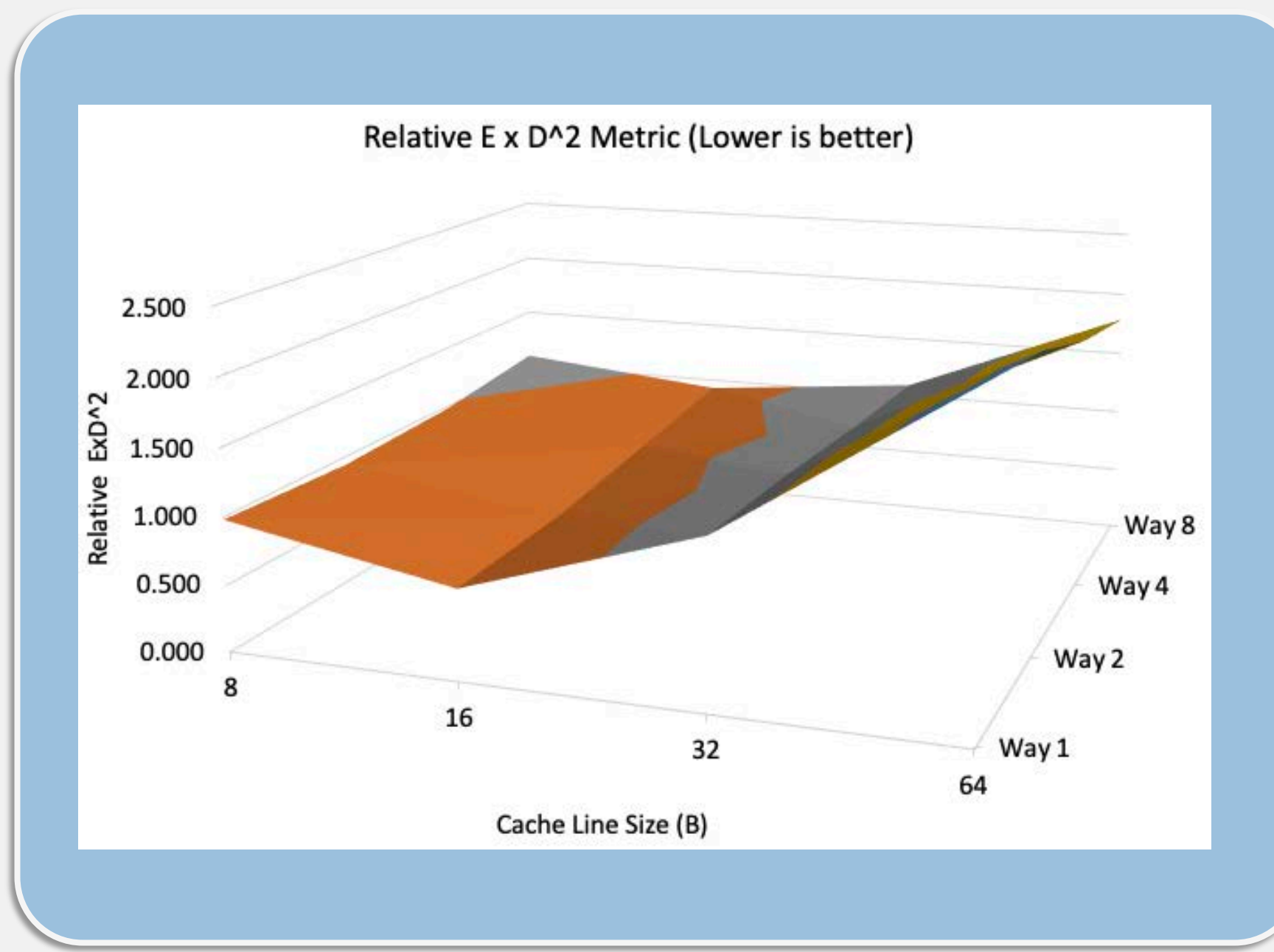
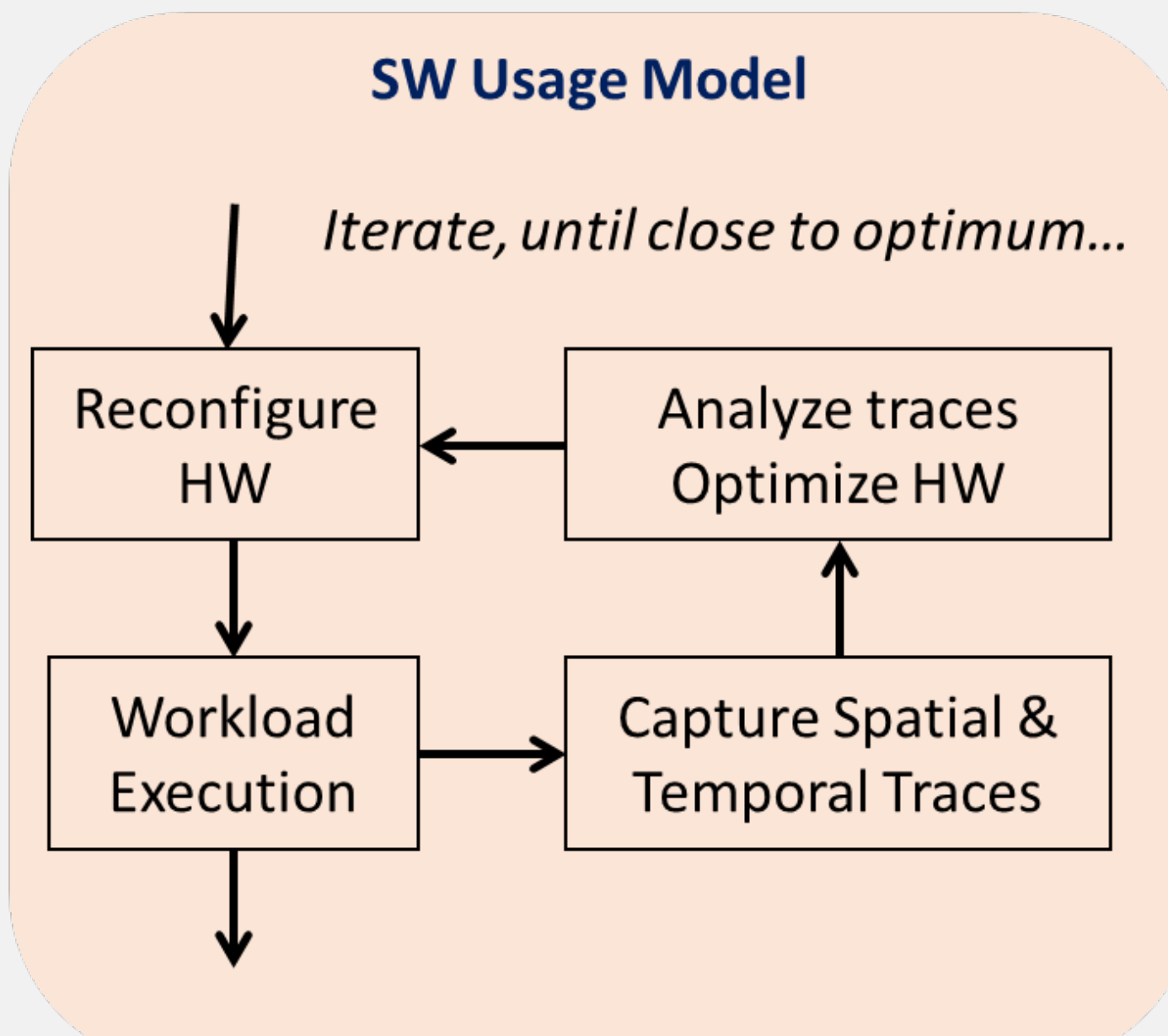
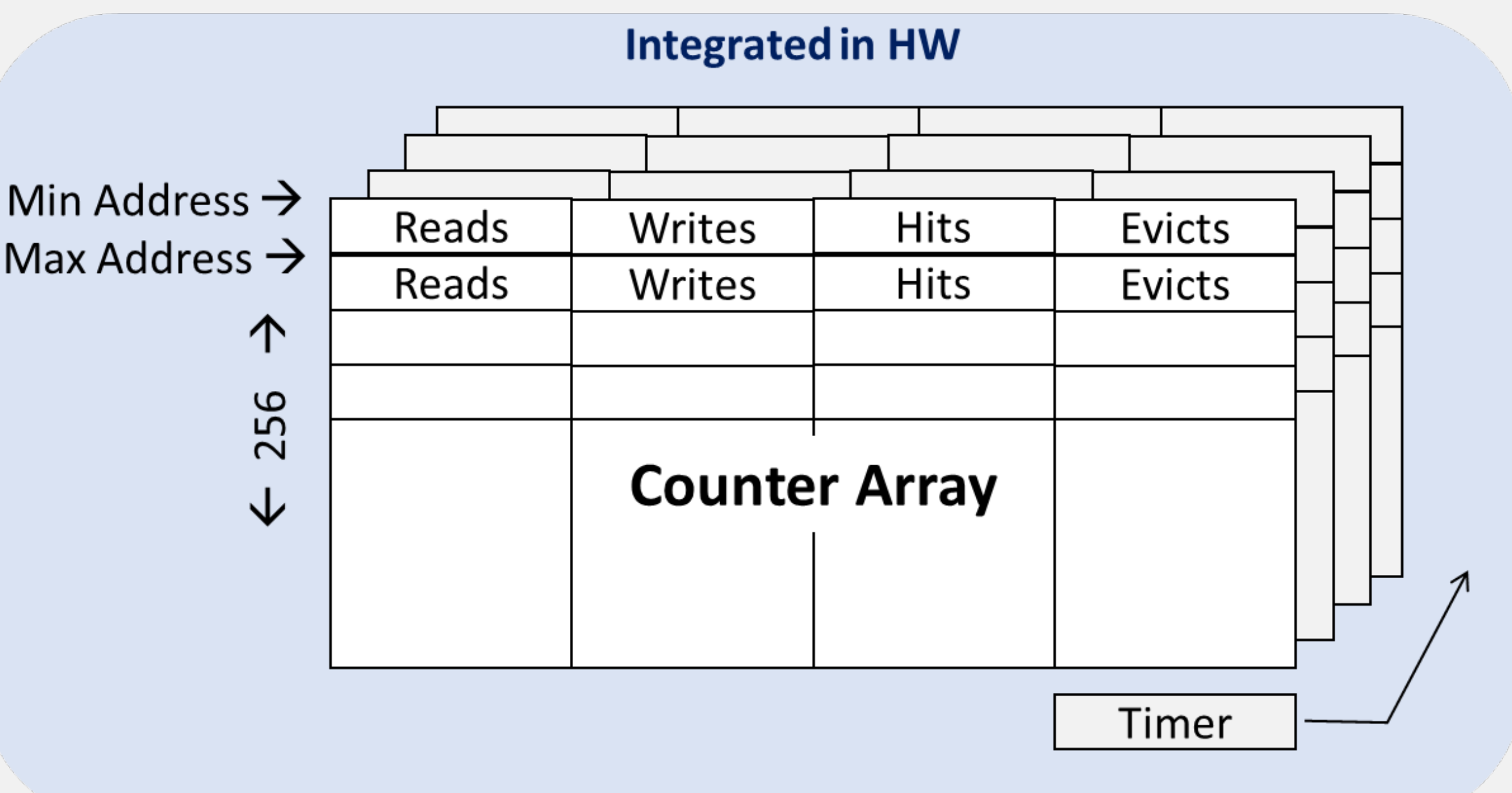
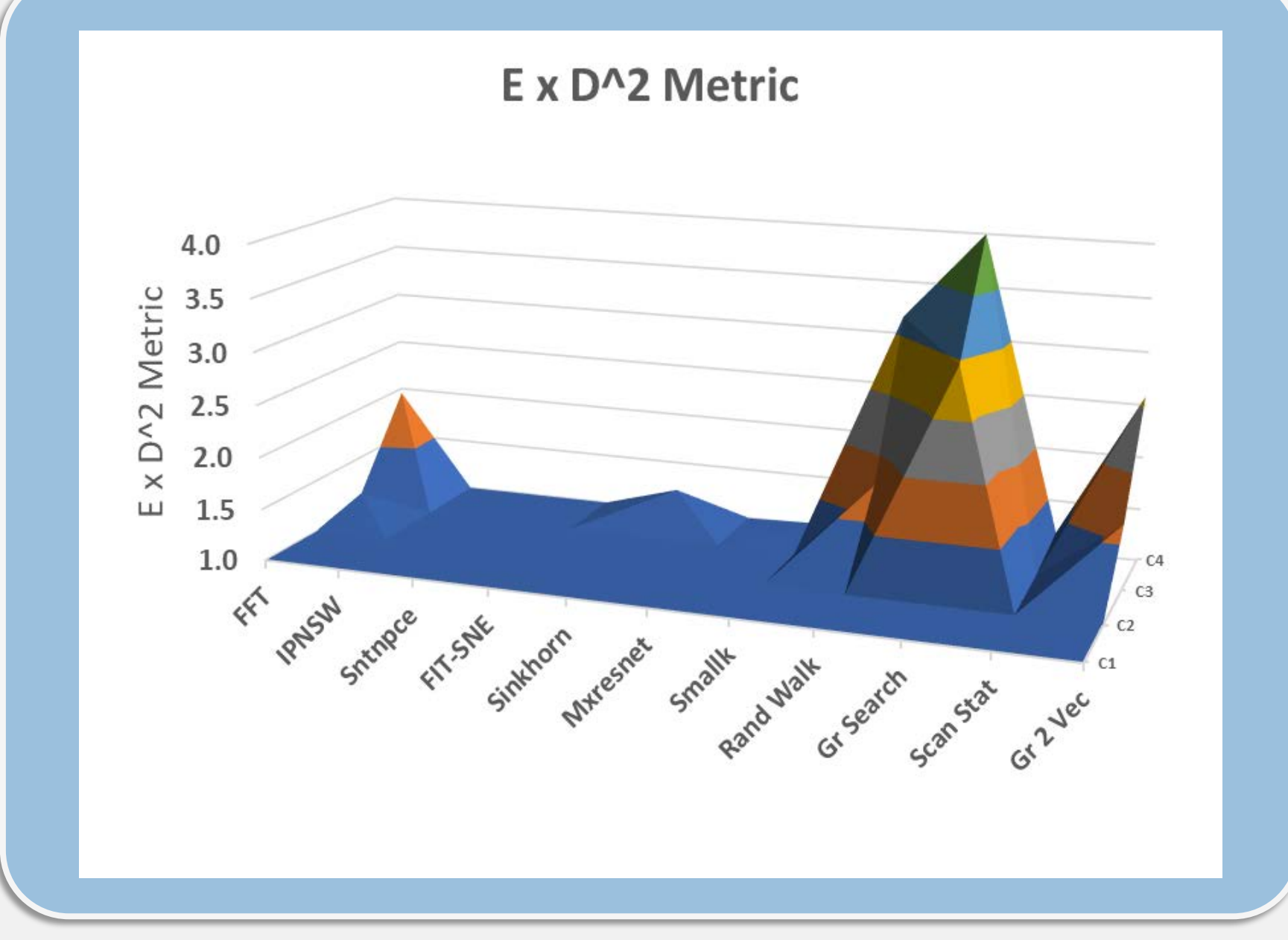
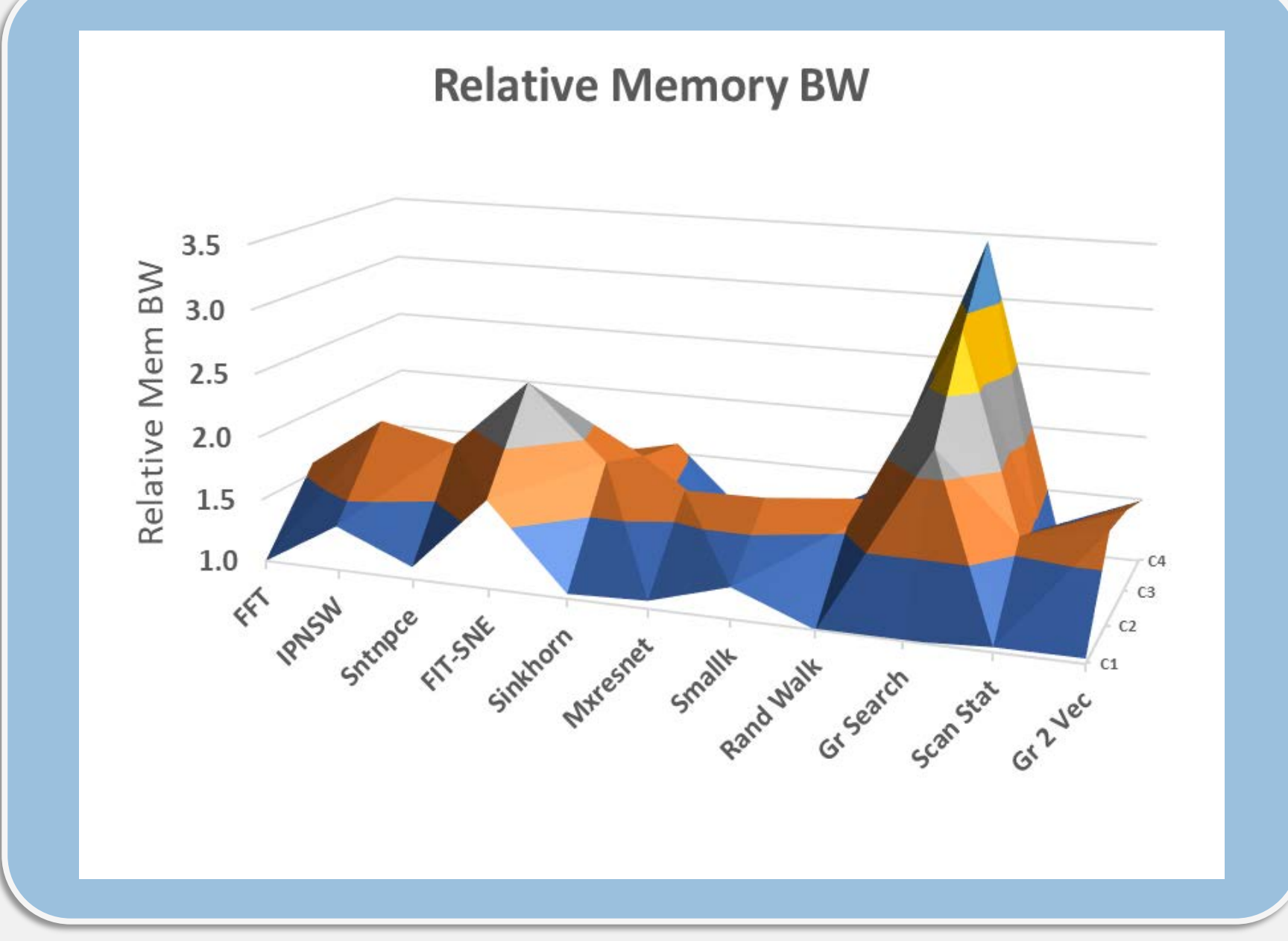


#### Introspection & Reconfiguration

Cache hit rate  
DRAM traffic monitor (Reads / Writes)  
Compute and data-movement energy

Data Memory  
Cache line size  
Cache policies  
Data prefetch

Cache or Scratchpad  
Small or Large  
Associativity, etc.  
SW defined policy



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