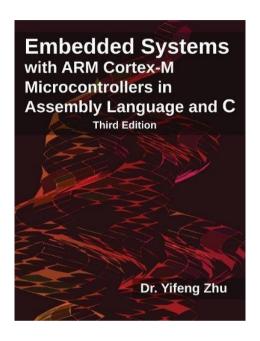
QmNBD [Free PDF File] Embedded Systems with ARM Cortex-M Microcontrollers in Assembly Language and C: Third Edition





Significant changes in the third edition include updated serial communication description (UART, SPI, and I2C), new serial communication examples, incorporation of GNU gcc compiler, low power modes, modification of example programs from STM32L1 (Cortex-M3) to STM32L4 (Cortex-M4). The book introduces basic programming of ARM Cortex-M cores in assembly and C at the register level, and the fundamentals of embedded system design. It presents basic concepts such as data representations (integer, fixed-point, floating-point), assembly instructions, stack, and implementing basic controls and functions of C language at the assembly level. It covers advanced topics such as interrupts, mixing C and assembly, direct memory access (DMA), system timers (SysTick), multi-tasking, SIMD instructions for digital signal processing (DSP), and instruction encoding/decoding. The book also gives detailed examples of interfacing peripherals, such as general purpose I/O (GPIO), LCD driver, keypad interaction, stepper motor control, PWM output, timer input capture, DAC, ADC, real-time clock (RTC), and serial communication (USART, I2C, SPI, and USB).

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