

Computer Architectures with Intel Chipsets

Training

Let MindShare Bring “Computer Architectures with Intel Chipsets” to Life for You

Modern computers are made up of several sophisticated parts, but the basic operation is the same today as it has been for decades. The processor is the heart of the machine, but the chipset connects it to the other subsystems within the computer. Those include system memory, graphics, and peripheral devices residing on interconnects such as PCIe, USB, SATA, LPC, and others. In addition, system-related topics such as interrupts, power management, thermal management, and other platform management topics are covered. The course is further supplemented with examples of current Intel chipsets. In short, this course guides students to a clear understanding of modern computer architecture, and prepares them for in-depth study of x86 hardware and software topics.

You Will Learn:

- The parts that make up a modern computer and how they work together
- The role of the CPU, system memory, and peripheral devices
- The tradeoffs between UMA and NUMA memory architectures
- Basics of a modern processor’s micro-architecture
- How a variety of interconnect buses work, such as PCI Express, USB, and SATA
- The communication process between the CPU, memory, and peripheral devices

Course Length: 3 Days

Who Should Attend?

This course is hardware oriented, but is suitable for both hardware and software engineers. The course is ideal for RTL-, chip-, system- or system board-level design engineers who need a broad understanding of computer architecture. Because the course contains practical examples of transactions on the various bus interfaces, the course is also suitable for chip-level and board-level validation engineers. Software engineers will learn how to access configuration space and what visibility and control is provided for devices.

Course Outline:

- Overview of system elements
 - Background and history
 - Types of platforms, from low-end to high-end
- Processor Overview
 - Micro-architecture
 - Modes of Operation
 - Address Spaces
 - System interfaces, including QPI and FSB
 - UMA vs. NUMA
 - DRAM Overview
 - Cache Architectures
 - Interrupts – history and current model
 - Reset, Initialization, and System Configuration
- Overview of IO Buses
 - PCI, PCI-X, PCIe, USB, PATA and SATA, SMBus, LPC, SPI
- Platform Management
 - Power Mgt.
 - Thermal Mgt.
 - Other Mgt. Topics



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Recommended Prerequisites:

A basic understanding of digital design and college-level computer architecture concepts is recommended.

Course Material:

MindShare will supply an electronic copy of the presentation slides.



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