

Errata of
Embedded Systems with ARM Cortex-M Microcontrollers in Assembly Language and C
Second Edition
First Printing (October 2015)
ISBN-10: 0982692633
Yifeng Zhu

Correction Date: May 13, 2016

Thank you all for providing me feedbacks and corrections!

Chapter 1. See a Program Running

- Page 59, “analog-todigital” should be “analog-to-digital”.
- Page 70, “funcation” should be “function”

Chapter 2. Data Representation

- Page 38, last figure, “Barrow” should be “Borrow”.

Chapter 3. ARM Instruction Set Architecture

- Page 52, in the C code of strlen, “while(pStr[i]){ i++ };” should be “while(pStr[i]){ i++; }”
- Page 56, last paragraph, “smart match” should be “smart watch”.
- Page 60, the paragraph under Figure 3-4, “to order to” should be “in order to”
- Page 64, bullet 3, “a register shifted to a constant amount of bits” should read as “a register shifted by a constant amount of bits”

Chapter 4. Arithmetic and Logic

- Page 75, Section 4.1, first paragraph, “overflow (O)” should be “overflow (V)”.
- Page 75, the bottom paragraph, “the process combines them” should be “the processor combines them”
- Page 92, in the middle, “MOV r1, #1, LSL #31” should be “MOV r1, #(1<<31)”.
- Page 92, above the table, “because the result of exclusive-OR is 0” should read as “because the result of AND is 0”.
- Page 85, “These operations runs” should be “These operations run”.

Chapter 5. Load and Store

- Page 109, Question 5, we should add square brackets to register r0.
LDRSB r1, [r0]
LDRSH r1, [r0]
LDRB r1, [r0]
LDRH r1, [r0]

Chapter 6. Branch and Conditional Execution

- Page 111, Section 61. “Table 2-3 lists the conditional flags” should be “Table 6-1 lists the conditional flags”

- Page 116, “their equivalent implement” should be “their equivalent implementation”
- Page 128, in Example 6-17, “r6 is branch index” should be “r2 is branch index”

Chapter 7. Structured Programming

- Page 138, “a program should reuses” should be “a program should reuse”.
- Page 139, Figure 7-5, all three “DCW” should be “DCD”.
- Page 140, Figure 7-6, all “DCW” should be “DCD”.
- Page 152, Add “#” before immediate numbers. “LDRB r4, [r1], -1” should be “LDRB r4, [r1], #-1”

Chapter 8. Subroutines

- Page 162, first paragraph of Section 8.1, “use the branch and link (BL) instruction call a subroutine.” Should be “use the branch and link (BL) instruction **to** call a subroutine”
- Page 171, Example 8-4, “won’t update callee’s n” should be “won’t update caller’s n”.
- Page 174, Example 8-6, “STR r1, [r3, 4]” should be “STR r1, [r3, #4]”.
- Page 185, “BGE exit” should be “BGE exit_i”.

Chapter 9. 64-bit Data Processing

- Page 209, “Table 9-1 illustrates” should read as “Table 9-1 illustrates”
- Page 212, “unsigned_devision_64_bits” should be “unsigned_division_64_bits”.
- Page 205, “must of 0xFFFFFFFF” should be “must be 0xFFFFFFFF”.
- Page 206, Figure 9-3, the most significant bit of the lower word should be “b31”.
- Page 207, Figure 9-4, the most significant bit of the lower word should be “b31”.

Chapter 10. Mixing C and Assembly

- Page 215, “can directly accesses” should be “can directly access”.
- Page 228, “declare a with” should be “declare a function with”
- Page 228, First sentence of Section 10.3.1, “A C program can have inline assembly ~~can~~ by using the “__asm” keyword” should read as “A C program can have inline assembly by using the “__asm” keyword”
- Page 230, Example 10-14, “extern **void** strlen(char *s)” should be “extern **int** strlen(char *s)”

Chapter 11. Interrupt

- Page 251, under Figure 11-9, “processor might a different clocking scheme” should read as “processor might **use** a different clocking scheme”

Chapter 12. Fixed-point and Floating-point Arithmetic

- Page 238, section 11.2, “The processor serves stops” should read as “The processor stops the currently running interrupt handler”.
- Page 255, in Table 11-4, “mamanufacturer” should be “manufacturer”.
- Page 258, “popes” should be “pops”.

- Page 265, “the actual value of 1/3 is 1.333...,” should be “the actual value of 1/3 is 0.333...,”
- Page 266, “uses integer arithmetic” should be “use integer arithmetic”
- Page 268, “implement” should be “implement~~s~~”. “bit digits” should be “binary digits”.
- Page 268, the last item in the equation “ 1×2^{-2} ” should be “ 1×2^{-3} ”
- Page 269, Example 2, “Convent” should be “Convert”.
- Page 269, “round the product” should be “rounding the product”.
- Page 275, in the title of Example 12-3, “Q16.16” should be “UQ16.16”.

Chapter 13. Instruction Encoding and Decoding

- Page 320, “note that register r0 is both source operand and the destination operand” should read as “note that register r1 is both source operand and the destination operand”.

Chapter 14. Generic-purpose I/O

- Page 338, title of Figure 14-3, “Non-inverting means V_{out} is connected to the non-inverting terminal (*i.e.*, the plus input lead)” should read as “Non-inverting means V_{in} is connected to the non-inverting terminal (*i.e.*, the plus input lead)”
- Page 338, “hysterisis” should be “hysteresis”
- Page 354, last paragraph, “loop up” should be “look up”
- Page 355, in Figure 14-22 flowchart, the “Yes” and “No” to the question “Is key released” should be swapped. In the same figure, we need to add a “No” to the branch of the second question “Are all column inputs one?”
- Page 356, in the second bullet point, “should changes the mode” should be “should change the mode”

Chapter 15. General-purpose Timers

- Page 365, first paragraph, “should sets” should be “should set”.
- Page 370, “~~the~~ the auto-reload” should be “the auto-reload”
- Page 372, in Figure 15-11, “Brighness” should be “Brightness”.
- Page 374, “MOV r1, =TIM_ARR_ARR” should be “MOV r1, #TIM_ARR_ARR”.
- Page 374, “STR r0, [r7, #TIM_PSC]” should be “STR r1, [r7, #TIM_PSC]”.
- Page 381, bottom of the page, the comment “// Detect only rising edges in this example” should be read as “// Detect both rising and falling edges in this example”.

Chapter 16. Stepper Motor Control

- Page 396, “Figure 16-11 shows the activation sequence of half-stepping: $A\bar{B}$, A , AB , B , \bar{A} , \bar{A} , $\bar{A}\bar{B}$, and \bar{B} .” should read as “Figure 16-11 shows the activation sequence of half-stepping: $A\bar{B}$, A , AB , B , $\bar{A}\bar{B}$, \bar{A} , $\bar{A}\bar{B}$, and \bar{B} .”
- Page 400, in the program, “CCR_MicroStepping” should be “CCR_MicroStepping”.

Chapter 17. Liquid-crystal Display (LCD)

- Page 415, “For example, the ASCII value of letter ‘A’ is 0x40” should read as “For example, the ASCII value of letter ‘A’ is 0x41”.

Chapter 18. Real-time Clock (RTC)

- Page 429, “RTC->TR = 0<<22 | 1<<21 | 1<<16 | 3<<12 | 2<<8;” should be “RTC->TR = 0<<22 | 1<<20 | 1<<16 | 3<<12 | 2<<8;”.
- Page 431, Example 18-2, the title of example 18-2 “Initializing LCD in assembly program” should read as “Initializing RTC in assembly”

Chapter 19. Direct Memory Access (DMA)

- Page 442, in Example 19-1, “DMAChannel1_IRQHandler” should be “DMA1_Channel1_IRQHandler”.
- Page 437, “Interfacing a Pheripheral” should read as “Interfacing a Peripheral”
- Page 435, last sentence, “manufactures” should be “manufacturers”
- Page 436, second paragraph, “are connected a bus matrix” should be “are connected to a bus matrix”. “schedule algorithm” should be “scheduling algorithm”
- Page 437, “write the data” should be “writes the data”
- Page 438, “when multiple channels have the software priority” should be “when multiple channels have the same software priority”
- Page 438, “a half tranfer” should be “a half transfer”

Chapter 20. Analog-to-Digital Converter

- Page 444, “oscilloscopes HDTV” should read as “oscilloscopes, HDTV”
- Page 447, “is to set as” should read as “is set as”
- Page 481, Example 21-6, “twinke” should be “twinkle”

Chapter 21. Digital-to-Analog Converter

- Page 464, “fasters than” should be “faster than”
- Page 466, “The date are could be” should be “The data could be”
- Page 466, “data holder register” should be “data holding register”
- Page 476, in Example 21-5, “Because CCR1 is read in this application, software has to clear CC1IF.” should read as “Because CCR1 is not read in this application, software has to clear CC1IF.”
- Page 469, in Example 21-1, “si” should be replaced with “sine_table” in the printf statements.
- Page 470, in the title of Example 21-2, “C program that table lookup” should be “C program that uses the table lookup”
- Page 472, first paragraph in 21.6, “controls” should be “control”.
- Page 473, first sentence, “AR = 8” should be “ARR = 18”
- Page 473, second sentence, “in the ~~h~~ TIM4_IRQHandler” should be “in the TIM4_IRQHandler”.

- Page 468, last sentence, “The program also offsets the output by 2028” should be “The program also offsets the output by 2048”.
- Page 470, in Example 21-2, “4086 – sine_table[x-180]” should “4096 – sine_table[x-180]”.

Chapter 22. Serial Communication Protocols

- Page 498, “~~the clock~~ the clock of” should be “the clock of”.
- Page 493, first paragraph, “moderns” should be “modems”.
- Page 496, “The transmitter release” should be “The transmitter releases”.
- Page 512, Title of Figure 22-25 and 22-26, “3.3KΩ” should be “1.5KΩ”.
- Page 530, Title of Figure 22-31, “All communications occur~~s~~” should be “All communications occur”.

Chapter 23. Multitasking

Chapter 24. Digital Signal Processing

- Page 570, “canot” should be “cannot”.
- Page 580, “ $y[t] = y[t] + a(i)*x(t-i);$ ” should be “ $y[t] = y[t] + a[i]*x[t-i];$ ”
- Page 593, in vector_negate_Q15 example, the comment “Store two Q7 values, post-index” should read as “Store two Q15 values, post-index”.