

ART OF EMBEDDED SYSTEM DESIGN

Bobby

2018 年 2 月 9 日

In these book, I will summerize all I know about the embedded system, and give some practical electronic designs what I have done in my career. Also, I want to improve the ability of using \LaTeX by myself. This book is in the public domain. All the copyrights are under GPL 2.0. Thanks all for your attentions! All the materials are from books, internet, etc. I will list as much references as possible, but I am not sure that I can list all. For any improper or defects, your suggurestions are warmly welcomed.

Best Regards!

目录

第一部分	Physics	1
第一章	Solid state physics	3
第二章	Semiconductor physics	5
第二部分	Circuit basics	7
第三章	Circuit	9
第三部分	Analog circuit	11
第四部分	Analog VLSI design	13
第四章	Current source	15
第五章	Current mirror	17
第六章	Differential amplifier pair	19
第七章	OP AMP design	21
第五部分	Digital circuit	23
第八章	Finite state machine	25

第六部分	Analog digital converter	27
------	--------------------------	----

第七部分	Verilog HDL	29
------	-------------	----

第八部分	Digital VLSI	31
------	--------------	----

第九章	CPU design	33
-----	------------	----

目录	v
第九部分 PCB design	35
第十部分 PCB SI&PI	37
第十一部分 C and C++ programming	39
第十二部分 Data structure and algorithms	41
第十三部分 Computer orgnization	43
第十四部分 Computer architecture	45
第十五部分 Operating system	47
第十六部分 Linux administration	49
第十七部分 Linux kernel	51
第十八部分 Linux driver development	53
第十九部分 Linux system porting	55
第十章 Buildroot	57
第二十部分 Computer Network	59
第十一章 TCP/IP protocols	61
第十二章 Socket programming	63

第二十一部分	Signal and system	65
第二十二部分	Ditial signal processing	67
第二十三部分	Digital image processsing	69
第二十四部分	Audio signal processing	71
第二十五部分	Modal analysis	73
第二十六部分	Project Development	75
第二十七部分	Appendix	77
第十三章	Basic mathimatics	79
13.1	Formulas	79
第二十八部分	References	81
第十四章	References	83
section section	引理 推论	

第一部分

Physics

第一章 Solid state physics

In this chapter, will discuss the solid state physics, mainly about the basic fundamentals.

$$a + b + c = b + c + a$$

第二章 Semiconductor physics

表 2.1: 国家

中国	美国	英国	日本	加拿大
11	1	12	4	6

Table2.1 indicate that

The universe is immense and it seems to be homogeneous, in a large scale, everywhere we look at.

furnished his toy with a romantic legend about a much larger "Tower of Brahma", which supposedly has 64 disks of pure gold Gold —wow.

Are our disks made of concrete? resting on three diamond needles. At the beginning of time, he said, "God" placed these golden disks on the first needle and ordained that a group of priests should transfer them to the third, according to the rules above. The priests reportedly work day and night at their task. When they finish, the Tower will crumble and the world will end.

resting on three diamond needles. At the beginning of time, he said, "God" placed these golden disks on the first needle and ordained that a group of priests should transfer them to the third, according to the rules above. The priests reportedly work day and night at their task. When they finish, the Tower will crumble and the world will end.

Table2.1 is stupid and in the coming

This is my key2. This is my second palace that has a key.

bibliography

greenwade93 [1]

greenwade93 [2]

carbon nanotube [3]

carbon [4]

transistors [5]

第二部分

Circuit basics

第三章 Circuit

A balanced circuit is circuitry for use with a balanced line or the balanced line itself. Balanced lines are a common method of transmitting many types of electrical communication signals between two points on two wires. In a balanced line the two signal lines are of a matched impedance to help ensure that interference induced in the line is common-mode and can be removed at the receiving end by circuitry with good common-mode rejection. To maintain the balance, circuit blocks which interface to the line, or are connected in the line, must also be balanced

第三部分

Analog circuit

第四部分

Analog VLSI design

第四章 Current source

$$\frac{d}{dx}(\int_0^x f(u) du) = f(x)$$



图 4.1:

第五章 Current mirror

第六章 Differential amplifier pair

第七章 OP AMP design

第五部分

Digital circuit

第八章 Finite state machine

第六部分

Analog digital converter

第七部分

Verilog HDL

第八部分

Digital VLSI

第九章 CPU design

第九部分

PCB design

第十部分

PCB SI&PI

第十一部分

C and C++ programming

第十二部分

Data structure and algorithms

第十三部分

Computer organization

第十四部分

Computer architecture

第十五部分

Operating system

第十六部分

Linux administration

第十七部分

Linux kernel

第十八部分

Linux driver development

第十九部分

Linux system porting

第十章 Buildroot

第二十部分

Computer Network

第十一章 TCP/IP protocols

第十二章 Socket programming

第二十一部分

Signal and system

第二十二部分

Ditial signal processing

第二十三部分

Digital image processing

第二十四部分

Audio signal processing

第二十五部分

Modal analysis

第二十六部分

Project Development

第二十七部分

Appendix

第十三章 Basic mathematics

13.1 Formulas

$$a + b = b + a$$

appendix test

第二十八部分

References

第十四章 References

`www.baidu.com`
`www.github.com`
`www.google.com`
Bing

This is my key. This is my second palace that has a key.

By default, where appropriate, citations are abbreviated automatically after the first reference when bibliographies are produced by BibT E X. Provision is also made for this feature to be accessed during manual coding

索引

appropriate, 84

common-mode, 9

feature, 84

impedance, 9

key, 84

 palace, 84

key2, 5

palace, 5

参考文献

- [1] G. D. Greenwade, “The Comprehensive Tex Archive Network (CTAN),” TUGBoat, vol. 14, no. 3, pp. 342–351, 1993.
- [2] ba, “cc,” ef.
- [3] D. R. Dreyer, S. Park, C. W. Bielawski, and R. S. Ruoff, “The chemistry of graphene oxide,” Chemical Society Reviews, vol. 39, no. 1, pp. 228–240, 2010.
- [4] A. K. Geim and K. S. Novoselov, “The rise of graphene,” Nature Materials, vol. 6, no. 3, pp. 183–191, 2007.
- [5] K. S. Novoselov, A. K. Geim, S. V. Morozov, D. Jiang, M. I. Katsnelson, I. V. Grigorieva, S. V. Dubonos, and A. A. Firsov, “Two-dimensional gas of massless dirac fermions in graphene,” Nature, vol. 438, no. 7065, pp. 197–200, 2005.