Before buying a new computer, it is important to give some thought to what your needs are, including what software programs you wish to run, any other computers with which you need to be compatible, how you might want to connect to the Internet, and how much portability is needed. This section of the References and Resources Guide explores topics related to buying a new personal computer. ■

Analyzing Needs

When referring to a computer system, a need refers to a functional requirement that the computer system must be able to meet. For example, at a video rental store, a computer system must be able to enter barcodes automatically from videos or DVDs being checked in and out, identify customers with overdue movies, manage movie inventories, and do routine accounting operations. Portability is another example of a possible need. For example, if you need to take your computer with you as you travel or work out of the office, you will need a portable computer instead of a desktop computer.

Selecting a computer for home or business use must begin with the all-important question "What do I want the system to do?" Once you have determined what tasks the system will be used for and the amount of portability that is needed, you can choose among the software and hardware alternatives available. Making a list of your needs in the areas discussed in the next few sections can help you get a picture of what type of system you are shopping for. If you are not really sure what you want a system to do, you should think twice about buying one yet—you can easily make expensive mistakes if you are uncertain about what you want a system to do. Some common decision categories are discussed next; Figure R-1 provides a list of questions that can help you define the type of computer that will meet your needs.

FIGURE R-1
Questions to consider when getting ready to buy a personal computer.

POSSIBLE QUESTIONS

What tasks will I be using the computer for (writing papers, accessing the Internet, watching TV, making telephone calls, composing music, playing games, etc.)?

Do I prefer a Mac or a PC-compatible? Are there any other computers I need my documents and storage media to be compatible with?

How fast do I need the system to be?

Do I need portability? If so, do I need a powerful desktop replacement or will a netbook or UMPC suffice?

What size screen do I need? Do I need two monitors?

What removable storage media will I need to use (such as DVDs, flash memory cards, or USB flash drives)?

What types of Internet access will I be using (such as conventional dial-up, DSL, cable, satellite, or mobile wireless)?

Do I need to be able to connect the computer to a network? If so, is it a wired or wireless network and what type of network adapter is needed to connect to that network?

What additional hardware do I need (scanner, printer, TV tuner/antenna, wireless router, or digital camera, for example)?

What brand(s) do I prefer? When do I need the computer?

Do I want to pay extra for a better warranty (such as a longer time period, more comprehensive coverage, or on-site service)?

Application Software Decisions

Determining what functions you want the system to perform will also help you decide which application software is needed. Most users start with an application suite containing a word processor, spreadsheet, and other programs. In addition, specialty programs, such as tax preparation, drawing, home publishing, reference software, games, and more, may be needed or desired.

Not all software is available for all operating systems. Consequently, if a specific piece of software is needed, that choice may determine which operating system you need to use. In addition, your operating system and application software decisions may already be made for you if your documents need to be compatible with those of another computer (such as other office computers or between a home and an office computer).

Platforms and Configuration Options

If your operating system has already been determined, that is a good start in deciding the overall platform you will be looking for—most users will choose between the PC-compatible and Apple Macintosh platform. PC-compatible computers usually run either Windows or Linux; Apple computers almost always use Mac OS.

Configuration decisions initially involve determining the size of the machine desired (see Figure R-2). For nonportable systems, you have the choice between tower, desktop, or all-in-one configurations; in addition, the monitor size needs to be determined. Fully functioning personal computers can be notebook or tablet computers. For tablet computers, you need to decide if you will require keyboard use on a regular basis; if so, a convertible tablet computer would be the best choice. If a powerful fully functioning computer is not required, you may decide to go with a more portable option, such as a netbook or UMPC.

You should also consider any other specifications that are important to you, such as the size of the hard drive, types of other storage devices needed, amount of memory required, and so forth. As discussed in the next section, these decisions often require reconciling the features you want with the amount of money you are willing to spend.

Power vs. Budget Requirements

As part of the needs analysis, you should look closely at your need for a powerful system versus your budgetary constraints. Most users do not need a state-of-the-art system. Those who do should expect to pay more than the average user. A computer that was top of the line six months or a year ago is usually reasonably priced and more than adequate for most users' needs. Individuals who want a computer only for basic tasks, such as using the Internet and word processing, can likely get by with an inexpensive computer designed for home use.

When determining your requirements, be sure to identify the features and functions that are absolutely essential for your primary computing tasks (such as a large hard drive and lots of memory for multimedia applications, a fast video card for gaming, a fast Internet connection, a TV tuner card for individuals who wish to use the computer as a TV set, and so forth). After you have the minimum configuration determined, you can add optional or desirable components, as your budget allows.

Listing Alternatives

After you consider your needs and the questions mentioned in Figure R-1, you should have a pretty good idea of the hardware and software you will need. You will also know what purchasing options are available to you, depending on your time frame (while some retail stores have systems that can be purchased and brought home the same day, special orders or some systems purchased online will take longer). The next step is to get enough information from possible vendors to compare and contrast a few alternative systems that satisfy your stated needs. Most often, these vendors are local stores (such as computer stores, warehouse clubs, and electronic stores) and/or online stores (such as manufacturer Web sites and e-tailers). To compare prices and specifications for possible computer systems, find at least three systems that meet or exceed your needs by looking through newspaper advertisements, configuring systems online via manufacturer and e-tailer Web sites, or calling or visiting local stores. A comparison sheet listing your criteria and the systems you are considering, such as the one in Figure R-3, can help you summarize your options. Although it is sometimes very difficult to compare the prices of systems since they typically have somewhat different configurations and some components (such as CPUs) are difficult to compare, you can assign an approximate dollar value to each extra feature a system has (such as $50 for an included printer or a larger hard drive). Be sure to also include any sales tax and shipping charges when you compare the prices of each total system.
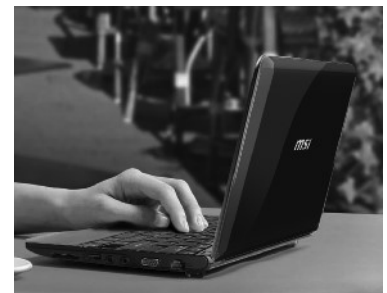
If your budget is limited, you will have to balance the system you need with extra features you may want. But do not skimp on memory or hard drive space because sufficient memory can help your programs to run faster and with fewer problems and hard

DESKTOPS

NOTEBOOKS

NETBOOKS

ULTRA-MOBILE PCS (UMPCs)

FIGURE R-2
Types of personal computers.

COMPONENT	EXAMPLE OF DESIRED SPECIFICATIONS	SYSTEM #1 VENDOR:	SYSTEM #2 VENDOR:	SYSTEM #3 VENDOR:
Operating system	Windows 7 Home Premium			
Manufacturer	HP or Dell			
Style	Notebook			
CPU	Intel dual core			
RAM	2 GB or higher			
Hard drive	500 GB or higher			
Removable storage	8-in-1 and flash memory card reader			
Optical drive	DVD-RW			
Monitor	Widescreen 15.4" minimum			
Video card and video RAM	Prefer dedicated video RAM			
Keyboard/mouse	Portable USB mouse with scroll wheel			
Sound card/speakers	No preference			
Modem	None			
Network card	Wi-Fi (802.11n)			
Printer	Ink-jet if get deal on price with complete system			
Included software	Microsoft Office			
Warranty	3 years min. (1 year onsite if not a local store)			
Other features	3 USB ports minimum, TV tuner, ExpressCard module			
Price				
Tax				
Shipping				
TOTAL COST				

FIGURE R-3

Comparing computer alternatives. A checklist such as this one can help to organize your desired criteria and evaluate possible systems.

drive space is consumed quickly. Often for just a few extra dollars, you can get additional memory, a faster CPU, or a larger hard drive—significantly cheaper than trying to upgrade any of those features later. A good rule of thumb is to try to buy a little more computer than you think you need. On the other hand, do not buy a top-of-the-line system unless you fall into the power user category and really need it. Generally, the second or third system down from the top of the line is a very good system for a much more reasonable price. Some guidelines for minimum requirements for most home users are as follows:

➤ A relatively fast multi-core CPU (generally, any multi-core CPU currently being sold today is fast enough for most users).

➤ 3 GB of RAM for desktop and notebook users.

➤ 320 GB or more hard drive space.

➤ Recordable or rewritable DVD drive.

➤ Network adapter or modem for the desired type(s) of Internet access.

➤ Sound card and speakers.

➤ At least 3 USB ports.

➤ A built-in flash memory media reader.