GUIDE TO BUYING A "WINDOWS 7" PC

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I suggest you print out this GUIDE along with its companion SHOPPING COMPARISON CHART and take them to the store with you.

Currently Windows 7 PC's are not available in stores. Some websites do offer Windows 7 PC's on their "Outlet" or "Refurb" pages. Other sites like Dell and Lenovo, offer Windows 7 PC's only with the "Small Business" PC's which are pricier than Windows 8 home PC's. See also: www.walmart.com/refurbished

This guide identifies the many issues you should consider when shopping for a new "Windows 7" Desktop or Laptop PC. You can fill out the SHOPPING COMPARISON CHART as you shop to help compare desired features.

My suggested minimum specifications are for a "Power User", and are high to help ensure that your new PC will comfortably meet your current expectations as well as your future needs.

For an average user, who just does simple tasks like word processing, Internet browsing, e-mail, and watching online videos, almost any Windows 7 PC will work great as long as it includes at least 3 GB RAM and Windows 7 Home Premium or better.

1. OS (OPERATING SYSTEM):
   a. I recommend Windows 7 Professional over Windows 7 Home Premium or Windows 8, unless you have a touch screen. Win 7 Pro offers "Virtual XP Mode" (which includes a free download copy of Windows XP). If you have no need for this feature, then Windows 7 Home Premium is fine. *Note: You can easily upgrade at any time from Home Premium to Professional for about $90.00*.

   b. Look for the 64-bit version of Win 7 because it runs faster and recognizes more RAM than the 32-bit version. Since almost every new PC comes with a 64-bit Processor, they also usually come with the 64-bit version of Windows 7 pre-installed.

   c. Be aware that all your printer and other peripheral devices may not have drivers written for Windows 7 64-bit, and possibly not even for Win 7 32-bit. Make sure all your current devices have drivers available for 64-bit Windows 7 (or 64-bit Vista). *(Yes, Vista 64-bit drivers will work with Windows 7).* If not, then plan to buy a new printer or other devices.

2. CPU (CENTRAL PROCESSING UNIT). *See **Note 2 for many more details.*
   - I prefer Intel brand Processors. The AMD brand is acceptable, but have been occasionally problematic for me in the past.
   - Desktops = I personally recommend the Intel i5 @ 2.7 GHz or higher as the best choice for price/performance. The Intel i3 @ 2.7 GHz or higher is OK too.
   - Laptops = Intel i3 or i5 @ 2.5 GHz speed or higher.

3. RAM = 3 GB to 6 GB or more ***Note 3. *(The more the better, as it seems that Windows 7 takes some of the available RAM to support the needs of the video graphics processor)* .

4. Video RAM (Dedicated *[not shared]* if possible): *(More is better!)*
   - 128 MB minimum - If Display is less than 2.3 megapixels *(less than 1920 x 1200)*
   - 256 MB minimum - If Display is 2.3 megapixels or more. *(1920 x 1200 or more)*

5. HARD DRIVES

- SIZE: One or two 500GB SATA Drives are adequate, unless you edit video. I prefer two 500 GB drives over a single 1 TB Drive for better reliability. *(Note: Per Steve Gibson, the bigger the drive, the less reliable the drive, especially drives over 2 TB in size).*
- Make sure the PC has room for a second Hard-drive.
- RPM: 7200 RPM drives are preferred over 5400 RPM for good PC speed.
- SSD: Solid State Drives are great for speed, but are cost more per GB. *See my comments below regarding SSD's.*

6. DVD Writer = Dual Layer Blue-Ray or DVD writer. *(Note: Lightscribe is a waste of money. I suggest getting a printer that can print on DVD/CD's).*
7. CARD READER = 5-in-1 or better. *(This is for camera type memory cards)*
8. NETWORK (Ethernet) ADAPTER = 1 GB speed *(Also called 10/100/1000 MB speed)*
9. USB PORTS = 4 or more ports; more are better. Having at least one USB 3.0 port is preferred. *Currently USB version 2.0 is still standard. USB 3.0 can be added to a desktop at a later time, but not to a Laptop.*
10. IEEE 1394a Firewire Adapter ports = 1 or more ports. *(Especially if you do video)*
11. WIRELESS: Mandatory for a Laptop. Optional for a Desktop.
12. FLOPPY DRIVE = An included Floppy is not necessary. *(USB Flash Drives make Floppy disk's obsolete, but USB External Floppy drives are available separately and are cheap)* .
13. BLUETOOTH = Optional, but nice. Especially if you want to use a Bluetooth keyboard or mouse with a laptop. *(Also connects to cell phones & portable devices.)*
14. SOFTWARE = If you plan to buy Office 2007/2010/2013, make sure it is included in your PC purchase. It is cheaper than buying it later. Many users prefer to stick with Office 2003 or Office XP; both seem to run OK on Windows 7. If you have the Install CD's for your old Microsoft Office, you can install it on your new PC. *(Personally, I prefer the "Open Office" Suite. It is a free download from Sun).*
15. RE-INSTALLATION DVD's: If possible, make sure that Windows 7 Installation DVD's or Recovery DVD's are included with the PC purchase. *(See *Note 1 below for details).*

***Note 1 - Re-Install/Recovery DVD Issues.**

- If you buy a PC at a place like Best Buy or similar store, you pretty much have no hope of getting a Recovery CD/DVD set as part of the deal.
- Most manufacturers will sell you a Recovery DVD set for from $5.00 to $20.00 or so, but you have to phone them and possibly hassle with the Customer Service Rep.
- If you shop online at places like dell.com, lenovo.com or acer.com, you can customize your order to include a Recovery DVD set with your PC for a small additional charge. In some cases you can actually order a real Windows 7 Install DVD with your PC. This is the most desirable way to go.
- Most if not all new Windows 7 PC's come with a Utility Program that allows you to burn your own set of Recovery DVD's (from a hidden or second partition on the hard-drive). *(You are only allowed to use the Utility once, so if it fails to complete successfully, you have to call the manufacturer) .*

- Windows 7 also includes utility that allows you to burn a “Windows 7 Repair CD”. This is a bootable CD that make certain repairs that may make an unbootable system boot again. You can also download the CD image (ISO) from Microsoft. Be sure to specify 32-bit or 64-bit.
- WARNING: Most Recovery DVD's restore your PC to the way it was when you bought it and cannot be used for a Windows "Repair" install. Plus, Recovery DVD's destroy all your personal data during the recovery process. *I recommend making regular image backups so you can restore your PC back the way it was before a critical problem arises, including all your currently installed programs, settings, customizations, and data. See my tip sheet called "BACKING UP AN IMAGE OF YOUR HARD-DRIVE" for details.*

****Note 2 - CPU’s:**

- INTEL i5 vs i7: The Intel i5 6xx series has 2 CPU’s & 7xx series has 4 CPU’s. Also, although some Intel i7’s are better than i5’s, they are not as cost effective. An i5 CPU with a higher clock speed will actually run faster than an i7 with a slower clock speed, but the i7 Processor can do more multitasking for video editing, etc. *NOTE: I do NOT recommend Intel’s CELERON Processor. It is their slowest and poorest performing CPU.*
- AMD: In my experience, the speed of AMD CPU’s varies dramatically among similar models and their performance is poorly documented. I avoid all AMD CPU’s.
- 64 BIT vs 32 BIT: I absolutely recommend getting a 64-Bit CPU so you can use the 64-Bit version of Windows 7 either now or later. You will find that most PC's for sale not only have a 64-bit CPU, but they also come with the 64-bit version of Windows 7 pre-installed. In the future, more and more 64-Bit Software will be available that can take advantage of the increased performance of the 64-bit CPU. Not to worry; Your 32-Bit applications will run just fine under Windows 7 (64-Bit).
- VIRTUAL XP MODE: If you plan to run "Virtual XP Mode" inside Windows 7, the CPU must also support VT(Virtualization Technology) as well as Hardware DEP for added security. To find out if a PC supports these features, I suggest downloading the utility called “SecurAble” (from www.grc.com/securable.htm). Put it on a flashdrive and take the flashdrive shopping with you to test CPU features on a demo PC in the store. *NOTE: Intel has charts showing which Processors support 64 bit and VT. They can be found here: http://ark.intel.com/ Note. All Intel "Core i3, i5, and i7" processors include VT. Note: Core 2 Solo & Core 2 Duo processors run “Virtual XP Mode” more slowly, so any Core 2 Quad is better if it supports VT.*
- SPEED CHARTS comparing the speed of various CPU’s, see: http://www.cpubenchmark.net/

*****Note 3 - RAM**:

- More is better. If you use memory intensive programs like Photoshop, Paintshop Pro, or do video editing, I suggest you get 4 or 8 GB (or even 12MB) of RAM or more.
- WARNING: The 32 bit versions of Windows 7 can only recognize a maximum of about 3.2 GB of RAM, so having 4GB or more is wasted. This is one big reason to choose 64-Bit Windows 7.
- The 64-Bit version of Windows 7 Professional can recognize up to 192 GB of RAM. *(Windows 7 Home Premium 64-Bit will recognize up to 16 GB of RAM).*

LCD MONITORS & DISPLAYS:

- GLOSSY or MATTE? LCD screens come in either a glossy or matte face. The best style for you is a matter of taste. Personally, I hate the sharp reflections and glare found on a glossy screen and prefer a non-reflective anti-glare (matte) screen. Many people will argue just the opposite because they like the "more vivid" colors and clarity found with glossy screens. They claim they are not bothered by the reflections or they plan to use the PC in a darkened area. Consider these ideas when shopping. *Note: Anti-glare films are available to put over glossy screens if needed.*

- MONITOR SIZE:
  - ✓ LCD Displays are measured by the diagonal "corner-to-corner" distance of the screen.
  - ✓ A 17" **Wide-Screen** is a lot shorter than a 17" standard 4:3 screen. When replacing a CRT monitor with an LCD Monitor, be aware of this fact. For example, a **Wide-Screen** 20" LCD is about the same screen height as a standard 17" CRT Monitor (about 11" high). I suggest you pick a monitor one size larger than what you think you'll need.

- LED BACKLIGHTING: Newer LCD displays are now using white LED's instead of a fluorescent Lamp for backlighting. They cost more, but will give a longer and brighter life. Fluorescent lamps dim over their life making both monitors and laptop screens harder to see as they age. In my opinion, LED BACKLIGHTING is well worth the extra money.

VIDEO CARDS:

- Unless you are doing gaming or video editing, the built-in video is fine.
- If offered a choice of a Video Card "With Adapters" or "Without Adapters", I would always go "With Adapters". You may be glad you have them if you ever upgrade your Monitor.
- The main thing is to make sure the video output connector on the PC is a match to the video input connector on the monitor. There are many new ways to connect a monitor. Some of the video connectors you will find are: VGA (HD15), HDMI, HDMI Micro, HDMI Mini, DVI, DVI-D, DVI-I, DVI-A, and Displayport. Http://en.wikipedia.org/wiki/List_of_video_connectors.
- RESOLUTION: Newer large monitors can have resolutions up to 2560x2048. Make sure you get a video card that can support the best resolution of your Monitor.
- MULTIPLE MONITORS: Some video cards support multiple Monitors. Don't pay extra for those unless you plan to use multiple monitors now or in the future..

HARD-DRIVES:

- DRIVE RPM: (Rotational Speed in revolutions per minute) If you don't ask the seller, you will probably end up with a 4300 or 5400 RPM hard-drive inside because they are cheaper. Be sure to specify a 7200 RPM hard-drive. They make the whole PC run much faster.
- SSD's (Solid State Hard-drives):
  - ✓ These drives are now large enough to use as your main Drive (C:), but are still expensive.
  - ✓ If you choose an SSD: Beware that it can fail suddenly and catastrophically without warning, therefore when using SSD's, it is even more important to do regular image backups to an external hard-drive.
  - ✓ Personally I prefer Intel Brand SSD's.
  - ✓ When shopping for an SSD, use the "IOPS" specification to compare the drive speed and performance between brands and models. For more details, see: http://www.gamersnexus.net/guides/785-ssd-dictionary-understanding-ssd-specs

- ✓ “SLC” technology is more reliable than “MLC” technology. (Avoid “TLC” technology).

- Some newer Laptops offer space for two hard-drives. In this case, you can make the main drive SSD and the second drive a regular drive. You can then automate regular image backups to the second drive.

LAPTOP/NOTEBOOK PC's:

When shopping for a Laptop PC, in addition to the issues discussed above, you should think carefully about the following items:

1. **Screens:**
   a. GLOSSY or MATTE? Read the discussion above under MONITORS & DISPLAYS (LCD).
   b. SIZE: Laptop screen size typically varies from 12" to 17". Personal preference, but you must consider that larger screens mean a thicker heavier PC, and a shorter battery life.
   c. LED Backlighting for Laptop screens is better, but more expensive at this time. Prices for LED backlight will come down with time. If you plan to use the laptop outdoors, I suggest you spring the extra bucks for the LED backlight.
   d. ASPECT RATIO: I prefer standard 4x3 ratio over a Wide-Screen, but you must decide what fits your needs.

2. **Keyboards:**
   a. Keyboard size is important if you plan to use the laptop's built-in keyboard most of the time. Laptops with smaller screens have undersize keyboards that can be difficult to use if you are used to touch typing on a standard-size keyboard. For me, undersize keyboards tire out my hands. If the keyboard feels scrunched up to you, try a larger screen Laptop. They will have larger keyboards and possibly even a full size keyboard.
   b. Keyboard feel is also important. The keys should provide a clear physical tactile feedback each time a key-button is pressed. Not too firm and not too soft.
   c. Lastly, the surface of the tops of the Keys should all be concave (not flat).
   d. Bluetooth attached wireless keyboards make this even easier.

3. **Mouse/Touchpad**. Be sure to test the feel and action of the touchpad. Note that Lenovo and some other Manufacturers provide a Trackpoint Stick in addition to the touchpad. I like the trackpoint feature a lot, but it takes a little getting used to. If you do not like the touchpad on a laptop, don't let that be the show stopper. You can simply plug in an external mouse or trackball into the USB port or via Bluetooth. Many users do this routinely.

4. **Docking Station / Port Replicator**: A docking station allows you to plop your laptop down and automatically connect it to an external monitor, full-size keyboard, mouse, Network, and various USB devices via a hidden connector on the bottom of the laptop. Most brands offer this feature, but only on certain specific models. **Personally, I would never buy a laptop without this feature.** *Note: There are several 3rd party "Universal" docking stations available that connect to the PC via a single USB plug. I do not recommend them.*

5. **Speakers**. Unfortunately just about all Laptop built-in speakers are awful. Plan on using earphones or external speakers for your multimedia.

6. **Brands**: I prefer and recommend LENOVO and DELL brands for both Desktops and Laptops; for too many reasons to mention here.

LAPTOP or DESKTOP? Basically newer Laptops have all the power of a Desktop and add portability. The disadvantages of a laptop are numerous though; smaller screen, cramped keyboard, poor sitting position. If you choose a laptop for portability needs, I suggest you consider choosing one that supports the Docking Station / Port Replicator option. See the section above.

ALL-IN-ONE DESKTOPS: Basically All-in-One Desktops save a lot of desk space, but in my opinion that advantage is outweighed by the fact that they leave no room for expansion (same as a laptop, everything is jammed into one case). For example, you cannot install a better Video card, or add a USB 3 adapter, or add internal hard-drives, or add internal DVD players. So make sure the PC has everything you want when you buy it, as you have no room for growth.

NETBOOKS: Fuggetabout a netbook as your primary PC. Netbooks should only be considered if you need a secondary or auxiliary PC for portability. Netbooks require way too many compromises in performance and features to be your main PC.

MEDIA CENTER PC's:

All versions of Windows 7 include the Media Center software, but some PC's are sold with additional special Audio/Video hardware installed. These PC's require additional RAM and a faster CPU because you need more computing power to do handle movies, HDTV, or video editing. Also, pay special attention to the WINDOWS EXPERIENCE INDEX (WEI), and make sure the Base Score is at **least 5.0.**

PRINTERS & OTHER EXTERNAL DEVICES:

PRINTER DRIVERS: Windows 7 drivers for older printer models are frequently NOT available. Search the Printer Manufacturer's website (Not Microsoft.com) to see if a Windows 7 driver is available for your model printer. If not, there is a possibility that Windows 7 may have a "built-in" generic driver that will work with your printer. *WARNING: The Generic Windows 7 Printer Drivers frequently have limited functionality. You really need a Driver provided by the Printer Manufacturer for full functionality*. See if your old Printer works with Windows 7 before you go out and buy a new one. If the printer manufacturer offers a Vista driver, that driver will probably work with Windows 7. *NOTE 1: Drivers for "Windows 7/Vista 64-bit" are harder to find than for "Windows 7/Vista 32-bit". NOTE 2: All-In-One printers complicate the printer driver issue even more.*

OTHER EXTERNAL DEVICES: All my comments about printers applies to all external devices.

SPEAKERS:

The quality of speakers included in a Desktop PC purchase should not be a concern. If you do not like the speakers included, good speakers are cheap and easy to find. Never expect good speakers inside a Laptop PC.

WINDOWS EXPERIENCE INDEX (WEI): *(Note: In general, WEI is mostly worthless for helping you choose a new PC, but here are some details)*

1. Windows 7 includes a utility program that assesses the main hardware components of your PC and gives them a numbered index value consisting of a single "Base Score" and five component "sub-scores". *(Scores currently range from 1.0 to 7.9)*.
2. These scores help ensure that the hardware is adequate to meet your expectations.
3. For additional details regarding the WINDOWS EXPERIENCE INDEX, simply Google those three words. There is lots of info about "WEI" available.

*****Always check for the latest version of this guide at: www.jimopi.net***