Errata 1th edition

for the book

Embedded Microprocessor System Design using FPGAs

by

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Preface 1:

Page viii 7th line from top: Remove “only”
Page ix 11th line from top: Replace “TRIC2” with “TRISC2”

Chapter 1:

Page 11 second line from end: Replace “`STR`” with “`str`”
Page 12 11th line from top: Replace “`LDBU`” with “`lbdu`”
Page 13 last line: Replace “`DAT4`” with “`DAT5`”
Page 28 enumerated listing: switch item 5 and 6
Page 28 enumeration item 7: replace “high price range devices have two $$” with “medium price range devices have two $$, and high price range devices have three $$$”

Chapter 2:

Page 49 second line: Replace “E2PROM” with “E^2PROM”
Page 64 9th line from top: Replace “highest” with “height”
Page 75 second bullet point: Replace “two-source” with “second-source”
Page 86: Listing 2.7 replace with

```
1  initial  // Data read alternative via readmemh
2   begin
3    $readmemh("urisc.hex", rom);
4   end
```

Page 92 Exercise 2.29: “MHZ” with “MHz”
Page 93 Exercise 2.43: “Xilinx” with “Altera/Intel”

Chapter 3:

Page 102 line 8 from end: Replace “-2^{31}-1…” with “$-(2^{31}$-1)…”
Page 113 7th line from top: Replace “`-- reset pc`” with “`-- always start with fetch state`”
Page 118 Exercise 3.22: Replace “two” with “two’s”
Page 119 Exercise 3.41: Same line “LIBRARY ieee; // Using” and “predefinded packages”
Page 120 Exercise 3.42: Same line “LIBRARY ieee; // Using predefinded” and “packages”
Page 121 Exercise 3.45: Replace “gray” with “Gray”

Chapter 4:

Page 133 first line from top: Replace “form” with “from”
Page 134 4th line from end: Remove “A”

Page 136 4th line from end: Replace "where `Sum8` is are 8-bit word and `Sum` and `Sum9` are 9-bit words" with "where `Sum8` and `Sum` are 8-bit words and `Sum9` is a 9-bit word"
Page 144 7th line in Verilog code: Replace "`// all set register to -1`" with "`// always start with fetch state`"
Page 152 Exercise 4.45: Remove "code"
Page 121 Exercise 4.47: Replace "gray" with "Gray"

Chapter 5:

Page 165 7th line from end: Replace "$0…2^{B-1}$" with "$0…2^{B}$ -1"
Page 166 12th line from end: Replace "coding Example 5.4" with "Example Program 5.1"
Page 171 6th line from top: Replace "`-,x,/`" with "`-,*,/`"
Page 183 7th line from end: Replace "Drystone" with "Dhrystone"
Page 192 1th line: Replace "ASCI" with "ASCII"

Chapter 6:

Page 214 6th line from end: Replace "code 6.5" with "code 6.3"
Page 217 8th line from end: Replace "=6" with "=-6"
Page 218 first line: Replace "complier" with "compiler"

Chapter 7:

Page 228 5th line: Replace "It important" with "It's important"
Page 240 5th line before Fig. 7.6: Replace "in in" with "in"
Page 241 Fig. 7.7. caption: Replace "(a)" with "(left)", "(b)" with "(center)", "(c)" with "(right)"

Chapter 9:

Page 273 14th line from end: Replace "Fig. 1.8a" with "Fig. 1.7a"
Page 274 4th line: Replace "Fig. 1.8b" with "Fig. 1.7b"
Page 275 5th line from end: Replace "Table 5.19" with "Table 5.7"
Page 277 6th line from end: Replace "Fig. 2.7" with "Fig. 2.4"
Page 278 5th line: Replace "Table 2.8" with "Table 2.4"
Page 282 Table 9.5: Replace "`0x04000_0800`" with "`0x0400_0800`"
Page 291 first line after bullet list: Replace "IEEE standard, 754" with "IEEE 754 standard"
Page 293 last line: Replace "9.41" with "9.65"
Page 296 11th line from end: Replace "get would" with "would"
Page 331 Exercise 9.51: Replace "exercise" with "trouble"
Page 331 Exercise 9.53 and Fig. 9.25: Replace "Douday" with "Douady"
Page 335 Exercise 9.66: Replace "listing 9.37" with "listing 9.5"

Chapter 10:

Page 356 8th line from end: Replace "3.56 GB" with "3.96 Gbits/s"

Page 374 11th line from end: Replace “Not all instructions” with “If all instructions”
Page 375 4th line from top: Replace “R-type” with “A-type”
Page 394 At the end add code line 193…240:

```
193     load  <= ld AND (dma <= DRAMAX4); -- DRAM load
194     write <= st AND (dma  > DRAMAX4); -- I/O write
195     read  <= ld AND (dma  > DRAMAX4); -- I/O read
196     mem_ena <= '1' WHEN store ELSE '0';  -- Active for store only
197     not_clk <= NOT clk;
198       ram: PROCESS (reset, dma, not_clk) -- Use one BRAM: 4096x32
199     VARIABLE idma : U12 := 0;
200     BEGIN
201       idma := CONV_INTEGER('0' & dma(18 TO 29));--force uns/skip 2 LSBs
202       IF reset = '0' THEN       -- Asynchronous clear
203         dmd <= (OTHERS => '0');
204       ELSIF rising_edge(not_clk) THEN
205         IF mem_ena = '1' THEN
206           dram(idma) <= rD;  -- Write to RAM at falling clk edge
207         END IF;
208         dmd <= dram(idma);  -- Read from RAM at falling clk edge
209       END IF;
210     END PROCESS;
211
212     ALU: PROCESS (rAsxt,rBsxt,in_port,dmd,reset,clk,load,read,C,
213                                       rDsxt,aai,aac,ooi,xxi,cmp,U,rA,rB)
214     VARIABLE res: STD_LOGIC_VECTOR(0 TO 32);
215     BEGIN
216       res := rDsxt; -- keep old/default
217       IF aai THEN res := rAsxt + rBsxt; END IF;
218       IF aac THEN res := rAsxt + rBsxt + C; END IF;
219       IF ooi THEN res := rAsxt OR rBsxt; END IF;
220       IF xxi THEN res := rAsxt XOR rBsxt; END IF;
221       IF cmp THEN res := rBsxt - rAsxt; -- ok for signed
222                 IF U THEN -- unsigned speial case
223                   IF ('0' & rA) > ('0' & rB) THEN res(1) := '1';
224                   ELSE                           res(1) := '0';
225                   END IF;
226                 END IF;
227               END IF;
228       IF load THEN res := '0' & dmd; END IF;
229       IF read THEN res := "0" & X"000000" & in_port; END IF;
230   -- Update flags and registers ------------------------------
231       IF reset = '0' THEN          -- Asynchronous clear
232         LI <= false;  C <= '0'; rI <= (OTHERS => '0');
233         out_port <= (OTHERS => '0');
234         FOR k IN 0 TO NR LOOP -- reset to zero
235           r(k)  <= conv_std_logic_vector(k,32); --X"00000000";
236         END LOOP;
237       ELSIF rising_edge(clk) THEN
238         IF NOT K THEN -- Compute new C flag for add if Keep=false
239           IF res(0) = '1' AND (aai OR aac) THEN
240                C <= '1';
```

Page 400 Exercise 10.52: Replace “Exercise” with “trouble”
Page 400 Exercise 10.53: Replace “Exercise” with “trouble”
Page 400 Exercise 10.54 and Fig. 10.25: Replace “Douday” with “Douady”
Page 405 Exercise 10.73: Replace “you” with “your”

Chapter 11:

Page 276 section 7.2.1: Replace “efficient a to” with “efficient to”
Page 447 2th line: Replace “`pc`,” with “`pc, ir,`”
Page 447 3th line: Replace “`I, jc`, and `me_ena`” with “`jc`, `store`, and `load`”
Page 447 4th line: Replace “bits” with “bytes”
Page 454 Exercise 11.55 and Fig. 11.18: Replace “Douday” with “Douady”

Appendix B: Glossary:

Page 503 3th line: Replace “(cooperation)” with “(company)”
Page 504 2th line: Replace “(cooperation)” with “(corporation)”