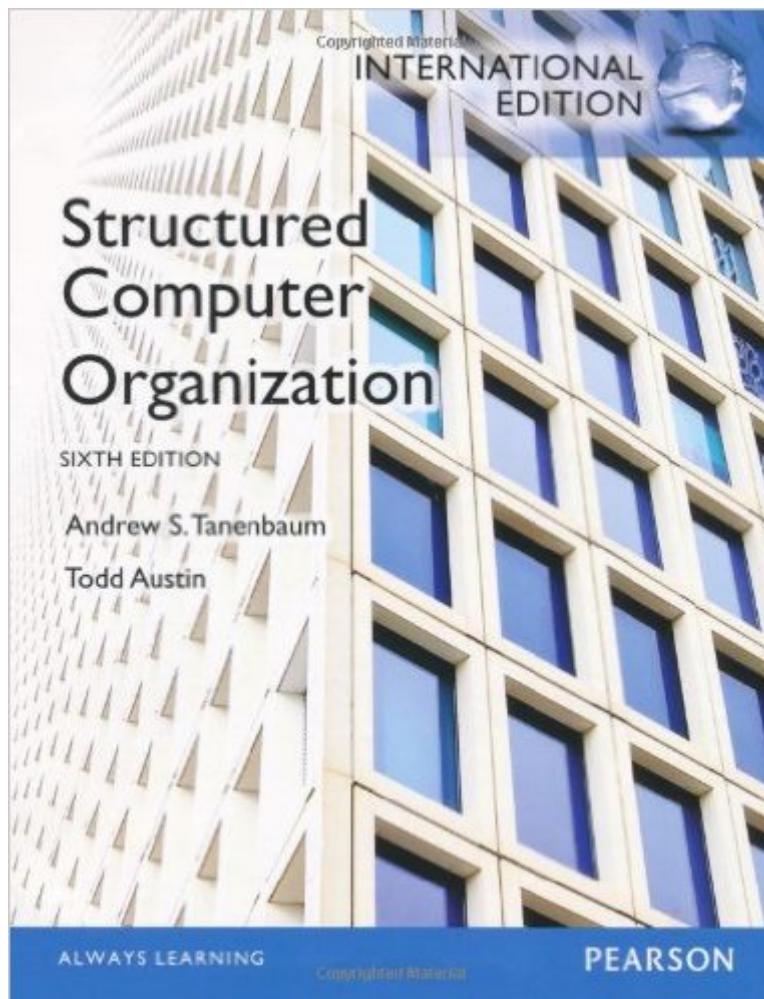


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# Structured Computer Organization.



## **Synopsis**

Structured Computer Organization, specifically written for undergraduate students, is a best-selling guide that provides an accessible introduction to computer hardware and architecture. This text will also serve as a useful resource for all computer professionals and engineers who need an overview or introduction to computer architecture. This book takes a modern structured, layered approach to understanding computer systems. It's highly accessible - and it's been thoroughly updated to reflect today's most critical new technologies and the latest developments in computer organization and architecture. Tanenbaum's renowned writing style and painstaking research make this one of the most accessible and accurate books available, maintaining the author's popular method of presenting a computer as a series of layers, each one built upon the ones below it, and understandable as a separate entity.

## **Book Information**

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## **Customer Reviews**

From the perspective of a student, this is a lousy book. 1. Important details are left out from extremely tedious explanations, forcing you into a state of confusion while wasting your time in the process. 2. Incredibly lengthy chapters should be shortened and grouped into more manageable units. 3. Illustrations are hard to follow, lacking vital side notes to explain what is going on. 4. Chapter material leaves students vastly unprepared for the end of chapter questions. 5. Much effort must be exerted to understand the material when better illustrations could have been used instead. 6. The book was written with dated software. 7. Lacks any helpful examples to enrich the student's understanding of the content. 8. Wastes student's time just trying to organize all of the explanations into coherent thoughts. 9. Concise explanations sacrifice clarity. Authors need to remember the

intended audience of their publications. Poorly organized information that forces readers to remember thousands of low level details while instantly skipping to new concepts is effectively worthless since the author is the only one that will know what is going on.

I have been teaching a computer organization and architecture course for the past 10 years. I have tried several textbooks and I have read many more. I would say this the best one. I like Tanenbaum's way of explaining things and I am using his Modern OS textbook for my OS course too. In my class I cover the first 5 chapters. All are easy except Chap. 4 which is not easy at all. In Chap. 4, Tanenbaum explains how to build a processor for a subset of the Java Virtual Machine. You need to read the chapter several times to digest it. But once you understood, you would understand how computers work. Some readers do not like Tanenbaum's style since he embed the examples within the text and his end of chapter's problems are typically difficult to solve. However, I find that this author provides me with a deeper insight for the subject. I have noticed some typos in Chap. 4 that may confuse the readers. So, I will share it with you here since there is no errata list for the book:

1. The microcode for WIDE in Mic-1 is wrong (Fig. 4-17). It should be: wide1 PC = PC + 1; fetch; goto(MBR OR 0x100)
2. In Sec. 4.3, while discussing WIDE\_ILOAD, it is mentioned that addition is used for concatenation while ORing is used for concatenation.
3. Fig. 4-24 is wrong. the  $\text{a} \circ \text{goto}(\text{MBR}) \text{a} \bullet$  in pop3 will dispatch to the byte following the opcode not the operand.
4. Fig. 4-26 is wrong. MBRU in iload1 does not contain the operand following the ILOAD opcode yet. It can be used only in iload2.
5. In Sec. 4.4, It states that  $\text{a} \circ$ At the beginning of each instruction, MBR contains the address of the opcode for that instruction $\text{a} \bullet$ . This is not possible. MBR contains either opcodes or operands (never addresses). The address of the opcode is stored in PC.
6. In Mic-2 microprogram, nop1 should be: nop1 goto(MBR1)
7. In Fig. 4-27,  $\text{a} \circ$ B bus" should be replaced with "A bus $\text{a} \bullet$ .

I wonder how the average rating of this book went from 4 stars on previous versions to 1 star? I have only seen this version, and it is a perfect example of how NOT to write a textbook. There are virtually no examples like anything that is asked in the question section. It is long on making a simple explanation into something that is incomprehensibly convoluted and short on showing examples and how to solve problems.

It's a good book for the people who are familiar with computers but not the experts in the field. I'd say the book is quite good for the programmers who want to understand better what is going on

under the hood. The book is by no means for the computer architecture experts. Since the book is an overview of the computer architecture it omits many fine details about it.

I am a software developer (C/C++) and was looking a book about hardware internals i.e. how my computer works (CPU, branch prediction, cache lines, memory etc etc).Initially I bough Patterson&Hennessy but it was almost useless for me - it was hard to read, messy organization, no explanation for basics things.Then I bought this book, and WOW it was a great pleasure for me to read it. It was easy to read - I finished the book in ~4 weeks (reading it at evenings before going to sleep). Tanenbaum uses 'simplified English' - it is a great help for me as English is not my native language. The book starts from basic things known to most software engineers and goes deeper and deeper into details. Actually I went ahead and bought another his great book - 'Networks'.Some people are complaining about poor exercises - I cannot really evaluate it. I do not care about exercises, I mostly skipped it as I was interested in the theoretical part.

This book has the habit of using a term for many pages before it defines the term. For example, it uses TOS for 6 pages before it is defined. TOS means top of stack, which isn't that hard of a concept.

Extremely frustrating book. Picked this one because of numerous admirable reviews all over internet and because I've read Modern OS book of the same author, and liked the last.Explanation is not contiguos, facts seem to appear from nowhere. First 1/3 of the book was ok (it describes topics I allready know), but starting from 4th chapter (IJVM, MIC) the author describes some examples but doesn't bother to explain. It's like some one shows You electronic circuit scheme but You have never heard about transistor. It would be much more usefull to explain general concepts first... for example, drawing IJVM structure containing numerous registers, it would be great to make a hint why do we need this number of registers, not less or more. I struggled the book for a long time with a feeling that i'm too stubid for THE BOOK (i hate to move on reading next section before I'm sure I understood previous one) before throw it away... Later took Hennessy and Patterson "Computer Organization and Design". After failure with Tannenbaum, it seemed brilliant. This is how CS literature shoud be written!

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