

# Errata 3<sup>th</sup> edition

for the book

## Digital Signal Processing with Field Programmable Gate Arrays

by

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**Chapter 1:**

Page 2 first line: Replace “in and” with “in”

Page 20 second section: Replace “bur” with “but”

Page 44 Exercise 1.8c: Replace “benchmark 5” with “benchmark 1”

**Chapter 2:**

Page 77 Fig. 2.9 caption: Remove “and size”

Page 80 third line before section 2.3.2: Replace “Fig. 2.11b” with “Fig. 2.11”

Page 104 Fig. 2.28: Replace “logic cells” with “logic elements”

Page 120 Equation (2.53): Replace “ $L+n$ ” with “ $Nl+n$ ” twice

Page 123 for  $\sqrt{W}$ : Replace “ $m=1$ ” with “ $m=-1$ ”

Page 123 Table 2.11,  $m=1$ : Replace “ $Y_K=K_1 (X_0 \cos(Z_0)+Y_0 \sin(Z_0))$ ” with “ $Y_K=K_1 (Y_0 \cos(Z_0)+X_0 \sin(Z_0))$ ”

Page 123 Table 2.11,  $m=-1$ : Replace “ $X_K=K_{-1} \sqrt{X_0^2 + Y_0^2}$ ” with “ $X_K=K_{-1} \sqrt{X_0^2 - Y_0^2}$ ”

Replace “ $Y_K=K_{-1} (X_0 \cosh(Z_0)+Y_0 \sinh(Z_0))$ ” with “ $Y_K=K_{-1} (Y_0 \cosh(Z_0)+X_0 \sinh(Z_0))$ ”

Page 137 fifth line from bottom: Replace “On is” with “One is”

Page 139 third line from bottom: Replace “(2.66)” with “(2.63)”

Page 147 Fig. 2.55 caption: Replace “ $\log_{10}(x)$ ” with “ $\log_{10}(1+x)$ ”

Page 155 Exercise 2.3a: Replace “add\_2p” with “add2p”

Page 163 Exercise 2.27d: Replace “ $\sqrt{1+x}$ ” with “ $\sqrt{x}$ ”

**Chapter 3:**

Page 166 next to Eq. (3.4): Replace “ $L^{\text{th}}$ -order” with “length- $L$ ”

Page 176 Fig. 3.7 caption: Replace “ $L=59$ ” with “order 59” and “ $L=27$ ” with “order 27”

Page 177 Fig. 3.8a: Replace “ $f_s/2$ ” with “ $f_n$ ”

Page 179 before Eq. (3.17): Replace “ $L^{\text{th}}$ -order” with “length- $L$ ”

Page 193 last line first section: Replace “dagen3e.exe” with “dagen.exe”

Page 211 Exercise 3.8 numbering: Replace second “(c)” with “(d)”

Page 213 Exercise 3.20(g) second line: replace (a)-(g) with (a)-(f)

Page 213 Exercise 3.23: Replace “1, 3, 1, 8, 7, 10, 20, 1, 40, 34, 56, 184, 246, 184, 56, 34, 40, 1, 20, 10, 7, 8, 1, 3, 1.” with “1, 3, -1, -8, -7, 10, 20, -1, -40, -34, 56, 184, 246, 184, 56, -34, -40, -1, 20, 10, -7, -8, -1, 3, 1.”

**Chapter 4:**

Page 224 Fig. 4.8 caption: Replace “Direct I form” with “Transposed direct form II”

Page 225 Fig. 4.9 caption: Replace “Direct II form” with “Transposed direct form I”

Page 225 bullet list: switch “4.8” with “4.9”

Page 228 Fig. 4.13 caption: Replace “(b) phase, and (c) group delay response” with “(b) group delay response, and (c) Pole/zero plot.”

Page 229 Table 4.2: Replace “11 x 9” with “1 x 9”

Page 232 before VHDL code: Remove (4.15)

**Chapter 5:**

Page 246 first section: Replace “Fig. 5.5” with “Fig. 5.5b”

Page 252 VHDL comments: Replace “m[0]=127” with “m[0]=124” and “g[0]=127” with “g[0]=124”

Page 267 Fig. 5.22: Switch “D=1” and “D=2”

Page 284 Section 5.6.1: Replace “examples consider” with “example consider”

Page 284 Section 5.6.1: Switch “from” and “to”

Page 284 Section 5.6.1: Replace “CD->DAT” with “DAT->CD”

Page 290 Section 5.6.2: Replace “CD->DAT” with “DAT->CD”

Page 296 Section 5.6.3: Replace “Fig. 5.38, p. 290” with “Fig. 5.39, p. 291”

Page 298 after Eq. (5.56): Replace “in not” with “is not”

Page 303 first section: Replace “ $c_k^{\text{new}} = c_k - k c_{k+1}/3$ ” with “ $c_{k-1}^{\text{new}} = c_{k-1} - k c_k/3$ ”

Page 339 Exercise 5.18(b1): Replace “ $1/(F(z))$ ” with “ $1/F(z)$ ”

## Chapter 6:

Page 346 Fig. 6.3 lower row: Replace “(b)” with “(c)”

Page 352 second section: Replace “fix real” with “six real”

Page 356 VHDL code: Replace “unsigned” with “signed

Page 361 Fig. 6.11: switch inputs x[2] and x[4]

Page 368 Example 6.11: Replace “ $e^{j\pi/9}$ ” with “ $e^{j\pi/10}$ ” and “ $e^{j20}$ ” with “ $e^{j18}$ ”

Page 369 comment sub\_2 vhdl code: Replace “(c-s)\*x” with “(c+s)\*x”

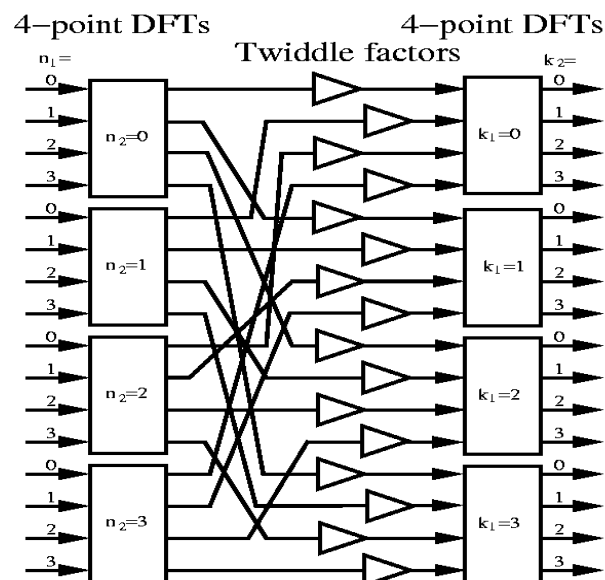
Page 370 comment add\_1 vhdl code: Replace “(c+s)\*y” with “(c-s)\*y”

Page 373 Example 6.12: Replace “ $e^{j\pi/9}$ ” with “ $e^{j\pi/10}$ ”

Page 383 sixth line: Replace “3\*x5+” with “3\*5+”

Page 384 line 3-5: Replace “five” with “ten” and “Y(1:5)” with “Y(1:10)” twice

Page 393 Fig. 6.25 needs to be replaced with the following figure:



Page 394 Exercise 6.17: replace “y = [ x(1:2:N); x(N:-2:2) ];” with “y = [ x(1:2:N), x(N:-2:2) ];”

Page 397 Exercise 6.27c: Replace “-50+j67” with “-50+j67”

Page 398 Exercise 6.31: Replace second “(a)” with “(b)”

Page 399 Exercise 6.32a: Replace “p. 6.23” with “p. 389”

## **Chapter 7:**

Page 463 Table 7.19: Replace “1,5” with “1.5” and “1,0” with “1.0”

Page 469 Table 7.21: Replace “Stage” with “State”

## **Chapter 8:**

Page 481 second equation: Replace “ $E\{x^2\}$ ” with “ $E\{(x-\eta)^2\}$ ”

Page 483 Equation after (8.7): Remove “(“ and replace “ $\mathbf{x}^T[n] \mathbf{x}[n] f_{\text{opt}}$ ” with “ $\mathbf{x}[n] \mathbf{x}^T[n] f_{\text{opt}}$ ”

Page 486 third equation: Replace “ $x[n] = f_0$ ” with “ $y[n] = f_0$ ”

Page 486 last equation: add = before first [

Page 497 Fig. 8.15c x axis label: Replace “Iteration” with “Sample n”

Page 514 Table 8.2 for D=1: Replace “58” with “66” and “109.28” with “121.80”

Page 521 first equation: Replace “ $\mathbf{A}^{-1}\mathbf{B}$ (” with “(” and “ $\mathbf{C}+$ ” with “ $\mathbf{C}^{-1}+$ ”

Page 521 second equation: Replace “ $\mathbf{A}=\mathbf{R}_{\text{xx}}[n+1]$ ” with “ $\mathbf{A}=\mathbf{R}_{\text{xx}}[n]$ ”

Page 521 equation (8.61): Replace “ $=\mathbf{R}_{\text{xx}}^{-1}[n]$ ” with “ $=\mathbf{R}_{\text{xx}}[n]$ ” and “ $=\mathbf{R}_{\text{xx}}^{-1}[n]+$ ” with “ $=\mathbf{R}_{\text{xx}}^{-1}[n]-$ ”

Page 521 equation after (8.61): Replace “ $=\mathbf{R}_{\text{xx}}^{-1}[n]$ ” with “ $=\mathbf{R}_{\text{xx}}[n]$ ” and “ $=\mathbf{R}_{\text{xx}}^{-1}[n]+$ ” with “ $=\mathbf{R}_{\text{xx}}^{-1}[n]-$ ”

Page 522 equation (8.67): Replace “ $\mathbf{R}_{\text{xx}}^{-1}[n]+$ ” with “ $\mathbf{R}_{\text{xx}}^{-1}[n]-$ ”

Page 533 Exercise 8.8: remove “where  $n[n]$  is a white Gaussian noise with variance 1.”

## **Chapter 9:**

Page 569 Table last row: replace [^a-b] with [^a-c]

Page 582 first listing: Replace “add2:” with “user:” and “parse error” with “add2: parse error”

Page 586 second listing: Replace “scan k;” with “scanf k;”

Page 603 Fig. 9.22 caption: Replace “16 MB cache” with “16 MB main memory”

Page 605 Table 9.14 caption: Replace “16/24” with “32”

Page 616 second line: Replace “modification” with “modifications”

Page 624 Fig. 9.34 caption: Replace “TVP1” with “TVP”

Page 636 Exercise 9.5 numbering: Replace “(c) Three-” with “(d) Three-”

Page 638 Exercise 9.20: Replace “add2” with “calc”

Page 638 Exercise 9.20a: Replace second “-,\*,/” with “sqrt”

Page 638 Exercise 9.20c: Remove “sqrt”

Page 638 Exercise 9.21: Replace second “256” with “400” and “ $(5*9)/(6*5-3*3*3)$ ” with “ $5\ 9\ * \ 6\ 5\ * \ 3\ 3\ * \ 3\ * \ - \ /$ ”

Page 643 Table second line from bottom: replace E2AA with E2AB

## **References:**

Page 645 reference 22: Replace “F. Vahid” with “F. Vahid, T. Givargis” and replace “1990” with “2002”

Page 649 reference 91: Replace “1995” with “1975”

## **Appendix B:**

Page 732 table: Replace “add\_” with “add” three times switch VHDL Page “94” and “100” and replace “tris0” by “trisc0”