

THE INTEL MICROPROCESSORS

8086/8088, 80186/80188, 80286, 80386,
**80486, Pentium, Pentium Pro Processor,
Pentium II, Pentium III, Pentium 4, and Core2
with 64-Bit Extensions**

Architecture, Programming, and Interfacing
Eighth Edition

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22. A binary bit stores a(n) _____ or a(n) _____.
23. A computer K (pronounced kay) is equal to _____ bytes.
24. A computer M (pronounced meg) is equal to _____ K bytes.
25. A computer G (pronounced gig) is equal to _____ M bytes.
26. A computer P (pronounced peta) is equal to _____ T bytes.
27. How many typewritten pages of information are stored in a 4G-byte memory?
28. The first 1M byte of memory in a DOS-based computer system contains a(n) _____ and a(n) _____ area.
29. How large is the Windows application programming area?
30. How much memory is found in the DOS transient program area?
31. How much memory is found in the Windows systems area?
32. The 8086 microprocessor addresses _____ bytes of memory.
33. The Core2 microprocessor addresses _____ bytes of memory.
34. Which microprocessors address 4G bytes of memory?
35. Memory above the first 1M byte is called _____ memory.
36. What is the system BIOS?
37. What is DOS?

57. Convert the following binary numbers into decimal:
- (a) 1101.01
 - (b) 111001.0011
 - (c) 101011.0101
 - (d) 111.0001
58. Convert the following octal numbers into decimal:
- (a) 234.5
 - (b) 12.3
 - (c) 7767.07
 - (d) 123.45
 - (e) 72.72
59. Convert the following hexadecimal numbers into decimal:
- (a) A3.3
 - (b) 129.C
 - (c) AC.DC
 - (d) FAB.3
 - (e) BB8.0D
60. Convert the following decimal integers into binary, octal, and hexadecimal:
- (a) 23
 - (b) 107
 - (c) 1238
 - (d) 92
 - (e) 173
61. Convert the following decimal numbers into binary, octal, and hexadecimal:
- (a) 0.625
 - (b) .00390625
 - (c) .62890625
 - (d) 0.75
 - (e) .9375
62. Convert the following hexadecimal numbers into binary-coded hexadecimal code (BCH):
- (a) 23
 - (b) AD4
 - (c) 34.AD
 - (d) BD32
 - (e) 234.3
63. Convert the following binary-coded hexadecimal numbers into hexadecimal:
- (a) 1100 0010
 - (b) 0001 0000 1111 1101
 - (c) 1011 1100
 - (d) 0001 0000
 - (e) 1000 1011 1010
64. Convert the following binary numbers to the one's complement form:
- (a) 1000 1000
 - (b) 0101 1010

- (c) 0111 0111
- (d) 1000 0000

65. Convert the following binary numbers to the two's complement form:

- (a) 1000 0001
- (b) 1010 1100
- (c) 1010 1111
- (d) 1000 0000

APPENDIX D

Answers to Selected Even-Numbered Questions and Problems

CHAPTER 1

- 22. A binary bit stores a 1 or a 0.
- 24. 1024K
- 26. 1024
- 28. System area and transient program area
- 30. 640K
- 32. 1M
- 34. 80386, 80486, Pentium, Pentium Pro, PII, PIII, P4, and Core2
- 36. The basic I/O system

- 58. (a) 156.625 (b) 18.375 (c) 4087.109375
(d) 83.578125 (e) 58.90625
- 60. (a) 10111_2 , 27_8 , and 17_{16} (b) 1101011_2 , 153_8 , and $6B_{16}$
(c) 10011010110_2 , 2326_8 , and $4D6_{16}$ (d) 1011100_2 ,
 134_8 , and $5C_{16}$ (e) 10101101_2 , 255_8 , and AD_{16}
- 62. (a) 0010 0011 (b) 1010 1101 0100
(c) 0011 0100 . 1010 1101 (d) 1011 1101 0011 0010
(e) 0010 0011 0100 . 0011
- 64. (a) 0111 0111 (b) 1010 0101 (c) 1000 1000
(d) 0111 1111

Chapter One - odd answers

- 23. 1024
- 25. 1024
- 27. 1,000,000
- 29. 2G or 3G for 32-bit mode and currently 8G for 64-bit mode
- 31. 1G
- 33. Currently 1T byte using a 40-bit address
- 35. Protected memory or extended memory
- 37. An early operating system called the Disk Operating System

- 57. (a) 13.25 (b) 57.1875 (c) 43.3125 (d) 7.0625
- 59. (a) 163.1875 (b) 297.75 (c) 172.859375 (d) 4011.1875 (e) 3000.05078125
- 61. (a) 0.101 0.5 0.A (b) 0.0000101 0.024 0.0A (c) 0.10100001 0.502 0.A1 (d) 0.11 0.6 0.C (e) 0.1111 0.74 0.F
- 63. (a) C2 (b) 10FD (c) BC (d) 10 (e) 8BA
- 65. (a) 0111 1111 (b) 0101 0100 (c) 0101 0001 (d) 1000 0000
- 67. (a) 46 52 4F 47, (b) 41 72 63, (c) 57 61 74 65 72, and (d) 57 65 6C 6C