

Important changes to Embedded Microcomputer Systems by Jonathan W. Valvano

Front cover, change • to in six places

Page xi, Change **dem-onstration** to **demonstration**

Page 3, Change **ordnance** to **ordnance**

Page 5, Change **N any signed 8-bit -32768 to +32787** to **N any signed 16-bit -32768 to +32787**

Page 5, Change **U any unsigned 8-bit 0 to 65535** to **U any unsigned 16-bit 0 to 65535**

Page 56, Figure 1.58, Delete extra **cc** near Q1

Page 58, line 2, Change **We see from Figure 1.63** to **We see from Figure 1.56**

Page 90, Program 2.4, Change **SC,SD** to **SC,SA**

Page 126, Section 2.11.3.6. Change

In this situation, if we suspect the error occurs when the pointer nears the end of the buffer, we could add a filter that saves in the array only when the pointer is above a certain value.

to

In this situation, if we suspect the error occurs when certain conditions are true, we could add a filter that saves in the array only when those conditions are met.

Page 134, Problem 2.3, Change **result1Adr2** to **result+Adr2**

Page 165, Change **A** to **T**

Page 180, Problem 3.1, Change **ldab.#.V** to **ldab #'V**

Page 195, Figure 4.8, Move "software writes new data" over on top of "asks device to output it"

Page 201, Change **Program 4.5 shows an illustrative example of this read-modify-write.** to

**Program 4.5 shows an illustrative example of this write-read.**

Page 208, program 4.16 change

```
tpa      restore CCR to previous value
tba
```

to

```
tap      restore CCR to previous value
tba
```

Page 209, program 4.17 change

```
cpx PutPt Empty if initially the same
```

to

```
cpy PutPt Empty if initially the same
```

Page 209, program 4.17 change

```
tpa      restore CCR to previous value
tba
```

to

```
tap      restore CCR to previous value
tba
```

Page 211, program 4.20 change

```
tpa      restore CCR to previous value
tba
```

to

```
tap      restore CCR to previous value
tba
```

Page 212, program 4.21 change

```
tpa      restore CCR to previous value
tba
```

to

```
tap      restore CCR to previous value
tba
```

Page 214, program 4.24 change

```
tpa      restore CCR to previous value
tba
```

to

```
tap      restore CCR to previous value
tba
```

Page 215, program 4.25 change

```

    tpa      restore CCR to previous value
    tba
to
    tap      restore CCR to previous value
    tba

```

Page 215, program 4.25 change

```

    incb
to
    dec Size one less element in FIFO
    incb

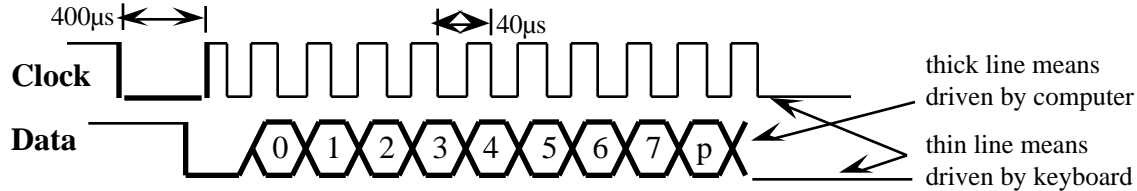
```

Page 215, Change **graphlcs** to **graphics**

Page 255, Figure 4.38, Change **0.  $\mu$ F** to **0.1  $\mu$ F**

Page 258, Program 4.48, Delete these words from the comment "example 4.14.2"

Page 264, Figure 4.46, wrong figure. Should be



Page 271, Figure 5.6, In left hand side, draw an arrow from the SP to the top of the stack.

Page 279, change the sequence of Program 5.13 so it reads as follows

```

* To block a thread on semaphore S, execute SWI
SWIhan ldx RunPt  running process "to be blocked"
      sts SP,x    save Stack Pointer in its TCB
* Unlink "to be blocked" thread from RunPt list
      ldy Next,x  find previous thread
      sty RunPt  next one to run
look   cpx Next,y search to find previous
      beq found
      ldy Next,y
      bra look
found  ldd RunPt  one after blocked
      std Next,y link previous to next to run
* Put "to be blocked" thread on block list
      ldy BlockPt
      sty Next,x  link "to be blocked"
      stx BlockPt
* Launch next thread
      ldx RunPt
      lds SP,x    set SP for this new thread
      ldd TCNT    Next thread gets a full 10ms time slice
      addd #20000 interrupt after 10 ms
      std TOC5
      ldaa #$08   ($20 on the 6812)
      staa TFLG1  clear OC5F
      rti

```

Page 296, Table 6.7, Change **cycles/ $\mu$ s** to **cycles,  $\mu$ s** in three places

Page 307, Program 6.10, 6811 C code, change ")" to "}"

```

    First = TIC1; Count=0; Mode=1;
    if(((TIC1&0x8000)==0)
        &&(TFLG2&0x80)) Count--;)
to

```

```

    First = TIC1; Count=0; Mode=1;
    if(((TIC1&0x8000)==0)
        &&(TFLG2&0x80)) Count--;}

```

Page 323, Table 6.13, Change **cycles/ $\mu$ s** to **cycles,  $\mu$ s** in three places

Page 327, Table 6.14, Change **cycles/μs** to **cycles, μs** in two places

Page 327, Program 6.24 6812 version, Change **TFLG1|=0x08;** to **TFLG1=0x08;**

Page 344, Question 6.1, (change so that the answer is not directly in the Chapter.) Change

The frequency range is 0 to 2000 Hz and the *resolution is 0.1Hz*. For example, if the frequency is 567.83 Hz, then your software will set the global **Freq** to 5678. The C program in Section 6.3.2 measures frequency with units of 100 Hz. Make modifications to this program so the resolution is improved to 0.1 Hz. Don't worry about frequencies above 2000 Hz.

to

The frequency range is 0 to 200 Hz and the *resolution is 0.01Hz*. For example, if the frequency is 56.783 Hz, then your software will set the global **Freq** to 5678. The C program in Section 6.5.2 measures frequency with units of 0.1 Hz. Make modifications to this program so the resolution is improved to 0.01 Hz. Don't worry about frequencies above 200 Hz.

Page 362, Section 7.3.1. change

More details about common mode will be presented later in Chapters 11 and 12.

to

More details about common mode will be presented later in Sections 11.2.3 and 11.2.6.

Page 362, Change **•100** to **100**

Page 363, Change

To transmit the computer ~~enables the driver by making DE active, then~~ sends the serial frame from the TxD output of the SCI port. ~~If RE is also active during transmission, the transmitted frame is echoed into the serial receiver of the SCI RxD line. To receive a frame the computer simply enables its receiver (by making RE active) and~~ accepts a serial frame on the RxD line in the usual manner.

to

Normally, we make both DE and RE active on all devices. To transmit the computer sends the serial frame from the TxD output of the SCI port. The transmitted frame is echoed into the serial receiver of the SCI RxD line. To receive a frame the computer accepts a serial frame on the RxD line in the usual manner.

Page 365, Figure 7.23, Add four direction arrows TxData to Light and Sensor to RxData

Page 380 unnumbered figure, switch **PE** to **ILT** (PE is bit 1, ILT is bit 2)

Page 382, Change **SCSR** to **SCxSR1**

Page 382, Change **SCDR** to **SCxDRL**

Page 382, Change **SCxDR** to **SCxDRL** (three places)

Page 383, Add to paragraph discussing PF

Cleared by reading SC1SR1 with PF set, then reading SCxDRL.

Page 384 third line from the top, Change **Section 2.4.2** to **Section 2.7.2**

Page 399, Change **Cleared by SPSR** to **Cleared by reading SPSR**

Page 409, Program 7.22, change the 6805 and 6808 code from

```
data+SPDR;    // 1sbyte of A/D
```

to

```
data+=SPDR;   // 1sbyte of ADC
```

Page 435, Program 8.10, MC68HC11A8 version, Change

```
TFLG1=0.08; }    // ack 0C5F
```

to

```
TFLG1=0x08; }    // ack 0C5F
```

Page 435, Program 8.10, MC68HC812A4 version, Change

```
TC5=TC5+period; // ack 0C5F
```

to

```
TC5=TC5+period; TFLG1=0x20; }
```

Page 436, Figure 8.26, Delete **68HC705 PortA** **68HC708 PortA** **68HC11 PortC**

Page 437, Program 8.11, MC68HC812A4 version, Change

```
Ritual: clr  DDRJ ;PJ3-PJ0 inputs
```

```
        rts      ;PJ7-PJ0 oc outputs
```

to

```
Ritual: clr  DDRJ ;PJ3-PJ0 inputs
```

```
        movb  #$0F,PUPSJ
```

```
        movb  #$0F,PULEJ
```

```
        rts      ;PJ7-PJ0 oc outputs
```

Page 439, Program 8.12, MC68HC812A4 version, Change  
`DDRJ=0x00; } // PJ7- PJ4 are oc outputs`

to

`DDRJ=0x00; PUPSJ=PULEJ=0x0F; }`

Page 446, Change "the resistor is calculated as (Figure 8.35)" to  
 "the resistor is calculated as (Figure 8.33)"

Page 455, Change **NOR** to **EOR** two places

Page 476 third line from the bottom, Change **peripheral** to **peripherals**

Page 485 Table 8.14, Change  $(^*/s^2)$  to  $(^*/s^2)$

Page 485 Table 8.14, Change  $(^*/s^3)$  to  $(^*/s^3)$

Page 485 Table 8.15, Change  $(^*/s^{**2})$  to  $(^*/s^2)$

Page 485 Table 8.15, Change  $(^*/s^{**3})$  to  $(^*/s^3)$

Page 506, Table 9.5, change

PF4 CSD 0xxxxxxxxxxxxxxxxx \$0000 \$7FFF 32K (CSDFH=0)

to

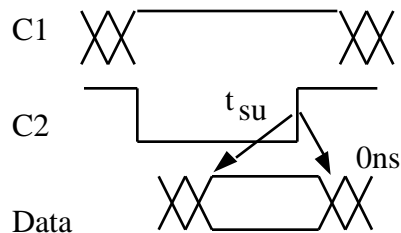
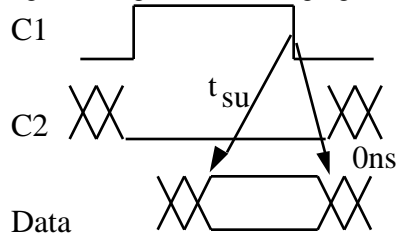
PF4 CSD 0xxxxxxxxxxxxxxxxx \$0000 \$7FFF 32K (CSDFH=1)

Page 521, Change **SMOD** and **MDA** bits in the **HPRIO** to **SMODN**, **MODB**, **MODA** bits in the **MODE**

Page 525, Change **SMOD** and **MDA** bits in the **HPRIO** to **SMODN**, **MODB**, **MODA** bits in the **MODE**

Page 551, Figure 9.64, Delay from rise of E to fall of DBE should be 37 rather than 49 ns

Page 569, Figure 9.82, wrong figure. Should be



Page 569, Change

"The write timing when controlled by **C1** is shown on the left in Figure 9.82; the write timing when controlled by **C2** is shown on the right in Figure 9.82."

to

"The write function occurs on either the fall of **C1** or the rise of **C2**, whichever occurs first. Let the setup time be  $t_{su}$  and assume the hold time is zero."

Page 589, Figure 10.18, Change **speed** to **delay** in four places

Page 620, Figure 11.49. change 10k /500k to 10k /510k

Page 620, Figure 11.50. change 10k /500k to 10k /510k

Page 621, Figure 11.51. change  $R_1/R_2$  to  $R_1/(R_1+R_2)$

Page 641, Table 11.17, change  $\bullet$  to  $\cdot$  in three places

Page 648, Fix the second equation

$$V_{out}(t_1) = V_{out}(t_0) - \frac{1}{RC} \int_{t_0}^{t_1} V_{in}(s) ds = \frac{1}{RC} V_{in} t_{ref}$$

Page 648, Fix the fourth equation

$$V_{out}(t_2) = V_{out}(t_1) - \frac{1}{RC} \int_{t_1}^{t_2} V_{ref}(s) ds = V_{out}(t_1) - \frac{1}{RC} V_{ref} t_{in} = 0$$

Page 671, Question 11.3, change **What do ADC and ADC** to **What does ADC**

Page 671, Question 11.4, change **What do DAC and DAC** to **What does DAC**

Page 682, first equation, change  $\bullet$  to  $\cdot$

Page 709, Section 12.4.2

change

uncertainty of counting events is  $\sqrt{n}$

to

uncertainty of counting events is  $\sqrt{n}$

Page 755, Figure 13.21 caption, change •N to N

Page 759, Program 13.19

change

```
dc. b 128, 244, 5, 8 ; EPS
```

to

```
dc. b 128, 224, 5, 8 ; EPS
```

Page 759, Program 13.20

change

```
a_tab: dc. b 244, 255, 16, 0 ; DPL
```

to

```
a_tab: dc. b 224, 255, 16, 0 ; DPL
```

Page 764, Change  $\pm 2 \cdot F$  to  $\pm 2'F$

Page 794, Figure 14.32, Move the +5 to the proper place

Page 804, second equation, fix

$$|Z| z \text{ or } |Z| \not\subseteq z \text{ for all } f \not\subseteq f_s$$

Page 809, Program 15.2 (two places)

change

```
for(i=5; i>0; i++)
```

to

```
for(i=5; i>0; i--)
```

Page 818 Equation 51, change -13 to +13, yielding

$$y_2(n) = x(n) + x(n-2) + \frac{-14x(n-1) + 13y_2(n-1) - 231y_2(n-2)}{256} \quad (51)$$

Page 828, Figure 15.17, change **k=16** to **k=32**

Page 829, Figure 15.19, add minus signs in front of the **b** in four places

Back cover, change **74W05** to **74S05**

Back cover, change • to in eight places, and •C to •C in four places

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Minor Changes (these will make the book perfect, but are not serious errors)

- 1) Change lower case **v** to upper case **V**  
Figures 7.2, 7.15, 8.1, 8.2, 8.3, 8.5, 8.6, 8.10, 8.11, 8.14, 8.17, 8.25,  
Figures 8.27, 8.30, 8.31, 8.33, 8.34, 8.35, 8.38, 8.90, 9.8, 9.13, 9.57,  
Figures 9.85, 11.11, 11.38, 11.71, 11.72, 11.73, 11.84, 11.85, 11.90  
Figures 11.91, 11.95, 11.104, 11.105, 12.20, 12.43, 13.9, 13.17, 14.4
- 2) Change upper case **Kbits** to lower case **kbits**  
Table 7.3
- 3) Change upper case **K** to lower case **k**  
Tables 8.10  
Figures 8.67, 9.13, 11.28, 11.31, 11.40, 11.41, 11.49, 11.67, 11.85  
Figures 11.87, 11.89, 11.98, 11.104, 11.105, 12.33, 12.65, 12.67
- 4) Change **A/D** to **ADC**  
Page s134, 141 (Table 3.1), 408, 409  
Figures 1.28, 1.40, 11.93,
- 5) Change **D/A** to **DAC**  
Pages 626, 627, 628  
Figures 11.63, 11.64, 11.74, 11.79, 11.81, 11.82, 11.83, 11.85, 11.87  
Figures 11.88, 11.89, 11.110, 13.17, 13.21
- 6) Change upper case **KHz** to lower case **kHz**  
Figures 11.15, 11.41
- 7) Change **\*K** to **K**  
Figure 12.36
- 8) Fix spacing of **0 V(t) 10W** in Figure 13.14
- 9) Fix spacing in Problem 1.6, on page 76