CXL Is Exciting, But Where is It Headed?

Jim Handy

Objective Analysis

FMS the Future of Memory and Storage

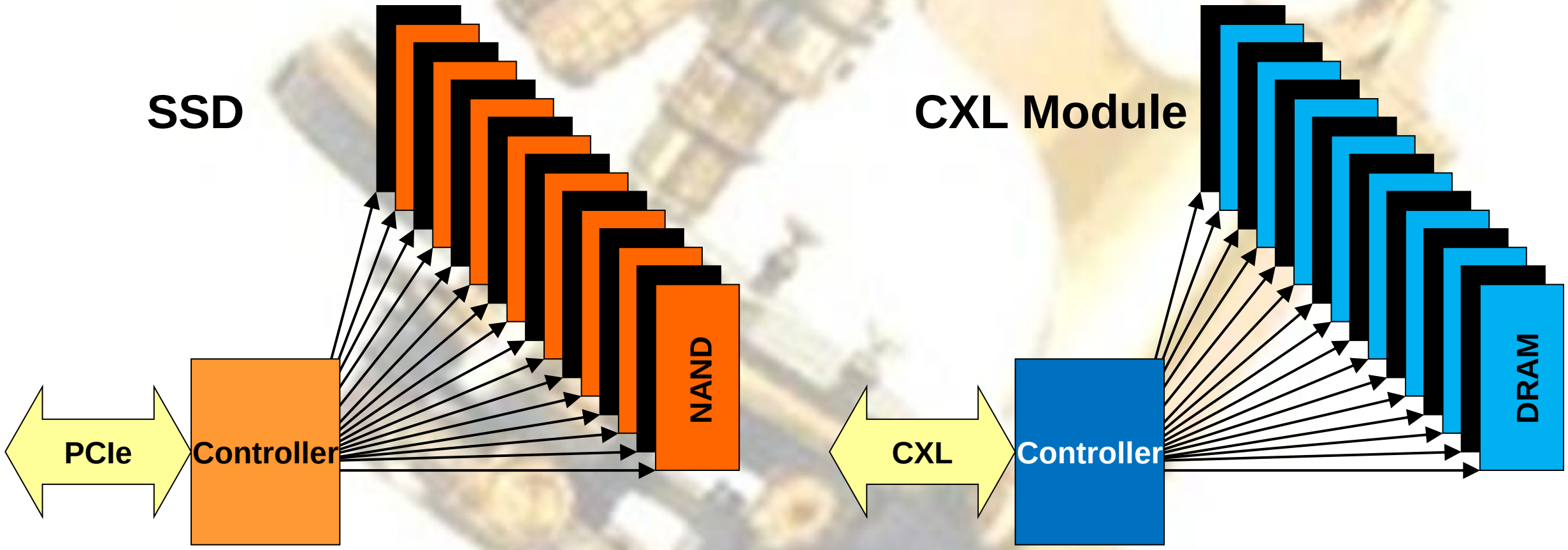
What is CXL Really For?

- Maintaining coherency?
- Eliminating stranded memory?
- Expanding memory size?
- Increasing memory bandwidth?
- Supporting persistent memory?
- Hiding DDR4/DDR5/DDR6 differences?
- Passing messages between xPUs?

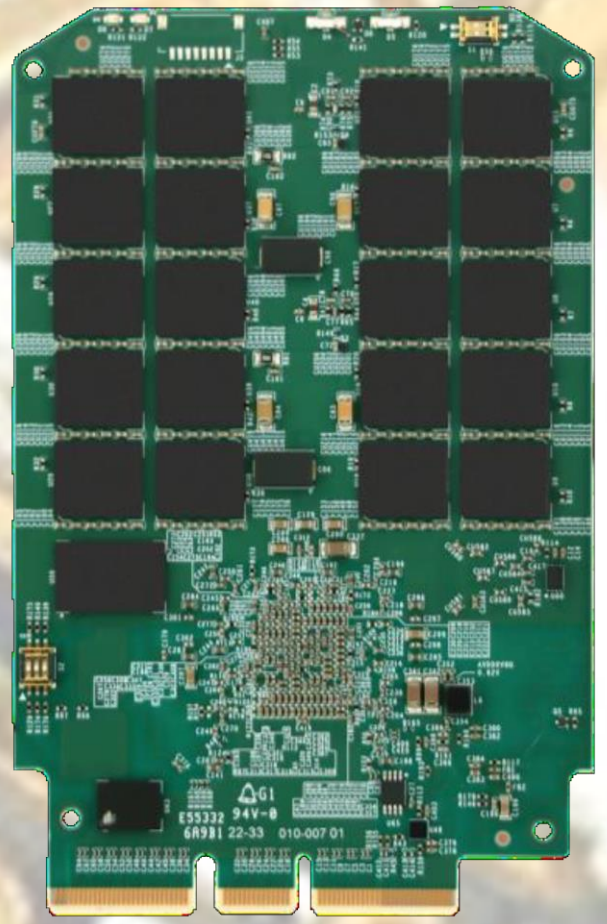
CXL Technology Basics

- Memory-speed access over PCIe physical layer
- Supports new architectures:
  - Disaggregated memory
  - Pooled memory
  - Switches for memory fabrics
  - Shared memory
  - Persistent memory

CXL DRAM vs. SSD



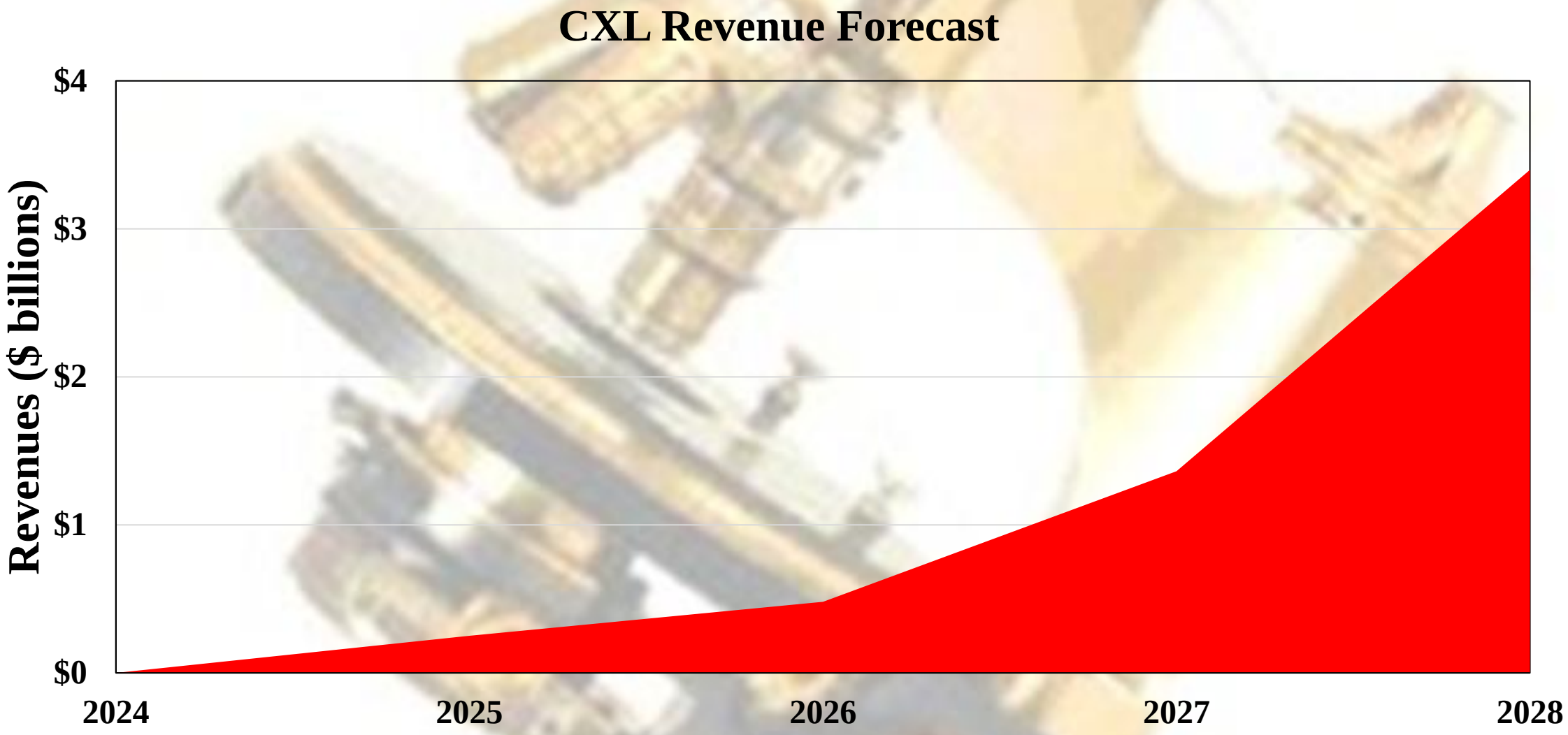
CXL DRAM vs. SSD



User Wants & Needs

- Google: Stranded memory is not important
- IBM/Georgia Tech: DDR is a poor answer
- AI Providers: We need enormous memories
  - Also fast loads of GPU HBM
- Hyperscalers: “Any-to-Any” xPU connections
- PC OEMs: CXL is not immediately useful

CXL Forecast



Long-Term Impact

- Re-thinking system architecture
  - Disaggregated memory
  - Processor arrays with mesh networks
  - Memory agnostic
- Better memory B/W & size vs. worse latency
  - Design-arounds will optimize for this

CXL Looks for the Perfect Home

New report from Objective Analysis

- Covers all perspectives
  - Where CXL is useful, and where it isn't
  - Demand drivers for CXL DRAM modules
  - Opportunities outside of DRAM
  - Forecast (Revenues, units, ASP)
- Available for immediate download:

Objective-Analysis.com/reports

Thank You!

Jim Handy

OBJECTIVE ANALYSIS