

ART OF EMBEDDED SYSTEM DESIGN

Bobby

February 8, 2018

Part I

PREFACE

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!

Contents

Part II

Physics

Chapter 1

Solid state physics

Chapter 2

Semiconductor physics

Part III

Circuit basics

Part IV

Analog circuit

Chapter 3

Transistor circuit analysis

Chapter 4

Transistor circuit design

Chapter 5

FET circuit analysis

Chapter 6

FET circuit design

Part V

Analog VLSI design

Chapter 7

Current source

Chapter 8

Current mirror

Chapter 9

Differential amplifier pair

Chapter 10

OP AMP design

Part VI

Digital circuit

Chapter 11

Finite state machine

Part VII

Analog digital converter

Part VIII

Verilog HDL

Part IX

Digital VLSI

Chapter 12

CPU design

Part X

PCB design

Part XI

PCB SI&PI

Part XII

C and C++ programming

Part XIII

Data structure and algorithms

Part XIV

Computer organization

Part XV

Computer architecture

Chapter 13

Microcontroller

Chapter 14

Digital signal processor

Chapter 15

ARM processor

Part XVI

Operating system

Part XVII

Linux administration

Part XVIII

Linux kernel

Part XIX

Linux driver development

Part XX

Linux system porting

Chapter 16

Buildroot

Part XXI

Computer Network

Chapter 17

TCP/IP protocols

Chapter 18

Socket programming

Part XXII

Signal and system

Part XXIII

Digital signal processing

Chapter 19

FFT

Chapter 20

FIR

Chapter 21

IIR

Part XXIV

Digital image processing

Part XXV

Audio signal processing

Part XXVI

Modal analysis

Part XXVII

Project Development

Chapter 22

8-channel data acquisition system design

Chapter 23

32-channel data acquisition system design

Chapter 24

64-channel data acquisition system design

Part XXVIII

Appendix

Table 24.1:

11	1	12	4	6

Table?? 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.