第一章 计算机概念和技术

作业参考答案

第一章 计算机概念和技术

1.1 [2] Active part of the computer, following the instructions of the programs to the letter. It adds numbers, tests numbers, controls other components, and so on. central processor unit (CPU)

1.2 [2] Approach to the design of hardware or software. The system consists of hierarchical layers, with each lower layer hiding details from the level above. abstraction

1.3 [2] Binary digit. bit

1.4 [2] Collection of implementations of the same instruction set architecture. They are usually made by the same company and vary in price and performance. computer family

1.5 [2] Component of the computer where all running programs and associated data reside. memory

1.6 [2] Component of the processor that performs arithmetic operations. datapath

1.7 [2] Component of the processor that tells the datapath, memory, and I/O devices what to do according to the instructions of the program. control

1.8 [2] Computer designed for use by an individual, usually incorporating a graphics display, keyboard, and mouse. desktop or personal computer

1.9 [2] Computer inside another device used for running one predetermined application or collection of software. embedded system

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1.12 [2] Computer networks that connect computers spanning great distances, the backbone of the Internet. wide area network (WAN)

1.13 [2] High-performance machine, costing more than $1 million. supercomputer

1.14 [2] Integrated circuit commonly used to construct main memory. DRAM (dynamic random access memory)

1.15 [2] Microscopic flaw in a wafer. defect

1.16 [2] Nickname for a die or integrated circuit. chip

1.17 [2] On/off switch controlled by electricity. transistor

1.18 [2] Optical storage medium with a storage capacity of more than 4.7 GB. It was initially marketed for entertainment and later for computer users. Digital Video Disk (DVD)

1.19 [2] Percentage of good dies from the total number of dies on the wafer. yield

1.20 [2] Program that converts a symbolic version of an instruction into the binary version. assembler

1.21 [2] Program that manages the resources of a computer for the benefit of the programs that run on that machine. operating system

1.10 [2] Computer used for running larger programs for multiple users often simultaneously and typically accessed only by a network. server

1.11 [2] Computer network that connects a group of computers by a common transmission cable or wireless link within a small geographic area (for example, within the same floor of a building). local area network (LAN)

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1.22 [2] Program that translates from a higher-level notation to assembly language. compiler

1.23 [2]Technology in which single chip that contains hundreds of thousands to millions of transistors. VLSI (very large scale integrated circuit)

1.24 [2] Single software command to a processor. instruction

1.25 [2] Small, fast memory that acts as a buffer for the main memory. cache

1.26 [2] Specific interface that the hardware provides the low-level software. instruction set architecture

1.27 [2] Substance that does not conduct electricity well but is the foundation of integrated circuits. semiconductor

1.28 [2] Thin disk sliced from a silicon crystal ingot, which will be later divided into dies. wafer

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1.29 [1] Assembler systems software

1.30 [1] C++ high-level programming language

1.31 [1] Liquid crystal display (LCD) output device

1.32 [1] Compiler systems software

1.33 [1] Cray-1 supercomputer

1.34 [1] DRAM integrated circuit

1.35 [1] IBM PC personal computer

1.36 [1] Java high-level programming language

1.37 [1] Scanner input device

1.38 [1] Macintosh personal computer

1.39 [1] Microprocessor integrated circuit

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1.40 [1] Microsoft Word applications software

1.41 [1] Mouse input device

1.42 [1] Operating system systems software

1.43 [1] Printer output device

1.44 [1] Silicon semiconductor

1.45 [1] Spreadsheet applications software

第一章 计算机概念和技术

1.56 [15] <§§1.1–1.5> A less technically inclined friend has asked you to explain how computers work. Write a detailed, one-page description for your friend.

1.57 [10] <§§1.1–1.5> In what ways do you lack a clear understanding of how computers work? Are there levels of abstraction with which you are particularly unfamiliar? Are there levels of abstraction with which you are familiar but still have specific questions about? Write at least one paragraph addressing each of these questions.