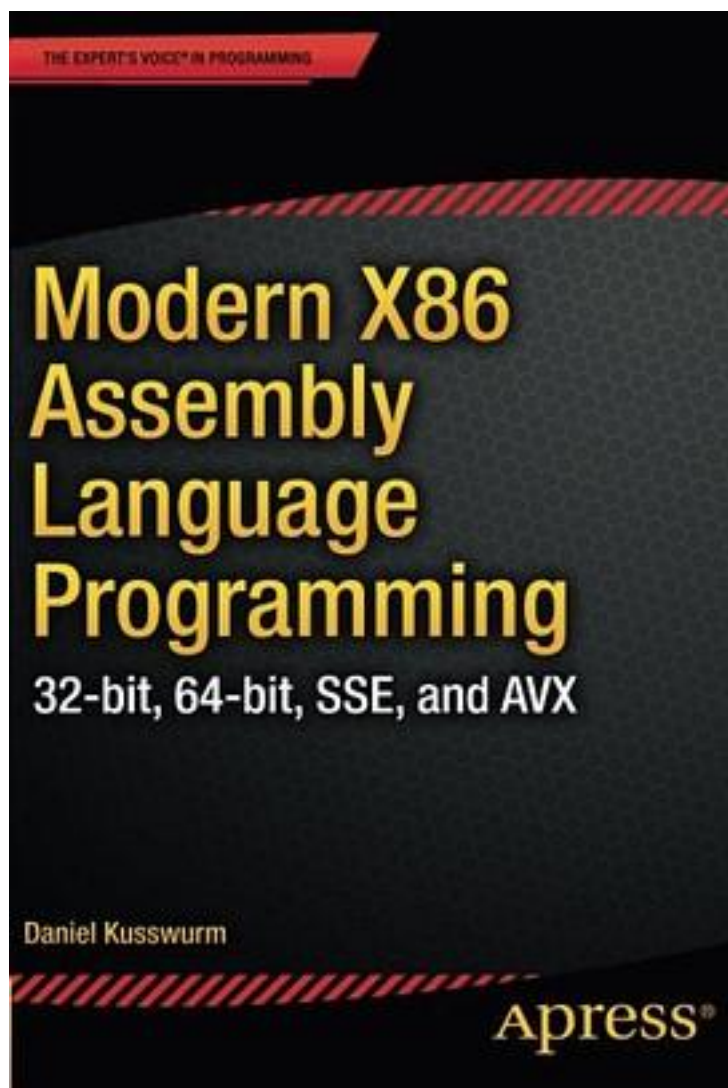


# Modern X86 Assembly Language Programming



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Modern X86 Assembly Language Programming shows the fundamentals of x86 assembly language programming. It focuses on the aspects of the x86 instruction set that are most relevant to application software development. The book's structure and sample code are designed to help the reader quickly understand x86 assembly language programming and the computational capabilities of the x86 platform. Major topics of the book include the following:

32-bit core architecture, data types, internal registers, memory addressing modes, and the basic instruction set

X87 core architecture, register stack, special purpose registers, floating-point encodings, and instruction set

MMX technology and instruction set

Streaming SIMD extensions (SSE) and Advanced Vector Extensions (AVX) including internal registers, packed integer arithmetic, packed and scalar floating-point arithmetic, and associated instruction sets

64-bit core architecture, data types, internal registers, memory addressing modes, and the basic instruction set

64-bit extensions to SSE and AVX technologies

X86 assembly language optimization strategies and techniques

What you'll learn

How to use the x86's 32-bit and 64-bit instruction sets to create performance-enhancing functions that are callable from a high-level language (C++)

How to use x86 assembly language to efficiently manipulate common programming constructs including integers, floating-point values, text strings, arrays, and structures

How to use the SSE and AVX extensions to significantly accelerate the performance of computationally-intensive algorithms and subroutines in problem domains such as image processing, computer graphics, mathematics, and statistics

How to use various coding strategies and techniques to optimally exploit the x86's microarchitecture for maximum possible performance

Who this book is for

The target audience for Modern X86 Assembly Language Programming is software developers including:

Software developers who are creating application programs for Windows-based platforms and want to learn how to write performance-enhancing algorithms and functions using x86 assembly language

Software developers who are creating application programs for non-Windows environments and want to learn x86 assembly language programming

Software developers who have a basic understanding of x86 assembly language

programming and want to learn how to use SSE and AVX

Software developers and computer science students who want or need to gain a better understanding of the x86 platform including its internal architecture and instruction sets

The primary audience for the book is Windows software developers since the sample code will be created using Visual C++ and Microsoft Macro Assembler. Developers targeting non- Windows platforms, however, also can learn from the book since most of the content will be organized and communicated independent of any specific operating system. In order to understand the book's subject material, a background that includes some programming experience using C or C++ will be helpful. Experience with or knowledge of a particular Windows API will not be a prerequisite to benefit from the book.

作者介绍:

丹尼尔·卡斯沃姆 (Daniel Kusswurm) 在软件开发和计算机科学领域拥有超过30年的专业经验。在几十年的职业生涯中，他曾为各种医疗设备、科学仪器和图像处理应用编写了大量创新性的代码。在这些项目中，他有很多使用x86汇编语言的成功经验，有些是显著提高计算密集型算法的性能，有些是巧妙解决技术难题。丹尼尔拥有北伊利诺伊大学电子工程技术硕士学位和德保罗大学计算机科学博士学位。

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## 标签

计算机

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## 评论

简单介绍x86汇编语言，重点是各类SIMD指令集

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## 书评

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