

# What is the System-level Integration Era?

- Single-chip CPU Era: 1986 – 2004
  - Extreme focus on single-threaded performance optimizations
  - Multi-issue, out-of-order execution core plus moderate cache hierarchy
- Chip Multiprocessor (CMP) Era: 2004 – 2010
  - Early: Hasty integration of multiple cores into same chip/package
  - Mid-life: Address some of the HW scalability and interference issues
  - Current: Homogeneous CPUs plus moderate system-level functionality
- System-level Integration Era: ~2010 onward
  - Integration of substantial system-level functionality
  - Heterogeneous processors and accelerators
  - Introspective control systems for managing on-chip resources & events

