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Embedded Systems With ARM Cortex-M3 Microcontrollers In Assembly Language And C



Synopsis

This book introduces basic programming of ARM Cortex chips in assembly language and the fundamentals of embedded system design. It presents data representations, assembly instruction syntax, implementing basic controls of C language at the assembly level, and instruction encoding and decoding. The book also covers many advanced components of embedded systems, such as software and hardware interrupts, general purpose I/O, LCD driver, keypad interaction, real-time clock, stepper motor control, PWM input and output, digital input capture, direct memory access (DMA), digital and analog conversion, and serial communication (USART, I2C, SPI, and USB). The book has the following features:

- Emphasis on structured programming and top-down modular design in assembly language
- Line-by-line translation between C and ARM assembly for most example codes
- Mixture of C and assembly languages, such as a C program calling assembly subroutines, and an assembly program calling C subroutines
- Implementation of context switch between multiple concurrently running tasks according to a round-robin scheduling algorithm

Book Information

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Customer Reviews

I am not sure where does all these 5 stars come from. Maybe they are the author's friends? I have bought hundreds of books online and this is first book I feel obligated to give a one star. I am shocked by the irresponsibility by the author. Typos and mistakes are everywhere. Some times you can find more than ten typos in a page. In some sections every r2 is printed as r6. Some sections every '1' is printed as '2'. (I am not sure if the author is capable of counting from 0 to 9) To give you an example, let's see how the author solves the problem "counting the number of 1-bits in a 32 bit

integer". Savor the masterpiece:// Count the number of ones in x// Result saved in counter
int
main(void) { unsigned int x=0xAAAAAAAA; unsigned int y, z; unsigned int counter = 0; counter = x
>> 31; while(x > 0) { y = x > 31; if (x < y) { counter += z + 1; } else { counter += z; } x = y; } while(1)}
I cannot tell you what's wrong with this program because I have no idea how the author's mind works.
The author uses 2 pages to give you a detailed explanation of how that masterpiece generates a
16. Yes indeed 0xAAAAAAAA does have 16 ones in it. However the award winning piece also tells
you 0xFFFFFFFF has 16 ones in it and 0x22222222 has 16 ones in it. Actually I would rather call
this "program" a "16-generator". So I just want to give you an simple. Don't take it too serious. These
kind of masterpieces is every in the book. I think it may take me 60-150 pages of A4 pages to list
them all.

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