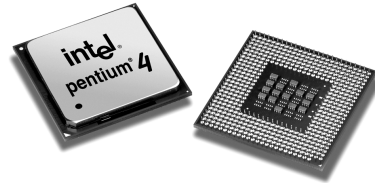


Chapter 1

Overview of Computers and Programming

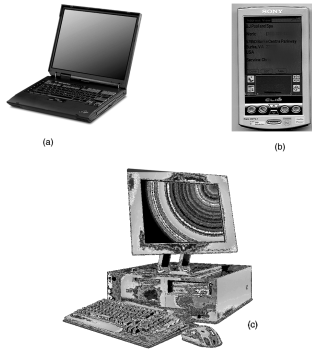
Figure 1.1 The Intel Pentium 4 Processor chip is an integrated circuit containing the full circuitry of a central processing unit. This processor can execute a simple instruction such as an integer addition in one six-billionth of a second. (Reprinted by permission of Intel Corporation, © Intel Corporation 2003)



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-2

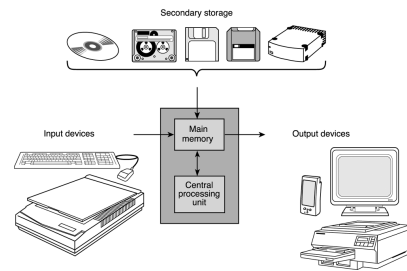
Figure 1.2
 (a) Notebook Computer (ThinkPad®, Courtesy of IBM).
 (b) Palmtop Computer (Sony Clie PDA®, Courtesy of Sony).
 (c) Desktop Computer (IBM NetVista Desktop, Courtesy of IBM).



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-3

Figure 1.3 Components of a Computer



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-4

Figure 1.4
 1000 Memory Cells in Main Memory

Memory	
Address	Contents
0	-27.2
1	354
2	0.005
3	-3.6
4	⊗
⋮	⋮
⋮	⋮
998	⊗
999	75.62

Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-5

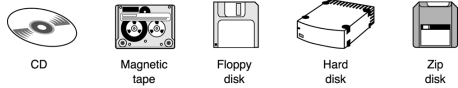
Figure 1.5 Relationship Between a Byte and a Bit



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-6

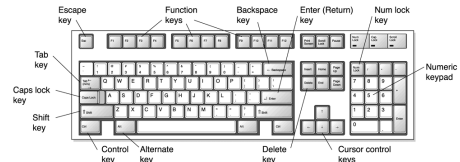
Figure 1.6 Secondary Storage Media



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-7

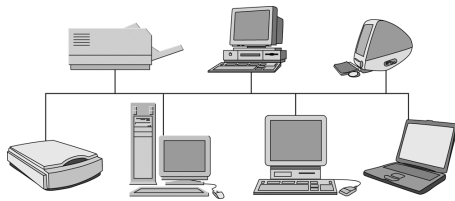
Figure 1.7 Keyboard for IBM-Type Computers



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-8

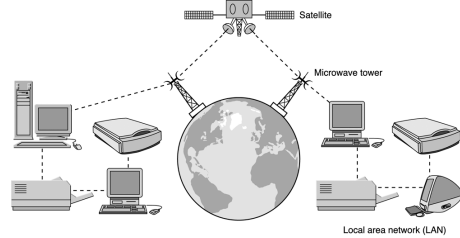
Figure 1.8 Local Area Network



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-9

Figure 1.9 A Wide Area Network with Satellite Relays of Microwave Signals



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-10

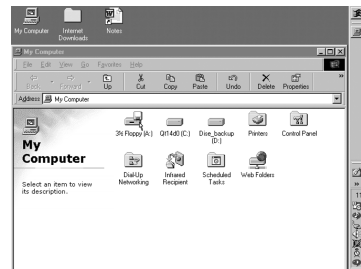
Figure 1.10 Entering a UNIX Command for Directory Display

```
1. mycomputer:~> ls temp/misc
2. Gridvar.c  Gridvar.exe  Gridok.dat
3.
4. mycomputer:~>
```

Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-11

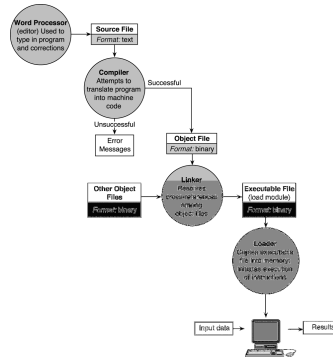
Figure 1.11 Accessing Disk Drive through Windows



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-12

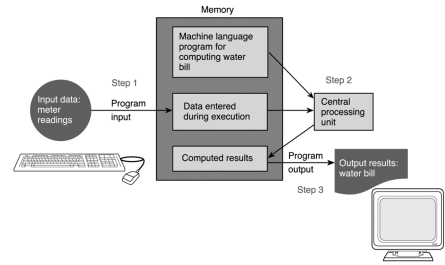
Figure 1.12
Entering,
Translating,
and Running
a High-Level
Language
Program



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-13

Figure 1.13 Flow of Information During
Program Execution



Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-14

Figure 1.14 Miles-to-Kilometers Conversion
Program

```

1. /*
2.  * Converts distance in miles to kilometers.
3.  */
4. #include <stdio.h>          /* printf, scanf definitions */
5. #define KM_PER_MILE 1.609 /* conversion constant */
6.
7.
8. int
9. main(void)
10. {
11.     double miles, /* input - distance in miles */
12.           kms;    /* output - distance in kilometers */
13.
14.     /* Get the distance in miles. */
15.     printf("Enter the distance in miles> ");
16.     scanf("%lf", &miles);
17.
18.     /* Convert the distance to kilometers. */
19.     kms = KM_PER_MILE * miles;
20.
21.     /* Display the distance in kilometers. */
22.     printf("That equals %lf kilometers.\n", kms);
23.     return (0);
24. }

```

Sample Run
Enter the distance in miles> 10.00
That equals 16.090000 kilometers.

Copyright ©2004 Pearson Addison-Wesley. All rights reserved.

1-15