



## The Essentials of Computer Organization and Architecture 2<sup>nd</sup> Edition

Linda Null and Julia Lobur  
Jones and Bartlett Publishers, 2006

# Errata (1<sup>st</sup> Printing)

*To confirm you have the first printing, see page ii for the following:*

**Printed in the United States of America**  
**10 09 08 07 06 10 9 8 7 6 5 4 3 2 1**

As errors are found in the textbook, they will be added to this list. The list will be updated as necessary. If you find an error, please send it to [ecoa@jbpub.com](mailto:ecoa@jbpub.com).

### Symbols Used

ti = ith line from top  
bi = ith line from bottom  
Fi = Figure i  
X → Y = replace X with Y  
Ti = Table i  
Pi = Problem i  
Ei = Example i

### Format

Page # Location: Correction  
Strikethrough: Correction/modification in errata

## February 2006 List (publishing errors introduced in the production process)

xxii Chapter 2: Table of contents is missing Focus On section:  
Focus On Codes for Data Recording and Transmission 100  
2A.1 Non-Return-to-Zero Code 100  
2A.2 Non-Return-to-Zero-Invert Code 101  
2A.3 Phase Modulation (Manchester Code) 102  
2A.4 Frequency Modulation 103

2A.5 Run-Length-Limited Code 103  
 2A.6 Partial Response Maximum Likelihood Coding 104  
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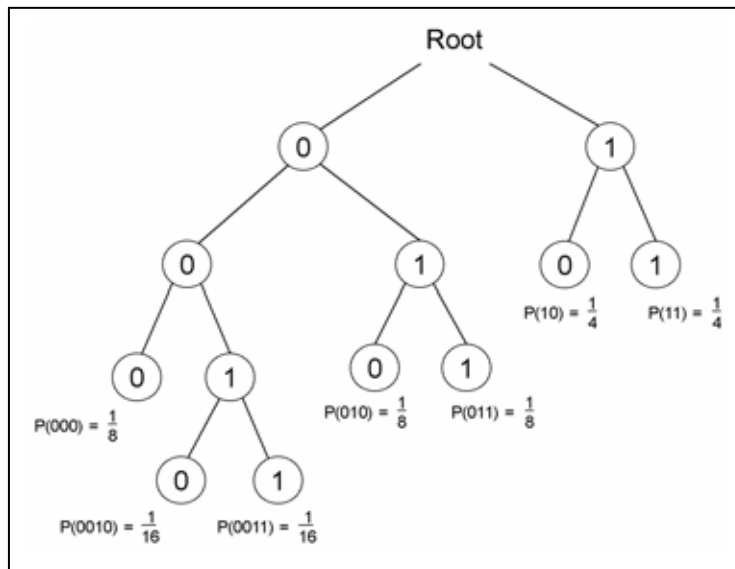
xxiii Chapter 3: Table of contents is missing Focus On section:

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xxvi Chapter 7: Table of contents is missing Focus On section:

Focus On Data Compression 384  
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 7A.4 GIF and PNG Compression 398  
 7A.5 JPEG Compression 399  
 7A.6 Summary 404  
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105 F2A.6: The node numbers are difficult to read because the lines were pushed into the nodes. The correct figure is as follows:



260 F5.3: There are double lines on the entries at locations 1000 and 1100. The correct figure is:

Memory	
800	900
...	
900	1000
...	
1000	500
...	
1100	600
...	
1600	700

**R1**

800
-----

277 P13 and P14: The tables have double lines, similar to the error above on page 260.

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### March 2006 List

134 t2: forces both Q and Q' to 1 → forces both Q and Q' to 0

134 t3:  $1 = Q' \rightarrow 0 = Q'$

162 P49: Should have no blue diamond

163 P51: Should have no blue diamond

240 P19: For example, to multiple → For example, to multiply

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### April 2006 List

328 b6: George Amdahl → Gene Amdahl

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### May 2006 List

538 P2: personal computer, why do → personal computer. Why do

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### June 2006 List

5 T1.1: 1 quintillionth =  $10^{+18}$  → 1 quintillionth =  $10^{-18}$

52 t7:  $167 + 947 = 114 \rightarrow 167 + 947 = 1114$

140 t15: function, d → function,  $\delta$

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## August 2006 List

211 E4.1: 10A Jump Loop → 10F Jump Loop

237 P6: 256KB × 8 RAM chips → 256K × 8 RAM chips

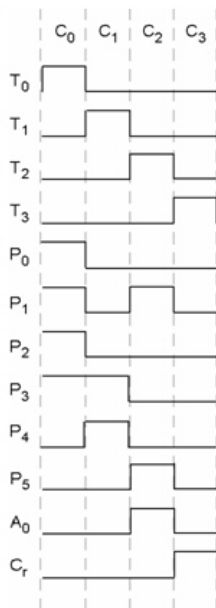
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## September 2006 List

216 t18:  $P_0P_2T_1$ : MBR ← M[MAR] →  $P_3P_4T_1$ : MBR ← M[MAR]

216 b12: At clock cycle  $C_1$ , all signals except  $P_0$ ,  $P_2$ , and  $T_1$  are →  
At clock cycle  $C_1$ , all signals except  $P_3$ ,  $P_4$ , and  $T_1$  are

217 F4.16: In clock cycle  $C_1$ , signals  $P_3$ ,  $P_4$ , and  $T_1$  should be high, nothing else, so replace Figure 4.16 with the following:



355 b6: spinning the disk faster → spinning the disk slower

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## March 2007 List

543 b14: System A is **n times as fast** as System B → System A is **n times faster than** System B

543 b6: performance of Car A is 1.25 times as fast as Car B → performance of Car A is 1.33 times faster than Car B

543 b5:  $4/3 = 1.25$  →  $4/3 = 1.33$

543 b3: Car A is also 25% faster than Car B → Car A is also 33% faster than Car B

543 b1: 25% → 33%

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## April 2007 List

5 b8: If a disk holds 1MB, then it holds  $2^{30}$  bytes → If a disk holds 1MB, then it holds  $2^{20}$  bytes

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## May 2007 List

63 t5: Examples using signed numbers are given → Examples using signed 2's complement numbers are given

63 T2.2: 0010 (-2) → 0010 (+2)

69 T2.4: for the 0.5 entry, replace the exponent 10000000 with 01111110

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## June 2007 List

477 f9.3: Three-Dimensional Hypercube → Four-Dimensional Hypercube

765 P7:  $6 \times 2^{24}$  →  $6 \times 2^{12}$

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## October 2007 List

67 E2.27: Multiply → Assuming a 16-bit bias, multiply:

68: T2.3: In top row: 1000.001 → 10000.001

69: T2.4: Representation for 0.5: 10000000 → 01111110

122 t13: we AND the byte with 04h → we AND the byte with 04h ( $04_{16}$ )

154 t24: Petgold, Charles → Petzold, Charles

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## November 2007 List

214 b1:  $P_0, P_1, P_0$  →  $P_0, P_1, P_2$

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## March 2008 List

304 t22: address 9 to the physical address 1230 → address 9 to the physical address 1239

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## January 2010 List

10 b10: which is fairly impressive → which is small by today's standards

61 E2.23:10011110001 → 10011110001 (in the last line of example)

63 T2.2 First row: 0010 (-2) → 0010 (+2)

72 t20: if (abs(x) < epsilon) → if (abs(x - num) < epsilon)  
(Note: This notation assumes you are comparing  $x$  to the value  $num$ )

186 F4.4: Memory locations should be numbered 0 through N-1, not 1 through N

211 E4.1: line 111 comment: Numbers to be summed start at location 118 → Numbers to be summed start at location 117

215 t1: P<sub>3</sub> → P<sub>5</sub>

219 F4.18: The second D flip-flop from the left should have a zero, not a 1, and there should be a NOT gate to convert the output value (just as in the leftmost D flip-flop). The second AND gate from the left in the group of four should have connections to lines P<sub>3</sub> and P<sub>4</sub>, not to P<sub>1</sub> and P<sub>2</sub>.

222 b12: The last instruction, at 0101011 → The last instruction for Add, at 0101011

260 F5.3: Indexed 700 → Indexed 500 (this is because the values are hexadecimal numbers and 800 + 800 is 1000 is hexadecimal)

310 b10 (EAT equation): .01(10ms) = 100,396 → .01(200ns + 10ms) = 100,596

329 t9: new disks promise two and a half times → new disks promise one and a half times

330 t13: Protocols comprise → Protocols are comprised of

350 F7.14: Average Latency 2.99 ms → Average Latency 4.167 ms

369 t9: there are no commercial implementations of RAID-4 → RAID-4 is not considered viable for commercial applications

377 b8: Gustavson's tutorial (1984) on computer buses (1984) → Gustavson's tutorial (1984) on computer buses

414 t23: Alan Key → Alan Kay

477 F9.3f): Three-Dimensional Hypercube → Four-Dimensional Hypercube