



Is it Finally Time for In-Memory Computing?

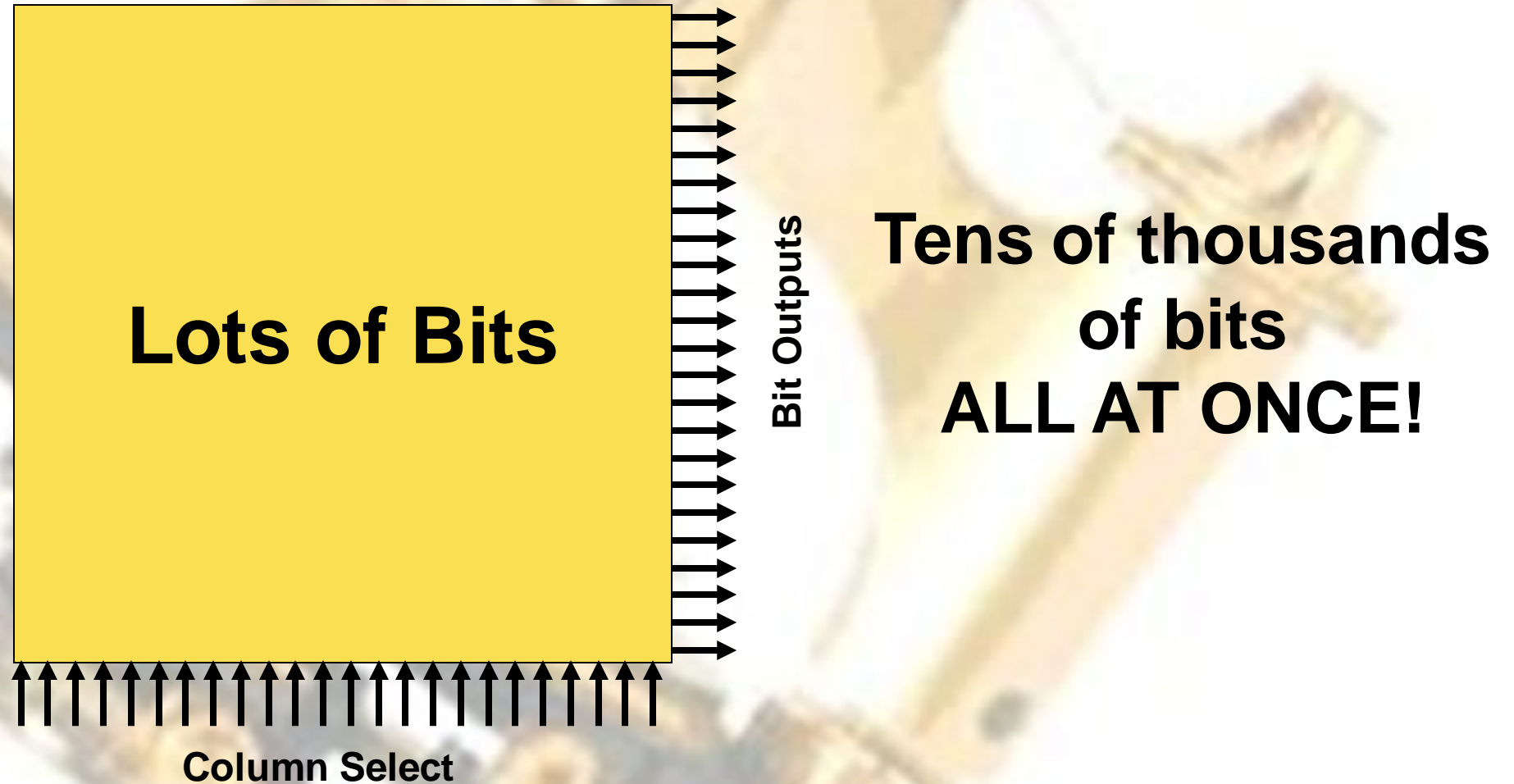
Jim Handy

OBJECTIVE ANALYSIS

Monolithic PIM

- Memory chips have huge internal bandwidth
 - Data paths are thousands of bits wide
- Memory chip logic is slow, but faster than I/O
- Basic functions can be done in the memory
 - Move data, sort, reorder, compress, index, etc.
- S/W support involves simplifying the code
- Enormous potential market

Memory Layout



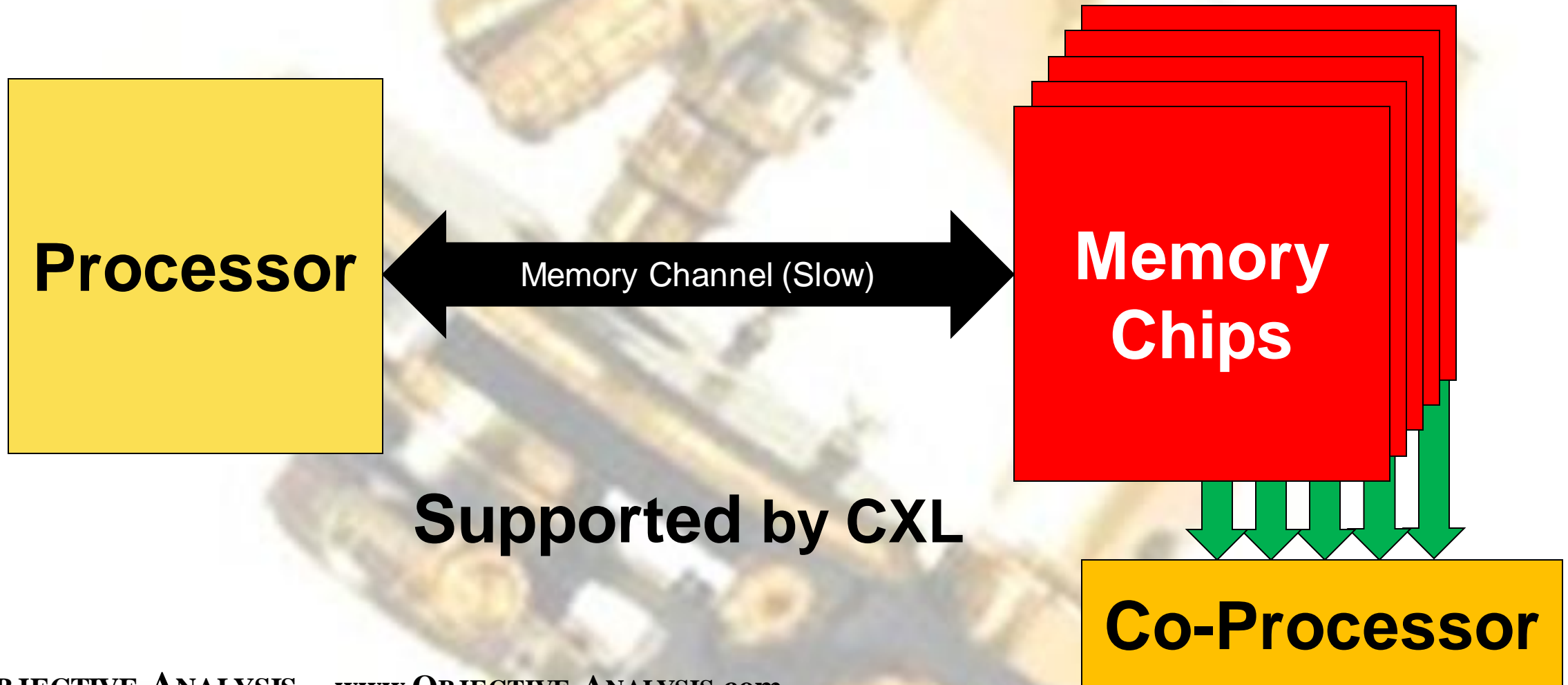
Today's Contenders

- Several contenders already exist:
 - Automata Processor: In production
 - Samsung Aquabolt XL: Prototyped
 - DIMM version also exists
 - UPmem: Sampled
 - MoSys Point Product Accelerator: In production
 - Various Research Projects

The Problems

- Not supported by any ecosystem
- Runs in low volume
- Sold as memory, rather than as a processor
- On the outside, looking in

A System-Level Alternative



Thank You!

Jim Handy

OBJECTIVE
ANALYSIS

