PLUG IT IN 2

Hardware and Software

1. Introduction to Hardware
2. Introduction to Software

1. Discuss strategic issues that link hardware design to business strategy.
2. Differentiate between the two major types of software.

PI2.1 Introduction to Hardware

- Hardware
- Strategic Hardware Issues
- Computer Hierarchy
- Input and Output Technologies
- The Central Processing Unit (CPU)
- Computer Memory

Hardware

Hardware Consists of:
- Central Processing Unit (CPU)
- Primary Storage
- Secondary Storage
- Input Technologies
- Output Technologies
- Communication Technologies

Strategic Hardware Issues

- How do organizations keep up with the rapid price reductions and performance advancements in hardware?
- How often should an organization upgrade its computers and storage systems?
- Will upgrades increase personal and organizational productivity?
- How can you measure productivity increases?

Strategic Hardware Issues

- Portable computers and advanced communications technologies have enabled employees to work from home or from anywhere.
- Will these new work styles benefit employees and the organization?
- How do organizations manage such new work styles?

Strategic Hardware Issues (continued)

- How do organizations manage employees who use their own portable devices (e.g., tablets and smartphones) for both personal and work purposes?

- That is, how do organizations handle the bring-your-own-device (BYOD) phenomenon?

Computer Hierarchy

- Supercomputers
- Mainframe Computers
- Midrange Computers
- Microcomputers
- Desktop PC
- Thin-client systems
- Laptop and Notebook Computers

Computer Hierarchy (continued)

- Netbooks
- Tablet Computers
- Wearable Computers

Computer Hierarchy (continued)

Laptop computer

Netbook

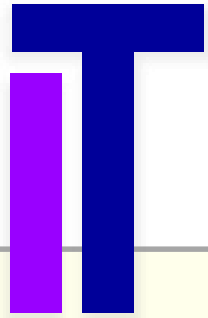Motorola Xoom tablet

Apple iPad tablet

Figure PI2.1 Laptop, notebook, and tablet computers.

IT

PURCHASING A COMPUTER

Input Technologies

- Graphics tablet
- Joystick
- Touchscreen
- Stylus
- Digital Pen
- Web Camera (Webcam)
- Voice Recognition
- Gesture-based Input

Input Technologies (continued)

- Wii
- Microsoft Connect
- Leap Motion Controller
- Automated Teller Machine (ATM)
- Magnetic Strip Reader
- Point-of-sale Terminals
- Barcode scanners

Input Technologies (continued)

- Optical Mark Reader
- Magnetic Ink Character Reader
- Optical Character Reader
- Sensors
- Cameras
- Radio-Frequency Identification (RFID)

Output Technologies

- Monitors
- Cathode Ray Tubes (CRT)
- Liquid Crystal Displays (LCDs)
- Flexible Displays
- Organic Light-emitting Diodes (OLED)
- Retinal Scanning Displays

Output Technologies (continued)

- Heads-up Displays
- Printers (laser, Inkjet, Thermal)
- Plotters
- Voice Output
- Electronic Book Reader
- Pocket Projector

Central Processing Unit

- How the CPU works
- Advances in Microprocessor Design
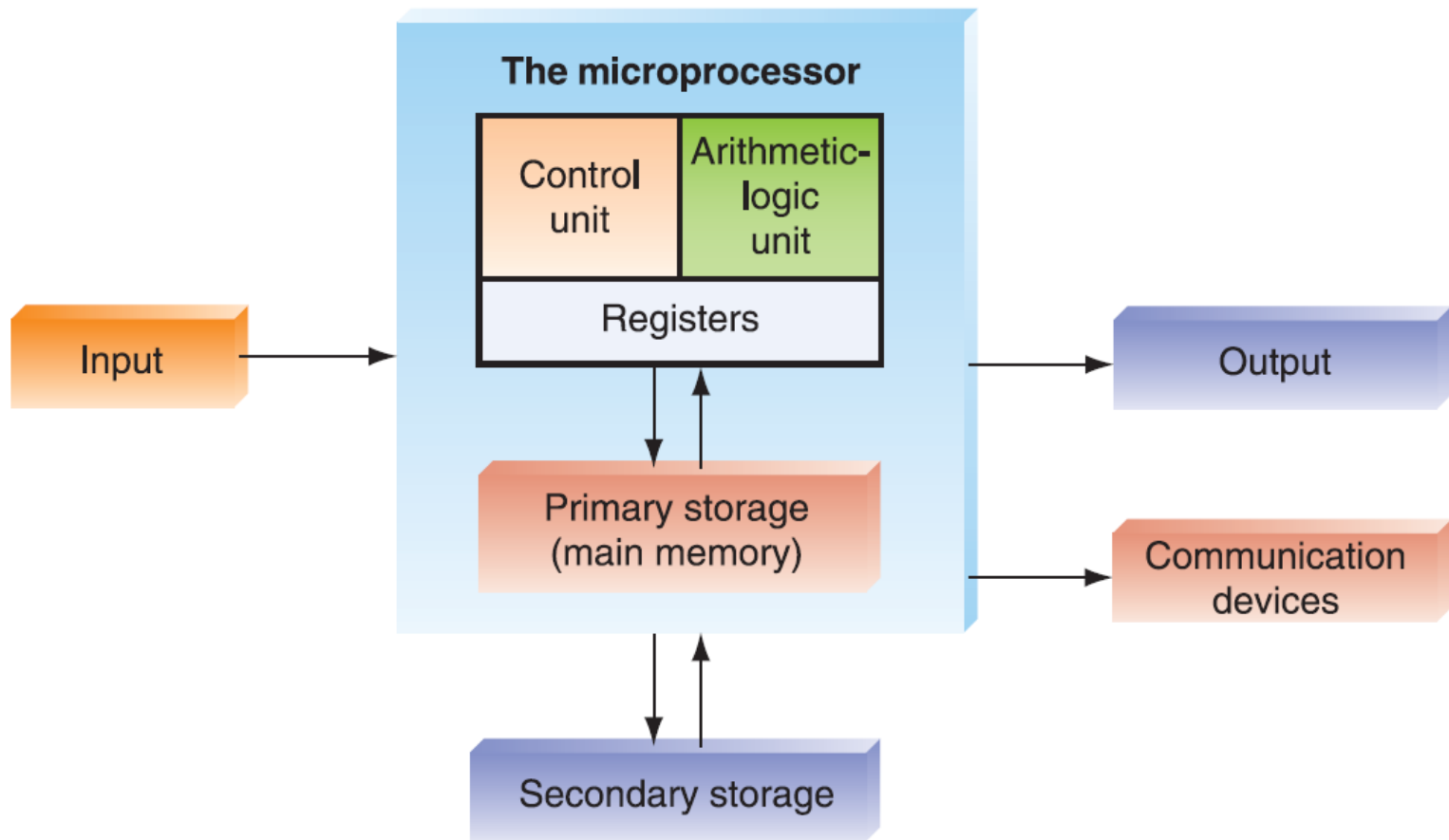 - Moore's Law

Central Processing Unit

Figure PI2.2 Parts of a microprocessor.
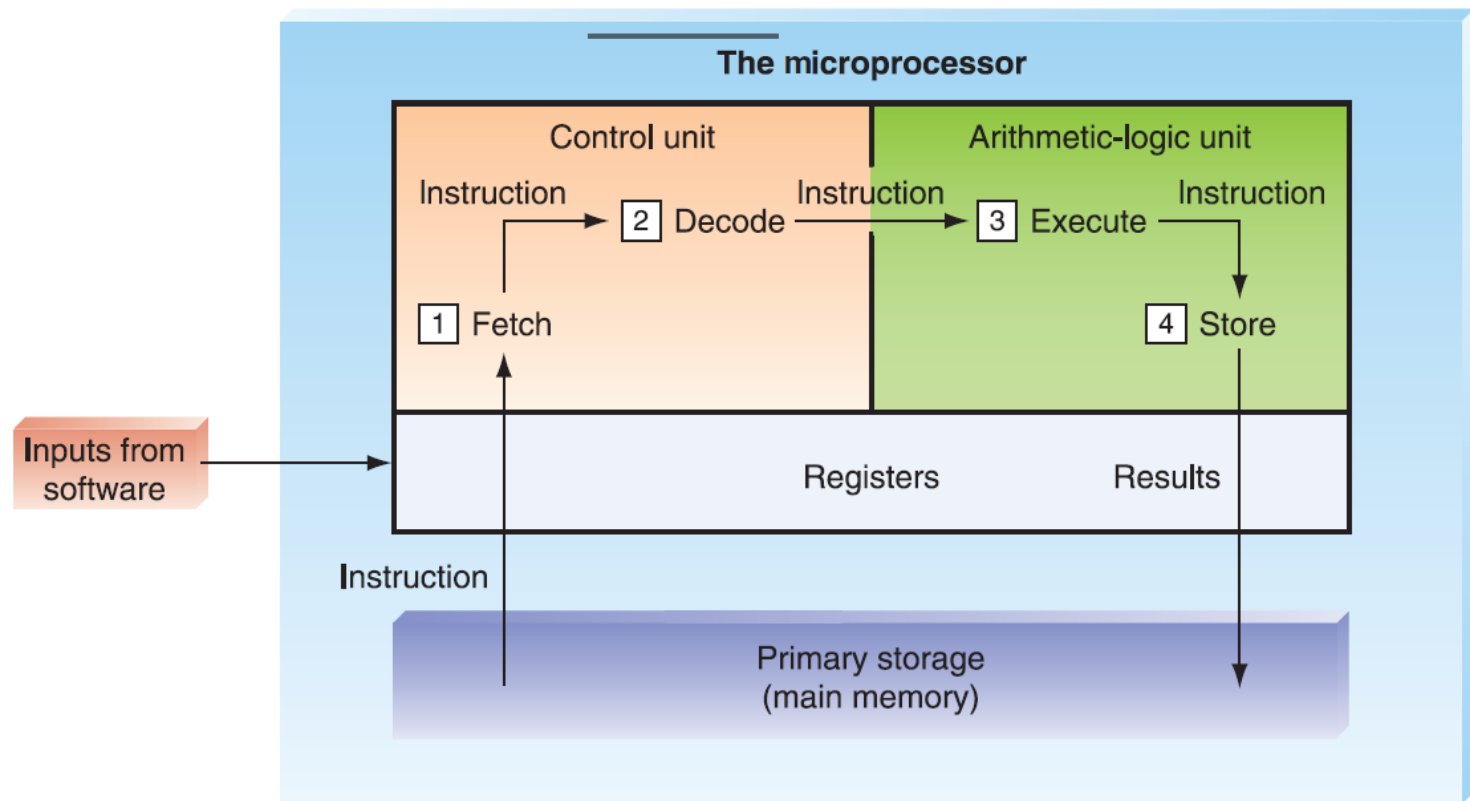
Central Processing Unit

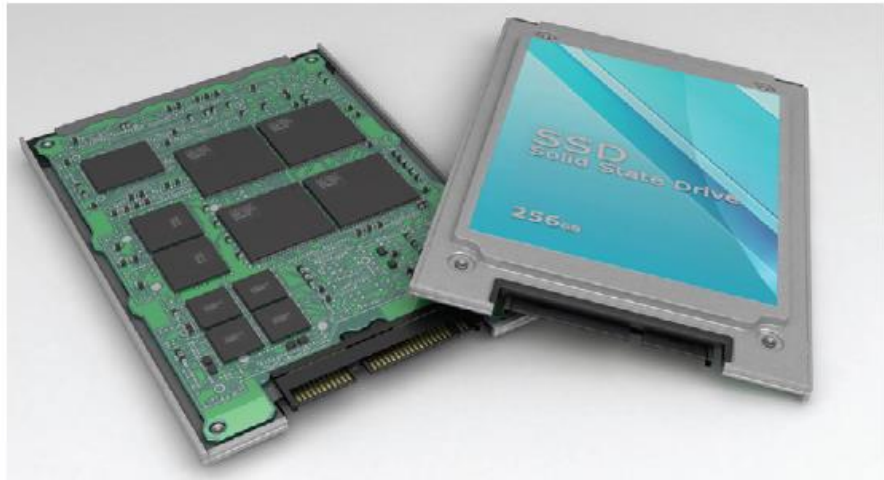Figure PI2.3 How the CPU works.

Computer Memory

- Memory Capacity
- Primary Storage (or Main Memory)
- Secondary Storage

Computer Memory

Figure PI2.5 Traditional hard drives are less expensive, but solid-state drives are faster and are more reliable. (*Sources:* © АлексейБрагин/iStockphoto; © Krzysztof Krzyscin/iStockphoto)
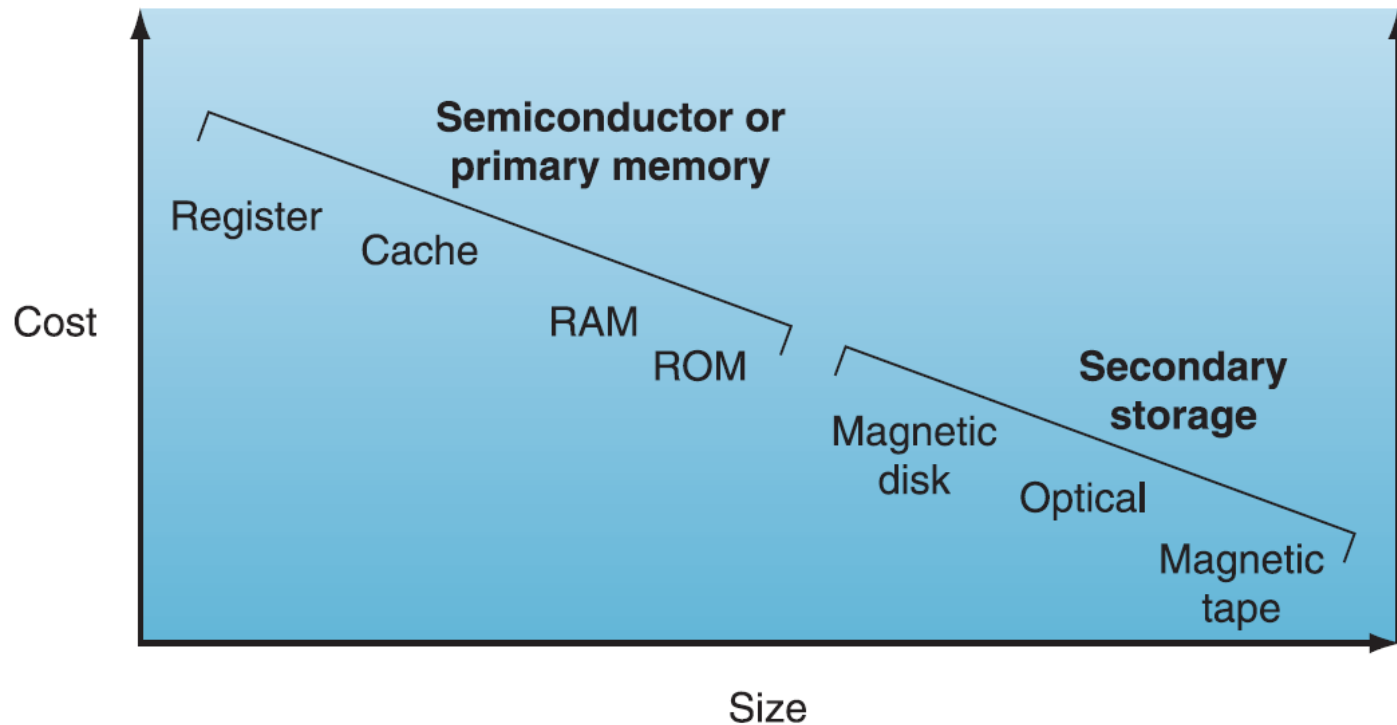
Computer Memory

Figure PI2.4 Primary memory compared with secondary storage.

PI2.2 Introduction to Software

- Software
- Software Issues
- System Software
- Application Software

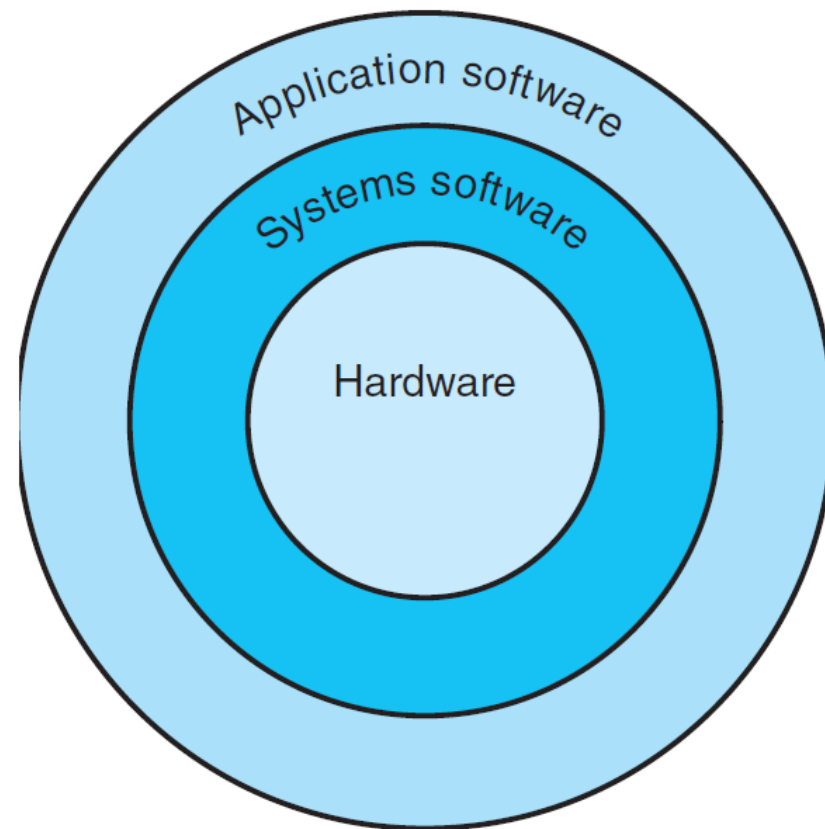# Software

- Programming
- Programmers
- Two Types of Software:
  - Systems Software
  - Application Software

Software

Figure PI2.6 Systems software services as intermediary between hardware and functional applications.

Software Issues

- Software Defects
- Software Licensing
- Open Systems
- Proprietary Software
- Open-Source Software

Systems Software

- Systems Software
- Operating System
- Human-Computer Interface
  - Graphical User Interface (GUI)
  - Social Interface
  - Motion Control Gaming Consoles

Application Software

- Personal Application Software
- Examples of Personal Application Software