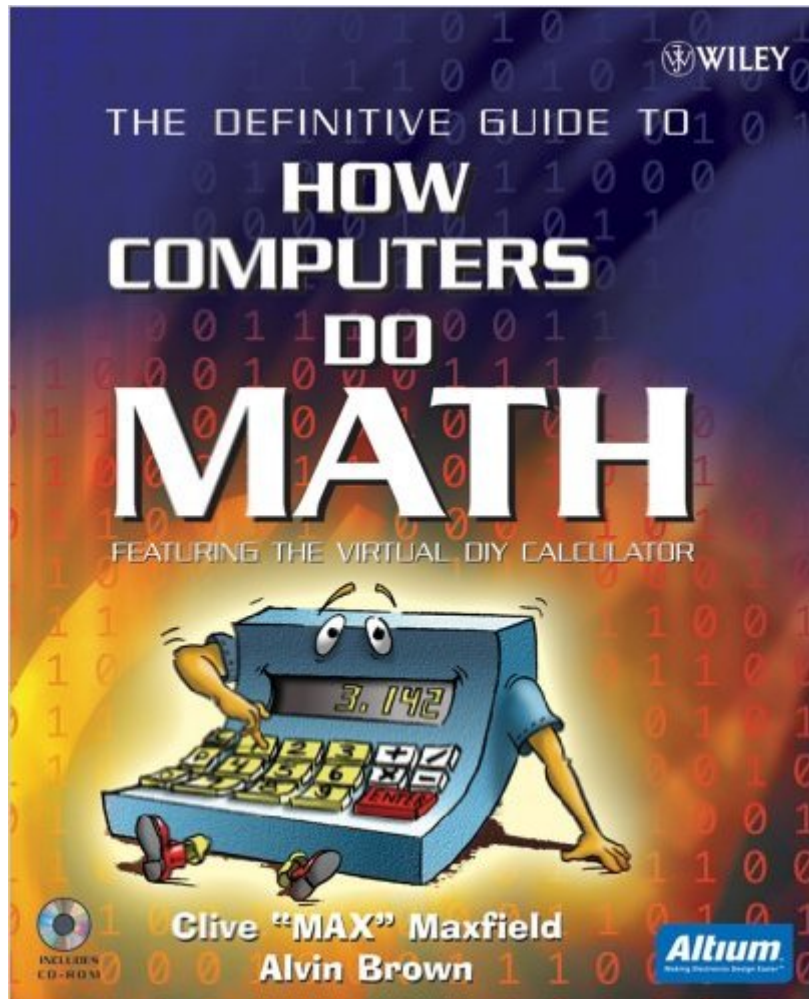# The Definitive Guide To How Computers Do Math : Featuring The Virtual DIY Calculator

Synopsis

The Basics of Computer Arithmetic Made Enjoyable and Accessible-with a Special Program Included for Hands-on Learning "The combination of this book and its associated virtual computer is fantastic! Experience over the last fifty years has shown me that there's only one way to truly understand how computers work; and that is to learn one computer and its instruction set-no matter how simple or primitive-from the ground up. Once you fully comprehend how that simple computer functions, you can easily extrapolate to more complex machines." -Fred Hudson, retired engineer/scientist "This book-along with the virtual DIY Calculator-is an incredibly useful teaching and learning tool. The interesting trivia nuggets keep you turning the pages to see what's next. Students will have so much fun reading the text and performing the labs that they won't even realize they are learning." -Michael Haghighi, Chairperson of the Business and Computer Information Systems Division, Calhoun Community College, Alabama "At last, a book that presents an innovative approach to the teaching of computer architecture. Written with authority and verve, witty, superbly illustrated, and enhanced with many laboratory exercises, this book is a must for students and teachers alike." -Dr. Albert Koelmans, Lecturer in Computer Engineering, University of Newcastle upon Tyne, UK, and the 2003 recipient of the EASIT-Eng. Gold Award for Innovative Teaching in Computer Engineering Packed with nuggets of information and tidbits of trivia, How Computers Do Math provides an incredibly fun and interesting introduction to the way in which computers perform their magic in general and math in particular. The accompanying CD-ROM contains a virtual computer/calculator called the DIY Calculator, and the book's step-by-step interactive laboratories guide you in the creation of a simple program to run on your DIY Calculator. How Computers Do Math can be enjoyed by non-technical individuals; students of computer science, electronics engineering, and mathematics; and even practicing engineers. All of the illustrations and interactive laboratories featured in the book are provided on the CD-ROM for use by high school, college, and university educators as lecture notes and handouts. For online resources and more information please visit the author's website at www.DIYCalculator.com. Â

Book Information

Product Dimensions: 7.6 x 1 x 9.3 inches

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Customer Reviews

The book is aimed at people starting out in computers; we experts know this stuff cold. But an interested 15 year old could get truly in-depth insight into the mysteries of computing from this volume.It's a very readable book laid out with easy-on-the-eyes formatting and a plethora of clear illustrations. The illustration of a LIFO stack just booms clarity. Chapters start with relevant and often amusing quotes; one of my favorites is Lewis Carroll's "The four branches of arithmetic: ambition, distraction, uglification, and derision."Quickly page through the book and you'll be puzzled by its organization. The first 55 pages (out of 450) comprise its ostensible meat. The rest are labs for each chapter, a series of problems the authors pose to illustrate important concepts. They nudge you through the solutions - there are no proofs left to the confused student.The labs are very well-written accessible activities in which the authors take the reader along hand-in-hand. They're a bit insidious: work through them and the reader will become a reasonably competent assembly-language programmer, without realizing he's learning one of the more difficult aspects of programming. There's a perverse genius in covertly slipping assembly language into one's head without pain.The authors' sure hands guide one along each lab, with descriptions and demonstrations till the code that's required is almost anticlimactic: "of *course* it must be like this!"But how is one to do a lab? You need a computer, right? Well, sure, but the authors provide a DIY Calculator on CD, an interactive and sophisticated bit of code that runs on a PC. It sports the usual display and math functions, plus its own low-level programming language. And, it's extensible.

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