

## Overview Intel 64 and IA-32 Architecture

### Training

#### Let MindShare Bring Intel 64 and IA-32 to Life for You

Intel 64 is a 64-bit superset of the x86 instruction set architecture. This architecture was originally referred to as EM64T. Because the Intel 64 instruction set is a superset of the IA32 (x86) instruction set, all instructions in the x86 instruction set can be executed by CPUs that implement Intel 64; therefore those CPUs can natively run programs that run on x86 processors from Intel, AMD and other vendors. AMD also supports this architecture and refers to it as AMD64 (formerly known as x86-64). This leads to the common use of the names x86-64 or x64 as more vendor-neutral terms to collectively refer to the two nearly identical implementations.

Intel 64 and x86-64 should not be confused with the Intel Itanium architecture, also known as IA-64, which is not compatible on the native instruction set level with the x86 or x86-64 architecture.

#### You Will Learn:

- What the expected behavior of instructions are based on the current operating mode and enabled features
- What the differences are between Intel 64 and AMD64
- How Intel VT (Intel's virtualization technology) alters the behavior of Intel 64 to boost the performance of virtualization solutions

**Course Length:** 1 Day

#### Course Outline:

- Operating Modes
- Register Set
- Overview of Real Mode
- Overview of Protected Mode (Segmentation)
- Overview of Task Management
- Overview of Interrupts and Exceptions
- Overview of Paging Mechanisms
- Overview of Virtualization Technology (Intel-VT)

**Recommended Prerequisites:** None

#### Course Material:

MindShare's *The Unabridged Pentium 4, IA32 Processor Genealogy* textbook (1st Edition).

Author: Tom Shanley

Publisher: Addison Wesley

Available through the MindShare Store and major bookstore outlets.

Students will be provided with an electronic version of the slides used in class.



## world-class technical training

Are your company's technical training needs being addressed in the most effective manner?

MindShare has over 25 years experience in conducting technical training on cutting-edge technologies. We understand the challenges companies have when searching for quality, effective training which reduces the students' time away from work and provides cost-effective alternatives. MindShare offers many flexible solutions to meet those needs. Our courses are taught by highly-skilled, enthusiastic, knowledgeable and experienced instructors. We bring life to knowledge through a wide variety of learning methods and delivery options.

### training that fits your needs

MindShare recognizes and addresses your company's technical training issues with:

- Scalable cost training
- Customizable training options
- Reducing time away from work
- Just-in-time training
- Overview and advanced topic courses
- Training delivered effectively globally
- Training in a classroom, at your cubicle or home office
- Concurrently delivered multiple-site training

### MindShare training courses expand your technical skillset

- ☞ PCI Express 2.0®
- ☞ Intel Core 2 Processor Architecture
- ☞ AMD Opteron Processor Architecture
- ☞ Intel 64 and IA-32 Software Architecture
- ☞ Intel PC and Chipset Architecture
- ☞ PC Virtualization
- ☞ USB 2.0
- ☞ Wireless USB
- ☞ Serial ATA (SATA)
- ☞ Serial Attached SCSI (SAS)
- ☞ DDR2/DDR3 DRAM Technology
- ☞ PC BIOS Firmware
- ☞ High-Speed Design
- ☞ Windows Internals and Drivers
- ☞ Linux Fundamentals
- ... and many more.

All courses can be customized to meet your group's needs. Detailed course outlines can be found at [www.mindshare.com](http://www.mindshare.com)

## bringing life to knowledge.

real-world tech training put into practice worldwide



## MindShare Classroom



In-House Training



Public Training

### Classroom Training

Invite MindShare to train you in-house, or sign-up to attend one of our many public classes held throughout the year and around the world. No more boring classes, the 'MindShare Experience' is sure to keep you engaged.

## MindShare Virtual Classroom



Virtual In-House Training



Virtual Public Training

### Virtual Classroom Training

The majority of our courses live over the web in an interactive environment with WebEx and a phone bridge. We deliver training cost-effectively across multiple sites and time zones. Imagine being trained in your cubicle or home office and avoiding the hassle of travel. Contact us to attend one of our public virtual classes.

## MindShare eLearning



Intro eLearning Modules



Comprehensive eLearning Modules

### eLearning Module Training

MindShare is also an eLearning company. Our growing list of interactive eLearning modules include:

- **Intro to Virtualization Technology**
- **Intro to IO Virtualization**
- **Intro to PCI Express 2.0 Updates**
- **PCI Express 2.0**
- **USB 2.0**
- **AMD Opteron Processor Architecture**
- **Virtualization Technology**
- **...and more**

## MindShare Press



Books



eBooks

### MindShare Press

Purchase our books and eBooks or publish your own content through us. MindShare has authored over 25 books and the list is growing. Let us help make your book project a successful one.

## Engage MindShare

Have knowledge that you want to bring to life? MindShare will work with you to "Bring Your Knowledge to Life." Engage us to transform your knowledge and design courses that can be delivered in classroom or virtual classroom settings, create online eLearning modules, or publish a book that you author.

### We are proud to be the preferred training provider at an extensive list of clients that include:

ADAPTEC • AMD • AGILENT TECHNOLOGIES • APPLE • BROADCOM • CADENCE • CRAY • CISCO • DELL • FREESCALE  
 GENERAL DYNAMICS • HP • IBM • KODAK • LSI LOGIC • MOTOROLA • MICROSOFT • NASA • NATIONAL SEMICONDUCTOR  
 NETAPP • NOKIA • NVIDIA • PLX TECHNOLOGY • QLOGIC • SIEMENS • SUN MICROSYSTEMS • SYNOPSYS • TI • UNISYS