

Computers with Your Future

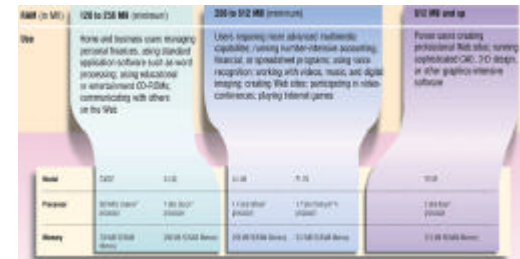
Part I: Buying and Upgrading Your Computer System

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How much RAM is needed?

- Depends on type of applications you intend to run on your computer

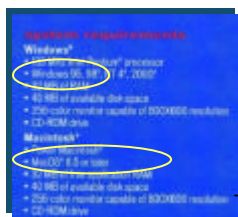


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How much RAM is needed?

- Software package usually indicates RAM requirements



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What type of input devices do home users require?

- Enhanced keyboard or ergonomic keyboard
- Mouse
- Joystick or wheel
- 30-bit 600x1,200 dpi color scanner
- 1- to 4-megapixel digital camera
- Microphone
- Voice recognition software
- PC video camera

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What type of input devices do SOHO users require?

- Enhanced or ergonomic keyboard
- Mouse
- Stylus and portable keyboard for handheld computer
- 36-bit 600 x 1,200 dpi color scanner
- 1- to 4-megapixel digital camera
- Microphone
- Voice recognition software
- PC video camera

What type of input devices do mobile users require?

- Wireless mouse for notebook computer
- Trackball, touchpad, or pointing stick on notebook computer
- Stylus and portable keyboard for handheld computer
- 2- or 3-megapixel digital camera
- Voice recognition software

What type of input devices do power users require?

- Enhanced or ergonomic keyboard
- Mouse
- Stylus and cursor for graphics tablet
- 48-bit 1,200x1,200 dpi color scanner
- 3-megapixel digital camera
- Microphone
- PC video camera

What type of input devices do large business users require?

- Enhanced or ergonomic keyboard
- Light pen for point-of-sale terminals
- 42-bit 1,200x1,200 dpi color scanner
- OCR, OMR, bar code reader, or MICR reader
- Video camera for videoconferences
- Voice recognition software
- Microphone
- Mouse
- Touch screen

What are suggested output devices for the Home user?

- 17- or 19-inch color CRT monitor
- High-definition television
- Ink-jet color printer; or photo printer; or label printer
- Speakers and headset

What are suggested output devices for the SOHO user?

- 19- or 21-inch color CRT monitor
- Color LCD display for handheld computer
- Multifunction device; or ink-jet color printer; or laser printer, black and white
- Label printer
- Fax machine
- Speakers and headset

What are suggested output devices for the Mobile user?

- 15.4-inch color LCD display with notebook computer
- 19-inch color CRT monitor for notebook computer docking station
- Color LCD display for handheld computer
- Ink-jet color printer; or laser printer, black and white, for in-office use; or photo printer
- Portable printer
- Fax modem
- Headset
- DL data projector

What are suggested output devices for the Large Business user?

- 19- or 21-inch color CRT or LCD monitor
- 15.4-inch color LCD display for notebook computer
- Color LCD display for handheld computer
- Line printer (for large reports from mainframe)
- Laser printer, black and white
- Label printer
- Fax machine or fax modem
- Speakers and headset
- DLP data projector
- Dumb terminal

What are suggested output devices for the Power user?

- 21-inch color LCD monitor
- Photo printer; or dye sublimation printer
- Fax machine or fax modem
- Speakers and headset
- Laser printer
- Plotter

What are suggested storage devices for the Home user?

- 3.5-inch HD floppy disk drive
- 250 MB Zip® drive
- 40 GB hard disk
- Internet hard drive
- CD-ROM drive
- CD-RW/DVD drive

What are suggested storage devices for the SOHO user?

- 3.5-inch HD floppy disk drive
- 60 GB hard disk
- Internet hard drive
- CD-ROM drive
- CD-RW/DVD drive
- 20 GB Peerless drive

What are suggested storage devices for the Mobile user?

- 3.5-inch HD floppy disk drive
- 10 GB hard disk
- 1 GB PC Card hard disk
- Internet hard drive
- CD-RW/DVD drive

What are suggested storage devices for the Large Business user?

- 3.5-inch HD floppy disk drive
- 80 GB hard disk
- CD-ROM drive
- CD-RW/DVD drive
- Microfilm or microfiche
- Smart card reader
- RAID
- Tape drive
- Enterprise storage system

What are suggested storage devices for the Power user?

- 3.5-inch HD floppy disk drive
- DVD+RW drive
- 100 GB hard disk
- CD-ROM drive
- Internet hard drive
- 20 GB Peerless drive

Suggested system requirements for various types of users



Pentium® 4 or Athlon™ 600 MHz or higher; or Celeron™ or Duron™ 600 MHz or higher
64 MB RAM



Pentium® 4 or Athlon™ 800 MHz or higher
128 MB RAM

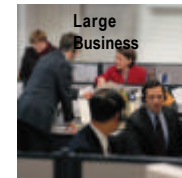


Pentium® 4 or Itanium™ or Athlon™ 1 GHz or higher
256 MB RAM ¹⁹

Suggested system requirements for various types of users



Pentium® III or AMD-K6® -2-P 500 MHz or higher
64 MB RAM



Pentium® 4 or Athlon™ 700 MHz or higher
128 MB RAM

Computers with Your Future

Part II: Avoiding Risk to Your Health

Areas of concern for a healthy work environment

- Long-time computer use can lead to health complications



What precautions can reduce the chance of developing tendonitis or carpal tunnel syndrome?

- Take frequent breaks during computer session
- Use wrist rest
- Exercise hands and arms
- Minimize number of times you switch between mouse and keyboard

Hand Exercises

-
- Spread fingers apart for several seconds while keeping wrists straight.
 - Gently push back fingers and then thumb.
 - Dangle arms loosely at sides and then shake arms and hands.

How can you ease eyestrain when working at the computer?

- Every 10 to 15 minutes, take an eye break.
 - Look into the distance and focus on an object for 20 to 30 seconds.
 - Roll your eyes in a complete circle.
 - Close your eyes and rest them for at least a minute.
- Blink your eyes every five seconds.
- Place your monitor about an arm's length away from your eyes with the top of the screen at eye level or below.
- Use a glare screen.
- Use large fonts.
- If you wear glasses, ask your doctor for computer glasses.
- Adjust the lighting.

Ergonomics

- Applied science devoted to comfort, efficiency, and safety in workplace

- elbows at 90° and arms and hands parallel to floor
- keyboard height: 23" to 28"
- adjustable backrest
- adjustable seat
- adjustable height chair with 5 legs for stability
- feet flat on floor



Computer addiction

- Occurs when computer consumes someone's entire social life

Symptoms

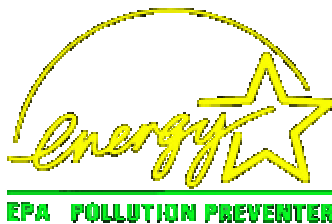
- Craves computer time
- Overjoyed when at computer
- Unable to stop computer activity
- Irritable when not at computer
- Neglects family and friends
- Problems at work or school

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Green computing

- Involves reducing electricity and environmental wastes while using a computer



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Green computing suggestions

1. Use computers and devices that comply with the ENERGY STAR program.
2. Do not leave the computer and devices running overnight.
3. Turn off your monitor, printer, and other devices when not in use.
4. Use paperless methods to communicate.
5. Recycle paper.
6. Buy recycled paper.
7. Recycle toner cartridges.
8. Recycle old computers and printers.
9. Shop online (saves gas).
10. Telecommute (saves gas).

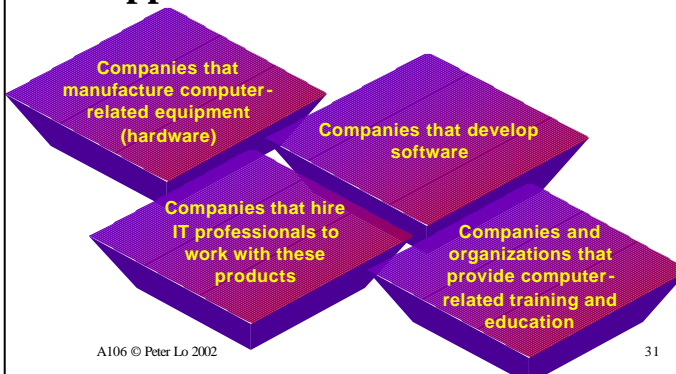
Computers with Your Future

Part III: Careers and Certification

What is the expected demand for computer professionals?

- Total information technology employment has increased significantly in recent years
- More than 10 million U.S. workers are employed in information technology
- About 3% of college freshmen are majoring in a computer-related field

Four Primary areas of Job Opportunities



Where can you find information on specific computer-related careers?

- Through typical job-searching methods
- Career-oriented sites on Internet



Computer hardware industry

- Consists of small and large manufacturers and distributors of computers and computer-related equipment



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Some of the more popular job titles in the computer equipment industry

- Larger companies have several levels to each job title, including management careers
- Visit company Web site for career information

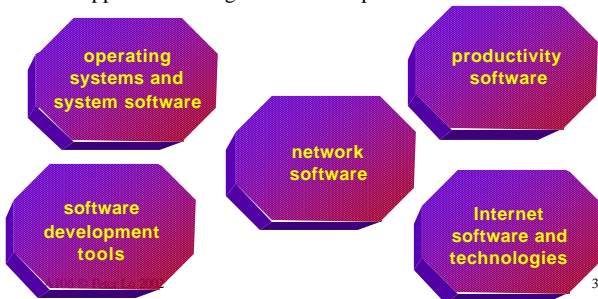
Title	Median Salary Range (in thousands of \$)	
	2000	2001
Digital signal processor (DSP) designer	87.5	84.8
Integrated circuit (IC) designer	101.1	99.8
Systems integrator	84.8	84.6
Wireless designer	84.1	81.6

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Computer software industry

- Composed of companies that develop, manufacture, and support wide range of software products



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Some career opportunities in the software industry

- Involve designing and programming all kinds of software products

COMPUTER SOFTWARE INDUSTRY POSITIONS			
Title	Function	Minimum Education	Salary Range
Programmer/Analyst	Designs, writes, and tests computer programs	B.S. in Computer Science or Information Technology	\$51,750 to \$77,500
Project developer	Analyzes software requirements, designs software solutions, and oversees the software development process	B.S. in Computer Science, Software Engineering, or Electrical Engineering	\$28,750 to \$80,250
Software engineer	Develops system software such as operating systems, utilities, and software drivers	B.S. in Computer Science or Electrical Engineering	\$62,750 to \$82,000

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IT professional

- Sets up and manages computer equipment and software in IT department
- Includes programmers and systems analysts

INTERNET INDUSTRY POSITIONS			
Title	Function	Minimum Education	Salary Range
Electronic commerce specialist	Supervises the development and installation of Internet or e-commerce systems, works with the company's marketing and customer service divisions	B.S. in Management Information Technology	\$99,750 to \$28,000
Web administrator	Monitors Web site performance, monitors and updates company's Web server and ISP	B.S. in Information Technology	\$41,000 to \$67,000
Web developer	Analyzes, designs, implements, and updates Web applications, works with HTML, JavaScript, and multimedia	B.S. in Information Technology	\$60,000 to \$76,750
Web graphic designer	Develops graphical content using Photoshop, Flash, and multimedia	B.S. in Information Technology	\$63,000 to \$79,699
Web programmer	Supports the company's Internet strategy by analyzing, designing, programming, and supporting Web-based applications	B.A.S. or B.S. in Information Technology	\$66,000 to \$84,000
Webmaster	Creates and delivers Webcasts, including streaming rich media, including audio, video, and Web-based multimedia	A.A.S. or B.S. in Information Technology	\$60,125 to \$88,200
Webmaster	Maintains an organization's Web site, creates or helps create Web pages	B.S. in Information Technology	\$53,000 to \$82,500

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Job categories in IT department



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Career opportunities in education and training

- Schools, colleges, universities, and private companies all need qualified instructors



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Careers in computer sales

- Sales representatives must have general understanding of computers and specific knowledge of product they are selling



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Careers in service and repair

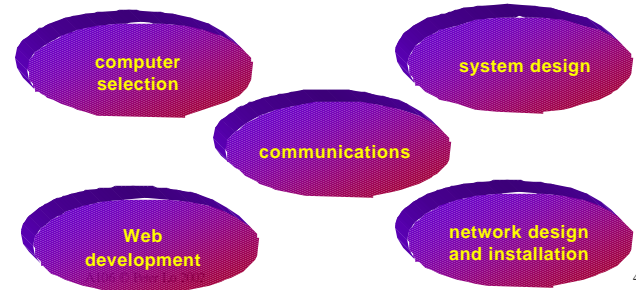
- Challenging for individuals who like to troubleshoot and solve problems
- Have a strong background in electronics



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Consultant

- Individual who draws upon experiences to give advice to others



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First steps in preparing for a career in the computer industry

- First must decide on the area in which you are interested
- Obtain education in that field

Fastest Growing IT Positions

Title	Employment		Change	
	1998	2008	Number	%
Computer engineer	298,000	622,000	323,000	108
Computer support specialist	429,000	869,000	439,000	102
Systems analyst	617,000	1,194,000	577,000	94
Database administrator	87,000	155,000	67,000	77
Desktop publishing specialist	26,000	44,000	19,000	73

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Preparing for a Career in the Computer Industry

- Three broad disciplines in higher education that produce the majority of entry-level employees in the computer industry

Computer Information Systems	Computer Science/ Software Engineering	Computer Engineering
Practical and application oriented	Theoretical oriented	Design oriented
Business and management oriented	Mathematics and science oriented	Mathematics and science oriented
Understanding how to design and implement information systems	Understanding the fundamental nature of software	Understanding the fundamental nature of hardware
Degrees include A.A.S., B.S., M.S., Ph.D.	Degrees include B.S., M.S., Ph.D.	Degrees include B.S., M.S., Ph.D.

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Articulation agreement

- Ensures that courses taken at one institution will transfer to another

Students often transfer to four-year college or university to complete B.S. degree

Many local community colleges offer A.A.S. or A.S. degree

Many computer degree graduates round out their education by obtaining a Masters in Business Administration (M.B.A.) degree

Individuals with advanced degrees in specific fields have better chance of success

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Trade school

- Offers programs primarily in the areas of programming and maintenance
- Students can complete trade school programs in a shorter time than college or university programs

A for-profit business that serves as alternative to a college or university

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How can you plan for career development?

professional organizations

certification

Web

continuing education activities

publications

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Some organizations for computer professionals

Association for Computing Machinery (ACM)
Science-oriented

Association of Information Technology Professionals (AITP)
Application-oriented

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Some professional organizations

WEB SITE	URL
Professional Organizations	
Association for Computing Machinery	acm.org
Association for Information Systems	aisnet.org
Association of Information Technology Professionals (formerly DPMA)	aitp.org
IEEE Computer Society	computer.org
Institute of Electrical and Electronics Engineers	ieee.org

User group

- Collection of people with common computer equipment or software interests

Organization	URL
Apple User Groups	apple.com/usergroups/program
Association of Personal Computer User Groups (APCUG)	apcug.org
Microsoft Mindshare User Group Support Program	microsoft.com/mindshare/default.asp
User Group Relations	ugr.com

Some professional growth and continuing education



Some Web news sites

WEB SITE	URL
Publications and Web News	
Computerworld	computerworld.com
InfoWorld	infoworld.com
EarthWeb	itmanagement.earthweb.com
Internet.com	internet.com
ZDNet: Tech Updates	zdnet.com/eweek

What is computer certification?

- Method for employers to ensure level of competency, skills, or quality in a particular area



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How are certifications classified?

- Software applications
- Operating systems
- Programming
- Hardware
- Networking
- Internet
- Database systems



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Software applications certifications

Certifications	URL
Adobe Systems Inc. Adobe Certified Expert (ACE)	partners.adobe.com/asrv/training
Autodesk, Inc. AutoCAD 2000	autodesk.com/exams
Lotus Certified Lotus Specialist (CLS) Certified Lotus Professional (CLP)	lotus.com/education
Microsoft Microsoft Office User Specialist (MOUS)	microsoft.com/traincert/mcp/mous

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Operating systems certifications

Certifications	URL
IBM IBM Certified Specialist	ibm.com/certify/index.shtml
Microsoft Microsoft Certified Professional (MCP) Microsoft Certified Systems Engineer (MCSE)	microsoft.com/traincert
Redhat Red Hat Certified Engineer (RHCE)	redhat.com/training
Sun Microsystems Certified System Administrator	suned.sun.com

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Programming certifications

Sponsor and Certifications	URL
IBM IBM Certified Developer Associate IBM Certified Specialist	ibm.com/certify/index.shtml
Microsoft Microsoft Certified Solution Developer (MCSO) Windows 2000 MCSE	microsoft.com/traincert
Sun Certified Java Programmer Certified Java Developer Sun Certified Architect for Java Technology	suned.sun.com

Hardware certifications

Sponsor and Certifications	URL
Computing Technology Industry A+	comptia.com/certification
International Business Machines (IBM) IBM Certified Professional Server Specialists (PSS)	ibm.com/certify/index.shtml
National Association of Communication System Engineers (NACSE) NACSE Network Technician (NNT)	www.nacse.com

Networking certifications

Certifications	URL
Cisco Cisco Certified Network Professional (CCNP) Cisco Certified Internetwork Expert (CCIE)	cisco.com/warp/public/10/wwwtraining/certprog
Computing Technology Industry Network +	comptia.com
Microsoft Microsoft Certified Systems Engineer (MCSE)	microsoft.com/traincert
Novell Certified Novell Administrator (CNA) Certified Novell Engineer (CNE)	education.novell.com

Internet certifications

Certifications	URL
Cisco Cisco Certified Internetwork Expert (CCIE)	cisco.com/warp/public/10/wwwtraining/certprog
International Webmasters Association Certified Web Professional (CWP)	irwa.org
Microsoft MCSE + Internet	microsoft.com/traincert
Novell Certified Internet Professional	education.novell.com
ProsoftTraining Certified Internet Webmaster (CIW)	ciwcertified.com

Database systems certifications

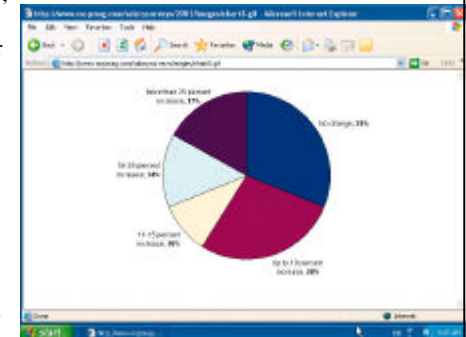
Sponsor and Certifications	URL
IBM IBM Certified Solutions Expert DB2 UDB V6.1 IBM Database Administration for UNIX, Windows, and OS/2	ibm.com/certify/index.shtml
Informix Informix Certified Database Specialist	www.informix.com/informix/training/courses/certific
Microsoft Microsoft Certified Database Administrator (MCDBA)	microsoft.com/training/cert
Oracle Database Administrator (DBA) Oracle Certified Professional (OCP)	oracle.com/education/boards/certification
Sybase Sybase Certified Professional (SCP)	sybase.com/education/profoart

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Primary benefit of certification

- Enhances careers; provides a better salary and a better standing as industry professionals

Microsoft's Fifth Annual Certified Salary Survey



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Factors to consider in choosing a certification

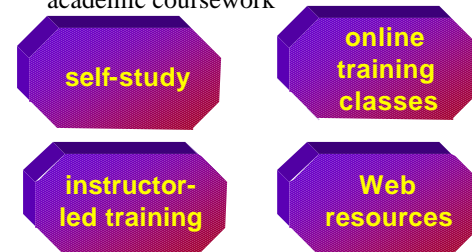
- Reflect on your career goals and interests
- Consider your long-term career path
- Assess your background and experience
- Research certifications

- Consider the expenses and the time involved to obtain the certification.
- Examine employment projections.
- Look at job listings to see what skills currently are needed.
- Read evaluations of certifications.
- Talk to people in the industry.
- Think about complementary combinations of certifications to meet your goals.

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What options are available to prepare for certification?

- Most certification programs do not require academic coursework



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What are examinations like?

- Examinations, usually multiple choice, are taken using computers
- Some required projects or written test.

References

- Computers in Your Future (Ch. 12)
- Discovering Computers World 2003 (Ch. 4 – 7, 16)