

《逻辑与计算机设计基础》

图书基本信息

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《逻辑与计算机设计基础》

前言

The objective of this text is to serve as a cornerstone for the learning of logic design , digital system design , and computer design by a broad audience of readers . This fourth edition marks the decade point in the evolution of the text contents Beginning asanadaptationofapreviousbookbythefirstauthorin1997 . it continues to offer a unique combination of logic design and computer design principles with a strong hardware emphasis Over the years,the text has followed industry trends by adding new material such as hardware description language , removing or de-emphasizing material of declining importance , and revising material to track changes in computer technology and computer-aided design . In the fourth edition . revisions address pedagogical considerations as well as industrial trends . Sixty"real world"examples and problems,most drawn from design problems for products encountered in contemporary day-to . day life . Motivate interest and provide practice in solution formulation . Changes in chapter organization permit instructors to more easily tailor the degree of technology coverage , accommodating both electrical and computer engineering and computer science audiences.

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内容概要

本书从当代工程观点讲述了逻辑与计算机设计方面的内容，自出版以来已被全球超过25万人使用。本书以清晰的解释和逐步延伸的实例来帮助读者理解内容，实例涵盖了从简单的组合应用到建立在RISC内核基础上的CISC结构，更加重视培养读者在计算机辅助设计、问题形式化、解决方案验证和问题解决技巧方面的能力。

本书有丰富的教辅资源，包括部分习题答案、PPT、VHDL和Verilog代码以及补充阅读材料等，读者可登录华章网站（www.hzbook.com）下载。

本版更新内容：

1. 新增60个实例和习题。
2. 新增和修改了40%的习题。
3. 重新调整和组织了内容以适应不同的课程大纲。

技术内容的更新包括：

1. 简要介绍嵌入式系统。
2. 使用Espresso对实用的计算机辅助逻辑优化方法进行说明。
3. 简要介绍MOS晶体管和CMOS电路。
4. 补充了异步交互、同步和亚稳态相关知识。
5. 一种新的控制单元和寄存器传输控制设计的图形表示。
6. 更新了CRT显示和液晶屏显示的例子。
7. 包括多核处理器的新型体系结构。

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作者:(美)Mano

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章节摘录

插图：You might ask：“How many embedded systems are there in my current living environment?” Do you have a cell phone?An iPod™?An Xbox™?A digital camera?A microwave oven?An automobile?All of these are embedded systems!In fact，a late-model automobile can contain more than 50 microcontrollers,each controlling a distinct embedded system，such as the engine control unit(ECU)，automatic braking system (ABS)，and stability control unit(SCU)。Further，a significant proportion of these embedded systems communicate with each other through a CAN(controller area network)。A new automotive network called FlexRay promises to provide high-speed，reliable communication for safety-critical tasks such as braking-by-wire and steering-by-wire，eliminating primary dependence on mechanical and hydraulic linkages and enhancing the potential for additional safety features such as collision avoidance。Table 1-1 lists examples of embedded systems classified by application area。

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编辑推荐

《逻辑与计算机设计基础(英文版·第4版)》简要介绍嵌入式系统，使用Espresso对实用的计算机辅助逻辑优化方法进行说明。简要介绍MOS晶体管和CMOS电路，补充了异步交互、同步和亚稳态相关知识。一种新的控制单元和寄存器传输控制设计的图形表示。更新了CRT显示和液晶屏显示的例子，包括多核处理器的新型体系结构。《逻辑与计算机设计基础(英文版·第4版)》新增60个实例和习题，重新调整和组织了内容以适应不同的课程大纲。本版更新内容·新增60个实例和习题。·新增和修改了40%的习题。·重新调整和组织了内容以适应不同的课程大纲。·技术内容的更新包括：简要介绍嵌入式系统。使用Espresso对实用的计算机辅助逻辑优化方法进行说明。简要介绍MOS晶体管和CMOS电路。补充了异步交互、同步和亚稳态相关知识。一种新的控制单元和寄存器传输控制设计的图形表示。更新了CRT显示和液晶屏显示的例子。包括多核处理器的新型体系结构。

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精彩短评

- 1、好书一本，可能不是一本好的工具书，但是其中有很多涉及到 engineering 的关于 cost 的实际问题，还有从 gate 到 computer 的 hierarchical design 令我印象深刻
- 2、This book makes me angry. A good introductory book explains concepts carefully, step-by-step, and will explain them a second or third time while rewording them. This book presents an idea once and does so in such a poor matter that the reader is left with the burden of hunting down explanations to fill the gaps. If you, like me, are forced to use this book in a class, get ready to spend more money on additional books. One reviewer who gave this 5 stars called it digital poetry. I recognize why he did so, and to one who already understands these concepts, it probably qualifies. But then, if they already understand, why would they need this book? And if they don't understand, writing in such a compact form won't help them to do so -- A beginning student of English doesn't read poetry; they read primers. One might wish to prime their firewood with this text. [阅读更多](#)
- 3、读完前九章。求满绩...
- 4、这本书是儿子要的，是儿子课程里的一本书。
- 5、没什么意思
- 6、刚到手的时候，看起来很旧，我以为是压仓货，旧点也就算了，至少是新书。但是第二天随手翻的时候，发现竟然有少量的黑色水笔划写过的痕迹。二手书！这让我很愤怒。让我对亚马逊很失望。来大商场买东西也要小心被坑啊。

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3-4 答案是什么呢？

我猜测： $w(x_1, x_2, \dots, x_9) = x_1x_2x_3 + x_1x_5x_9 + x_1x_4x_7 + x_4x_5x_6 + x_7x_8x_9 + x_2x_5x_8 + x_3x_6x_9 + x_3x_5x_7$ ？

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3-10b 采用don't care的解法3-10a 不用don't care的解法

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2-32. * Prove that the dual of the exclusive-OR is also its complement.

在这里Dual 是什么意思？

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prime 和essential 的 implicant 如何分别呢? 看半天书, 对照练习和答案(2-19), 也没太明白. 网络上一个解释, 好像明白一点点:

A product term of a function is said to be an implicant.

A Prime Implicant (PI) is a product term obtained by combining the maximum possible number of adjacent 1-squares in the map.

If a minterm is covered only by one prime implicant then this prime implicant is said

to be an Essential Prime Implicant (EPI).

来自: http://www.ccse.kfupm.edu.sa/~amin/eCOE200_Lessons.htm

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习题 3-11 解法

习题 3-11 解法一更正 $RL=PS.PS'.LS' + PS'.RS.RR'$

习题 3-11 解法二调换了LS.PS, LL.PL的位置。解法不同, 答案一样。

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3-13b的解法更简单

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题目 2-10 解法

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看到第三章了，mark。

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16-1920-2328-3116-19 dec to hex

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题目 3-10 解法

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2-12 题

$(a + bc' + cd)(b' + ef)$ 的 s.o.p

答案是:

$= (a + b + c)(a + b + d)(a + c' + d)(b' + ef)$ <--这一步是如何推导过来的啊??

=.....

41、《逻辑与计算机设计基础》的笔记-第134页

对 vector of 4 不解。

对 4-to-1-line Quad MUX 也不解。

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