

## How to Determine Which Laptop Meets Your Needs

by Shantala Ramamoorthy

Laptops come in all kinds of shapes and sizes, appearances, and prices, but it shouldn't be too hard to find exactly what you're looking for that will meet all your needs.



Take a look at the table below to learn more about what each type of laptop has to offer, each with its own set of pros and cons.

	Weight/Size	Display	Processor/Networking	Features	Others
<b>Ultraportables</b>	4 pounds or less. Less than 1 inch thick.	Smaller than 12 inches (diagonal).	Slower low voltage mobile processor.  LAN, modem, WiFi, Bluetooth (optional), cellular (optional).	Fewer ports and connections, 30 GB to 60 GB hard drive.	Small keyboard and touchpad. May lack an internal optical drive.
<b>Thin and Light</b>	4 to 6 pounds. Approximately 1 inch thick.	12 to 14 inches (diagonal), possible wide screen.	Midrange to fast mobile processors.  LAN, modem, WiFi, Bluetooth (optional).	Most ports and connections 40 to 80 GB hard drive, optical drive.	Small keyboard and touchpad.
<b>Midsize</b>	6 to 8 pounds. More than 1 inch thick.	14 to 15 inches (diagonal), widescreen.	Slow or budget to fast mobile processors.  LAN, modem, WiFi.	Most ports and connections 40 to 80 GB hard drive, DVD burner, memory card reader, decent software package.	Less attractive, may suffer from mediocre performance and poor battery life.
<b>Desktop Replacement</b>	7.5 pounds or more. Over 1 inch thick.	15 to 17 inches diagonal.	Fast mobile or desktop processors, dual core processors.  LAN, modem, WiFi.	Wide array of ports and connection, 80 GB to 120 GB hard drive, double layer DVD burner.	Large keyboard, separate number pad, large touchpad, batteries not designed for lengthy mobile use.

<b>Tablet PC</b>	Usually four pounds or less, with some slates weighing as little as 2 pounds, some larger laptops incorporate tablet functionality. Less than 1 inch thick.	12 inches or smaller (diagonal) or smaller digitized display.	Moderate mobile processors.  LAN, modem, WiFi, Bluetooth (optional).	Fewer ports and connection. 30 GB to 60 GB hard drive.	Microsoft XP tablet edition OS, hand writing recognition software.
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**Memory:** Every computer comes with a certain amount of physical memory. It is usually referred to as main memory or RAM (random-access memory). This area of computers is used to store currently running applications and data. To find out how much memory you'll need, take into account your operating system and the applications that you plan to use. A general rule of thumb: You'll need 256 MB for Windows XP or Mac OS X and at least 128 MB for all other Windows and Mac operating systems. If you're planning to hang on to your notebook for a long time, look for a laptop with easy access memory slots, as memory is typically one of the first specs you'll want to upgrade.

### Display Size:

Unlike traditional desktop CRT (cathode-ray tube) monitors, notebooks ship with thin, liquid-crystal displays (LCDs). Notebook LCDs range in size from 12.1 inches (diagonal) to 17 inches. For comfortable viewing at the preferred Windows resolution of 1024x768, most people like 14.1 inch or larger LCDs.

The ultraportable Fujitsu LifeBook P series has one of the smallest screens. It's just 10.6 inches, enabling it to accommodate its feather light, 3.1 pound weight.



The giant 17 inch Apple PowerBook, on the other hand, has the biggest notebook screen we've ever seen.



## What Types of Drives Do I Need?

### Hard Drive

This magnetic disk provides you with space to save programs and files indefinitely, or at least for the life of the drive. Notebook hard drives can be bigger than 60 GB, but these giant drives cost hundreds of dollars more than the default 20 GB notebook drives. You'll only need a 20 GB or a 30 GB drive, unless you are going to store lots of movies or tons of pictures. Capacity alone does not make a good hard drive. The hard disk's rotational speed also makes a big difference. A 5,400rpm notebook disk delivers significantly faster performance than a 4,200rpm model. The faster the disk spins, the better your notebook will perform overall.

## **CD and DVD Drives**

You need at least a CD-ROM to install software, of course. But unless you're buying a budget notebook, don't settle for anything less than a CD-RW drive so that you can burn your own CDs. For watching movies and playing games on the road, consider a CD-RW drive that doubles as a DVD drive. Some notebooks now offer DVD-rewritable drives, which can store up to 4.7 GB on one disk. But, unless you need to store huge files, such as movies, you may not need the more expensive DVD-RW drive.

## **Swappable vs. Fixed**

The least expensive notebooks come with fixed (built-in) drives. In other words, if you buy your notebook with a fixed DVD-ROM, you're stuck with that drive. On the other hand, a swappable drive bay gives you optimum flexibility. For instance, you can pull out the DVD-ROM drive and swap in a combo DVD/CD-RW drive or even a second battery on many notebooks. I recommend going with a swappable bay if you can afford it. Keep in mind however, that the smallest and lightest ultraportable notebooks may not include either of the fixed or swapped optical drives, which results in you having to rely on external USB drives instead.

## **External Drives**

External drives (storage and media burning options that hook up to your notebook via a cable) come in many shapes and sizes. Most of these drives hook up to your notebook's USB or FireWire connector. Drive choices include external floppy, CD-ROM, combo DVD/CD-RW, DVD-ROM, DVD-RW, hard drive, Zip, LS-120 and others. There are also smaller external drives, such as the Trek 16 MB USB ThumbDrive which plugs directly into your USB connector without a cable. These little drives, sometimes called keychain drives, are brilliant for transferring small amounts of data between notebooks, or between notebooks and PCs. Many notebook users don't need external drives, but there are some scenarios that require them. For instance, if you buy a tiny ultraportable that lacks a built-in CD-ROM drive, make sure you get an external one so that you can load software.

## **What Do I Need to Stay Connected?**

To send and receive e-mail, browse the Web and share files or printers, your notebook must be able to connect to a network or to the Internet. This is usually done via a modem, an Ethernet hookup or a wireless connection. But, your notebook has additional connectivity needs too. Notebooks include a variety of ports (or connectors) that physically link to and communicate with different kinds of equipment, including digital cameras and external monitors.

## **PC Cards vs. Mini PCI**

The PC card, a credit card-shaped device that plugs into a slot on your notebook, can provide a number of connection types. Modems, USB connections (say, for your digital camcorder) and wireless LAN radios are all available in PC card form. PC cards are handy, because they're easy to upgrade and you can buy third party PC card solutions after you purchase your notebooks. However, most notebooks come with only one or two Type II PC card slots, forcing you to limit the number of PC cards you add.

On the other hand, the mini-PCI card is a smaller, more compact version of a PC card. Notebook manufacturers install mini-PCI cards inside notebooks, which has a couple of advantages. These cards are usually cheaper and they leave PC card slots open for additional uses. Unfortunately, mini-PCI cards are almost impossible to remove or upgrade, because they are integrated and sometimes they take power from the notebook's CPU.

## **Modems and Ethernet Ports**

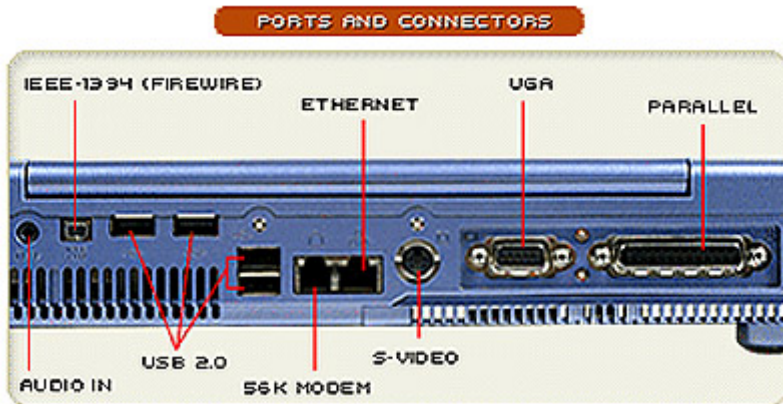
Virtually all notebooks come with 56 Kbps-modem (RJ-11) and Ethernet (RJ-45) connections. Look for a system that integrates these connections on a mini-PCI card, leaving your PC card expansion slot(s) free.

## Wireless Antennae and Radios

Many notebooks also include built-in antennae for wireless networking (802.11 or WiFi), so you only have to add a PC card to enable wireless networking. Or, even better, some notebooks come embedded with an internal mini-PCI, a WiFi radio or network interface cards (NICs).

If you choose a notebook with networking built in, make sure you understand the difference between the networking standards that are currently on the market, including 802.11a, 802.11b and 802.11g.

If your notebook doesn't offer either a built-in antennae or a wireless mini-PCI, it's fairly easy to find PC cards that can get the job done.



## Other Ports and Connectors

Most notebooks have a printer port, a VGA port for an external monitor and at least one USB port for connecting an external keyboard and mouse, drives, digital cameras or MP3 players. If you plan to use your notebook for watching DVDs or making presentations, look for a notebook with a multimedia jack (a combined stereo and video output). For home use, you may want a stereo input, a game port, a MIDI connector and a FireWire port for capturing and editing digital video or hooking up an external storage drive.

## What Accessories Do I Need?

### Docking Station or Port Replicator

A docking station contains a mixture of ports, slots, drive bays and security features. It usually attaches to the notebook from underneath. Docking stations come in a variety of shapes, ranging from the same size as your notebook (which is often referred to as a media slice) to much bigger. Some even stick out five inches past the back of your notebook. As the name implies, a docking station is where you park your notebook until you get back to the office, giving you easy access to your network. It also comes along with a bigger monitor, a regular keyboard, additional storage devices and possibly most important, the convenience of leaving cables plugged in when you walk away from your desk.

A port replicator, on the other hand, is a smaller, stripped down version of a docking station that mainly features ports, such as USB or parallel. When you're on the road, a port replicator is a convenient way to increase your connectivity.

### Laptop Bag

You're about to drop a couple grand or more on a laptop and the last thing you want to do is spend even more money on a carrying case. So, you save a few bucks by going with the manufacturer's basic case. Look for padded shoulder straps, reinforced corners and specialized compartments that are designed to hold the AC adapter, the extra batteries and so on.

### Extra Battery

If you do even a modest amount of traveling, it is better to get a second battery. They range from \$100 to \$300 and they are worth the money. Many notebooks allow you to swap them into the main media bay. Other secondary

batteries clip on to the back of the notebook or attach via a cable. If you rarely travel with your notebook however, and your laptop is pretty much always plugged in, don't bother with a second battery.

### **External Drives**

Again, external drives (storage and media burning options that hook up to your notebook via a cable) can be a pain to carry around and hook up; plus they can be pricey. You're generally better off buying a notebook that has everything you need out of the box. Nevertheless, external drives are sometimes required. If, for instance, you buy an ultraportable that lacks a built-in CD-ROM drive, make sure you get an external drive so that you can load software. Types of external drives include CD-ROM, CD-RW, combo DVD/CD-RW, DVD-rewritable, floppy, hard drives, Zip drives and more.

### **Mouse and Keyboard**

Working for hours with just a pointing stick or a touchpad can take a toll on your hand, wrist and forearm. To save yourself some wear and tear, invest in a small travel mouse. These can cost as little as \$20. They usually hook up via a USB cable and they're very easy to tote. The same advice applies to typing for hours on your notebook's keyboard. If you plant your notebook on your desk when you work, hook up a USB keyboard and relieve your wrists. If you prefer working without wires, get a wireless mouse and keyboard.