

When To Buy A New Macintosh

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Using Intel Technology

On September 6th, 2006, Apple released the iMac "Core 2 Duo". This one chip actually contains 2 processors. This allows the Macintosh to accomplish true multi-tasking (perform more than one task at the same time) — very fast and very powerful.

More and more software (applications) and hardware (printers, scanners, graphics tablets, etc.), will require a Macintosh which uses this type of "brain". No, you don't have to run out and buy a new Macintosh right away. In fact, you probably won't even feel the effect of this new technology until you decide to buy a new piece of software or new printer, etc. At that point, the product you buy may state that it "only works with" or "works best with" a Macintosh with an Intel "Core 2 Duo" processor. If you want to purchase that item, you may have to purchase a new Macintosh in order to do so.



When "Leopard" (Mac OS X 10.5) arrives Spring 2007, there may be another set of compatibility issues. Sometimes when there's a major change to the Operating System (such as going from 10.4 to 10.5) there are some programs and devices which will not work properly until the manufacturer of that product releases a patch or a completely new version.

Until all software is written as a "native" program, for these new "Core 2 Duo" processors, these programs will be "Universal Binaries" or simply referred to as "Universal". A "Universal" program will work in the new Macs and be able to take advantage of all the features and technologies they provide. If a Universal program is run in a non-Intel-based Macintosh, it will still work — this is why it is "universal". It will, however, run under "Rosetta" — an Apple technology.



This technology comes with all Intel-based Macs and will interpret (convert) any program which is not Universal. This means that a particular program will run slightly slower than it would if it were Universal and it will not be able to take advantage of all the bells & whistles which are available inside that Intel-based Macintosh.

If your current Macintosh is doing everything you expect AND you don't need any of the features the new Macs offer, you may not need to purchase a new Macintosh just yet.

What would "I" do?... If I didn't need to purchase a new computer "right away", I would wait until Apple included "Leopard" (Mac OS 10.5) on the new iMacs. (This "should" happen sometime Spring 2007. Right now, Apple includes "Tiger", Mac OS 10.4, on all new Macs.)

Why would I wait until Leopard is included?...

- Because it will save me \$129. (Apple has typically charged \$129 to move between each "point-number" upgrade — from 10.2 to 10.3 and from 10.3 to 10.4, etc. If I purchase a new iMac now, which only includes "Tiger", I will have

to buy "Leopard" later. So if I wait until Leopard is included, I save the cost of that purchase.)

- Although Mac OS X 10.4.8 (included with the Intel-based iMac) works fine with Intel-based Macs, Leopard "should" be even more optimized (faster and more compatible).
- Also, by waiting until Leopard is included inside a Macintosh, the "hardware" inside that Macintosh will be more optimized to make use of ALL of Leopard's features and special effects.
- **NOTE:** If you are a basic computer user (browse the Internet, exchange eMail, write letters, etc.) and usually don't buy any new software or devices (printer, scanner, etc.) MONTHS or YEARS AFTER buying a computer, you can ignore these three comments.

How Old Does A Macintosh Have To Be?

Apple maintains [this web page](#) with a list of all the Apple models it considers "obsolete". If your Macintosh is on that list AND it is in need of repair, you may want to think about buying a new Macintosh model instead. Apple does not support those models, so it may be difficult or impossible to obtain parts.

Professional versus Consumer Macintosh

Don't simply assume that professional computer users should buy a "professional" model and home computer users should buy a "consumer" model. Apple's consumer line-up is very powerful and all Macintosh models come with Apple's "iApps" — iTunes, iMovie, iCal, iPhoto, etc. Here's an overview of some of the major differences between Apple's "professional" and "consumer" lines...

	"Professional" Macintosh Models		"Consumer" Macintosh Models		
	<u>Mac Pro (9)</u>	<u>MacBook Pro (9)</u>	<u>iMac (9)</u>	<u>Mac mini (11) (9)</u>	<u>MacBook (11) (9)</u>
Maximum RAM:	16GB (More RAM than any other Macintosh model)	3GB (More RAM than Mac mini.)	2GB to 3GB, depending on model (Way more than enough for most users.)	2GB (Way more than enough for most users.) (6)	2GB (Way more than enough for most users.)
Hard drive (storage):	Up to 4 hard drives. Each can have a 500GB hard drive providing a total of 2TB (that's "Terabytes")	120GB or 160GB (depending on model.) A 200GB drive is available as a "build-to-order" option. However, this drive is slower than the smaller capacity drives.	Although usually not as large as those in the Mac Pro model, these 160GB to 250GB drives are way more than enough for most people.	Although not as large or as fast as those in the Mac Pro or iMac, these 60GB to 80GB drives are more than enough for most uses. (The exception would be movie-making, audio recording, or storing tons of photos.)	Although usually not as large as those in the MacBook Pro, these 60GB, 80GB or 120GB drives are more than enough for most users. (The exception would be movie-making, audio recording, or storing tons of photos.)
Optical drive:	16x SuperDrive(2)	6x SuperDrive (in 15-inch model), 8x SuperDrive (in 17-inch model)	Combo Drive or 8x SuperDrive, depending on model	Combo drive (1) or SuperDrive (2), depending on model.	Combo drive (1) or SuperDrive (2), depending on model.

	"Professional" Macintosh Models		"Consumer" Macintosh Models		
	<u>Mac Pro</u>	<u>MacBook Pro</u>	<u>iMac (9)</u>	<u>Mac mini (11)</u>	<u>MacBook (11)</u>
<i>Adding RAM and Internal Devices:</i>	Up to 4 hard drives can be added inside. Maximum amount of RAM is always more than the iMac's maximum. 3 PCI slots are for extra technologies: audio, video, storage expansion, etc.	AirPort(7) and Bluetooth are built-in (for wireless access)	Wireless Technology: Both AirPort(7) and Bluetooth (4) are built-in most models. Most models can be ordered with upgraded graphics cards, hard drive, RAM and even processor!	AirPort(7) and Bluetooth(4) are built-in. More RAM(6) can be added.	AirPort(7) and Bluetooth are built-in (for wireless access). More RAM can be added. If you're comfortable adding RAM, you can also a faster and/or larger hard drive.
<i>Adding External Devices:</i>	USB 2.0, FireWire 400 and FireWire 800(5), the networking connector and extra FireWire port are faster than those on the iMac. (iMac 24-inch has fast FireWire) Extra monitors can be added. "Dial-up" modem not included.	USB 2.0, FireWire 400 and FireWire 800(5). ExpressCard/34 slot (for adding other devices and technologies) Dual display and video mirroring. Adapter included to connect to other video devices. "Dial-up" modem not included.	USB 2.0 and FireWire(5). "Optionally", an extra monitor can be connected and each can show a different part of the Desktop (known as "extended desktop"). "Dial-up" modem not included.	USB 2.0 and FireWire(5). DVI video port allows you to connect digital or VGA monitors. An "optional" adapter allows you to connect the Mac mini to a standard TV or projector. "Dial-up" modem not included.	USB 2.0 and FireWire 400 (5). An extra monitor can be connected via an optional adapter, allowing "dual display" and "video mirroring". Output to TV or projector requires Apple Video Adapter (\$19) "Dial-up" modem is not included.
<i>Software Included:</i>	iLife (10)	iLife (10)	iLife (10)	iLife (10)	iLife (10)
<i>Display (monitor):</i>	No monitor is included but you can buy any size you like.	15-inch and 17-inch models. iSight camera built-in.	17-, 20- and 24-inch models (pivot front to back) flat screen included. iSight camera built-in.	No monitor is included but you can buy almost any size you like.	13-inch models. iSight camera built-in.

	"Professional" Macintosh Models		"Consumer" Macintosh Models		
	Mac Pro	MacBook Pro	iMac (9)	Mac mini (11)	MacBook (11)
Cost:	\$2,499 (minimal features) Does not include a monitor and still costs more than an iMac. Costs more to add AppleCare(3) to this model than it does to an iMac.	\$1,999 to \$2,799 (more with build-to-order options) More "bells & whistles" than the MacBook (which the casual user won't use). Costs more to add AppleCare(3) to this model than it does to a MacBook.	\$999, \$1,199, \$1,499 or \$1,999. All iMacs are complete and ready to go. They also cost less than a Mac Pro.	\$599 or \$799, depending on model. (The iMac is still a MUCH better value.)	\$1,099 (white), \$1,299 (white) or \$1,499 (black) The best value in a portable Macintosh. Cheaper to add AppleCare(3) to a MacBook than a MacBook Pro.

- **(1) Combo Drive:** Allows you to "burn" (create) CDs and will "play" (not burn) DVDs. You'll be able to make your own music CDs to play in any other CD-player and you can watch DVD movies right on the computer screen.
- **(2) SuperDrive:** Same as the "Combo Drive" (above) but also allows you to burn DVDs. This means you can make your own movies and play them on any DVD-player. You can also store information (to backup your files, etc.) on a DVD — which holds a lot more than a CD.
- **(3) AppleCare:** Apple's extended warranty. Normally, buying a new Macintosh entitles you to 90-days of telephone support and 1-year limited warranty (both from the date of purchase). Buying AppleCare will give you 3-years (from date of purchase) of telephone support and limited warranty. (In other words, AppleCare extends the included 1-year warranty for 2 extra years and you'll be able to phone Apple tech support at no extra charge for the total 3-year timeperiod.)
- **(4) Bluetooth:** This is a wireless technology for connecting such items as a keyboard and mouse. Although an AirPort card is "user-installable", a Bluetooth module is not. It is only available (as of this writing) as a "Build-To-Order" item — you can only get Bluetooth if it's installed when you purchase that Macintosh.
- **(5) USB 2.0 and FireWire:** All Macintosh models come with these connection-technologies. They allow you to connect printers, scanners, digital cameras, camcorders, flash drives, etc.
- **(6) The Mac mini DOES NOT come with a Monitor, Keyboard or Mouse!** The Apple web site states that any internal extras, such as RAM, must be added at the time of purchase or by an Apple-authorized service center (such as one of Apple's own Stores). ([Click here](#) for some Pros and Cons regarding the Mac mini.)
- **(7) AirPort:** This is Apple's wireless technology. It's used to network (exchange information with) two or more computers. Some printers and high-speed modems are AirPort-compatible, allowing you to "connect" to them without using any wires.

- **(9)** Current Macintosh models will not run the Mac OS 9 Operating System or any Mac OS 9 (or "Classic") programs.
- **Other Included Programs:** [iLife](#) (which includes iCal, iChat and much more.) iDVD is included if the Macintosh contains a SuperDrive. All of Apple's Macintosh models come with all the software needed to Browse the Internet and send & receive eMail.
- **(10)** One program which is sadly absent in the new Macintosh models is AppleWorks. Since AppleWorks does so many things, there isn't another single program which can take its place. Even Apple's "iWork" (with "Keynote" and "Pages") doesn't hold a candle to the number of features in AppleWorks. If you need a word processor, try the included "TextEdit (by Apple)". If you need a more powerful word processor take a look at "[Nisus Writer Express](#)". Another company, [Mariner Software](#), makes "Mariner Write" and "Mariner Calc" (a spreadsheet program).
- **(11)** The Mac mini and MacBook use graphics hardware which shares its memory (RAM) with the computer's main processors. (The graphics processor uses a minimum of 80MB of RAM.) So, if your MacBook has 512MB of RAM, the 2 processors AND the graphics system must share this. It not only means neither component will ever get to use the entire amount of RAM but whenever that Macintosh has to deal with any graphics-intensive tasks, it will run a bit slower. If you do buy one of these Macintosh models, you can lessen the drag on its resources by having more RAM installed — either when you buy it or later. Its overall performance will improve just by having more RAM inside. The performance will be even better if you add RAM in "matched pairs". (These Macs have 2 RAM slots and if both have identical RAM "sizes" and RAM "technology", that Macintosh will work at its optimum.)
- **NOTE:** Adding RAM to a Mac mini cannot easily be accomplished once you bring it home. So if you want more RAM in your Mac mini, have it done by the company you purchase it from. If your Macintosh ever needs warranty work, you can bring it to any Apple-authorized repair facility. If you need to connect to the Internet via standard telephone line (known as "Dial-Up"), you'll need to purchase a separate, external modem. Apple makes one which retails for \$49.
- **ALSO:** The MacPro and iMac now come with Apple's "[Mighty Mouse](#)" — a 4-button mouse with a scrollball. Try it and see if you like it. However, if you're like me, you may want to keep your old 1-button Apple mouse. If it connects via the USB port, it will work with your new Macintosh. If you do decide to keep the Mighty Mouse, you may want to reprogram it because it's all too easy to accidentally press the scrollball button (which activates another feature) — very annoying! Do you need a 4-button (also known as a "multi-button") mouse? No. Why did Apple switch from their famous 1-button mouse to a 4-button mouse? In my opinion, it comes from pc (non-Macintosh) thinking. In the non-Macintosh world, they seem to want keyboards with 10,000 keys and a mouse with enough buttons so they can access any feature with one click. This is crazy! I'm a pro-level user. I work in word processing, drawing, painting, page-design and layout, web page creation, 3D modeling and animation and I have no need for a multi-button mouse!!! Decades ago, Apple spent a lot of time and attention examining the way people "do" and "should" interact with computers. This eventually led to the 1-button mouse, pull-down menus and the Macintosh interface. Probably

95% of every program's features can be accessed by pulling down a menu or selecting a tool which is right there on the screen. Other features and advanced functions can usually be accessed by holding down one or more "Modifier" keys on the keyboard (Option, Command, Control and Shift). Having a mouse which activates a different feature for each button means YOU have to remember which button to press for which feature. Yes, you also have to know which Modifier key to press but you don't have to "remember" it. If you forget, you can simply pull down a menu and see which Modifier key is listed next to that feature. Modifier key shortcuts are also universal — every program uses Command P to print, Command C to copy, etc. If Apple really felt they needed to break down and listen to the minority of screamers who kept asking them to come out with a multi-button mouse, I wish they had either offered it as an optional purchase or only included it with the PowerMac Tower (their "professional" line of Macs). My work involves nothing but Macintosh beginners and from what I've seen, a multi-button mouse will cause them nothing but frustration.

- ★ **Your Input May Help:** Visit [this Apple web page](#) (then click on your Macintosh model) and send them some feedback on this issue. Tell them you would rather use a ONE-BUTTON mouse. Also mention... If a multi-button mouse is included with your next Macintosh, you'll change its settings so it acts like a ONE-BUTTON mouse! Because of this, you don't want to pay for that multi-button mouse when you're never going to use it! (Although a multi-button mouse is currently "included" with every desktop Macintosh, such as the iMac, it still adds to the total cost.) Plus... Even if you reconfigure a multi-button mouse to act like a ONE-BUTTON mouse, your clicking-finger will probably rest right on the ScrollBall — which can be a bit annoying. (If you don't reconfigure the multi-button mouse, you'll find yourself activating features you didn't intend to — very annoying. Contacting Apple on this issue is very important. It is no longer possible to purchase an Apple-brand ONE-BUTTON mouse! This is very sad.

Pros and Cons

- **Not the Professional line:** I've been a Macintosh owner since 1986 and an Apple][+ owner since 1981. Through my Macintosh-only, training, troubleshooting and consulting company, I have seen LOTS of Macs in various configurations of hardware and software. Through all of that, I am convinced that "yes" owning a new "Professional" model Macintosh (MacPro or MacBook Pro), DOES provide you with the latest technology BUT, many times (not all the time but enough to keep me from buying one) I have seen that more problems arise within the "Professional" line than in Apple's "Consumer" line. Nothing really serious but a few annoying things. This simply means a Professional-model owner should check Apple's support site for any known issues on a regular basis. The Consumer-line Macs aren't perfect but they do seem to have fewer of these new-technology problems. It's almost as if the newest technology is being tested in the "Pro" line and by the time it reaches the "consumer" line, most of the glitches have been worked out.

- **Macintosh Internals:** Apple went to a lot of time and expense to make sure the design of each Macintosh was not only stylish but also practical, in terms of hardware repair — if any is ever needed. Not only did they successfully accomplish this monumental task but they also managed to make it extremely easy for Macintosh owners to open it up (this does NOT apply to the Mac mini) and install RAM and to change the "clock battery" when needed (in 3 to 5 years time — on average). Because of this, if you're going to buy an iMac (or any current Macintosh) buy the one you can afford and add extra RAM later. In other words, it's more important to put every dollar towards the "Macintosh" model you need than it is to compromise and buy a less-capable model, just because you can't afford the one you really want AND the extra RAM.

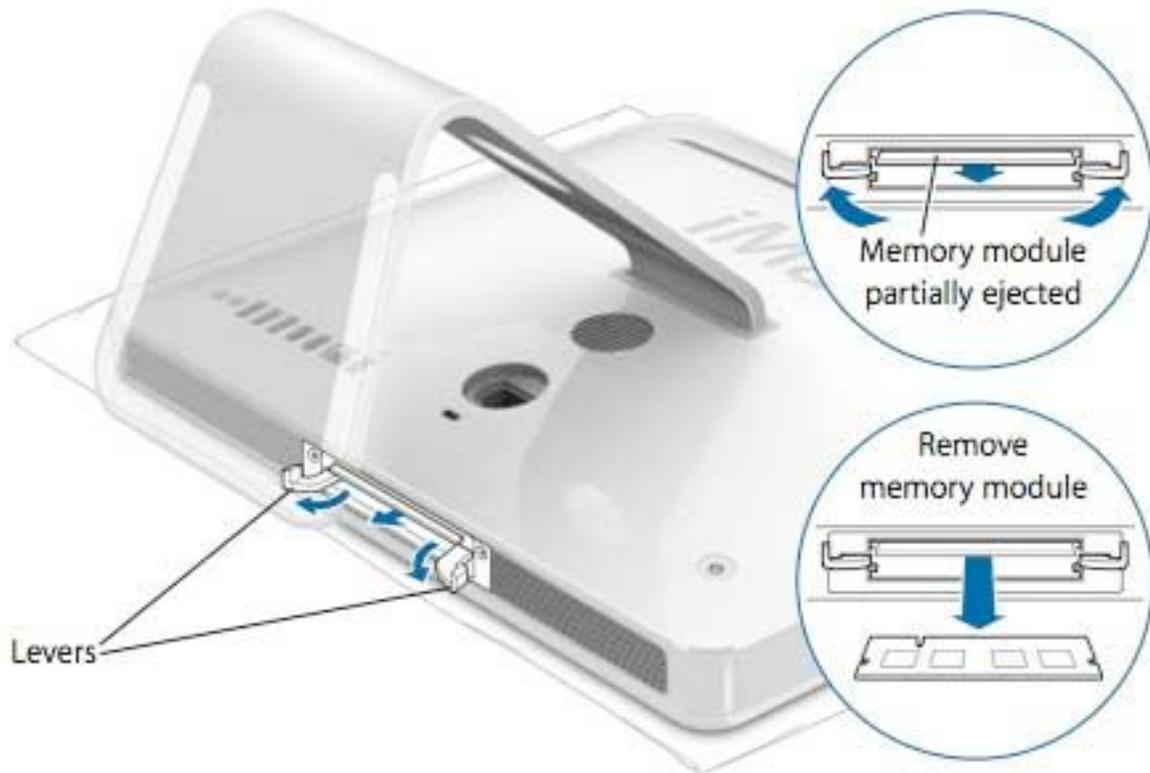
This chart may help you decide which Macintosh model is right for you. I've listed a few basic user types down the left side. The numbers to the right of each of those indicates the lowest-cost model which, in my opinion, would work for that situation. (1 = Lowest-cost choice for that situation, 2 = A little more expensive model for that situation, etc.)

	"Professional" Macintosh Models		"Consumer" Macintosh Models		
	<u>Mac Pro(c)</u>	<u>MacBook Pro</u>	<u>iMac</u>	<u>Mac mini (c)</u>	<u>MacBook</u>
I'm a casual user who only needs eMail and browses the web.			1		2
I need something my children can use for homework and Internet research.			1		2
I'm a non-professional computer user but I use my Mac for a lot of things. I really want a Mac which doesn't cost a lot but will last a lot of years and a lot of upgrades.	2		1		
I'm a casual user who needs portability but only uses eMail and browses the web.			2(a)		1
I want my money's worth. I want a Mac which can take full advantage of all the features of Mac OS X 10.4 (Tiger).	2		1		
I want to play action and adventure games.	2		1		
I want to edit family movies and/or make my own music.	2	3	1		
I want to work or dabble in 3D, making my own 3D images and movies.	2		1	3(b)	
I need something portable which is all-purpose: connect to coffee house Internet; take notes in class; appointment reminder and can be used for presentations.		2			1
I need Macs for business workstations which must be networked.			1		
I'm a professional graphic artist and/or movie special effects technician and/or musician.	1		2		
I'm a PC user and thinking about switching to a Macintosh.				1(d)	

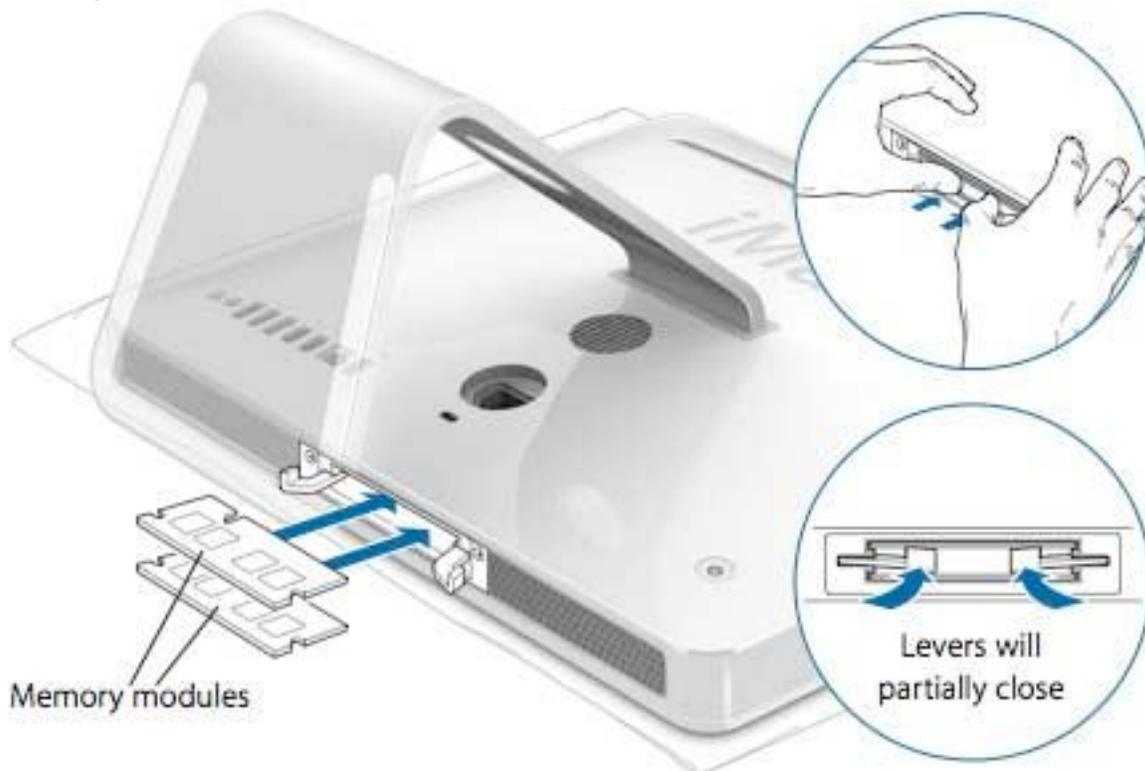
- **(a)** Although the iMac is not a "portable" computer at 15.5-pounds (for the 17-inch model), 22-pounds (for the 20-inch model) and 24.7-pounds (for the 24-inch model) you "could" pack it back into its box or purchase a carrying bag and tote it to various locations.
- **(b)** You'll need to borrow a monitor to initially set up the Mac mini but once that's done, it can be used as part of a "render farm". Some 3D programs, even low-cost programs such as [Carrara 5 Pro](#), can use other computers when "rendering" (turning all the calculations and wireframe objects into photos and movies). (If you'd like to see our review of "Carrara 5 Pro", [click here](#).)
- **(c)** Keep in mind that the MacPro and Mac mini DO NOT come with monitors (displays). So you must consider the extra cost of a monitor when determining the total cost of your Macintosh investment.
- **(d)** The Mac mini does not come with a monitor, keyboard or mouse. Although anyone could purchase a Mac mini (PC or Macintosh user), by the time you purchased these extra 3 items, your total cost would be close to that of a \$1,099 MacBook or even the \$999 17-inch iMac.. Either of these would be a better investment because everything is made by Apple — monitor, keyboard, mouse, speakers, etc. With these Macs, "if" anything goes wrong with any part of them, including the monitor, you'll only need to call one phone number — Apple's! If you already own a monitor AND want to purchase a Mac mini, make sure your monitor is compatible.

NOTE: The rule of thumb with RAM is... You can never have too much RAM. Buy as much as you can afford, when purchasing your new Macintosh. You can always add more RAM later, as long as you haven't added the maximum amount determined by Apple (or purchased a Mac mini — because extra RAM has to be added by an Apple-authorized service center).

RAM (also referred to as "Memory") comes on small circuitboards. A single RAM circuitboard that you purchase and install inside your Macintosh is called a RAM or Memory "module". If Apple states that a Macintosh comes with 512MB of RAM, for example, this will "usually" be on one RAM module and it will "usually" take up one RAM slot. (Macs have one or more RAM slots.) If you want to buy more RAM, you simply add that amount to the amount already inside the Macintosh, UNLESS one or more RAM modules has to be removed first.



Let's use the 20-inch iMac as an example and say that you want your iMac to have 3GB of RAM. You cannot simply purchase 2GB of RAM to accomplish this. Even though the 1GB of RAM already inside the iMac would add up mathematically with the new 2GB and give you 3GB as the answer, in our iMac example, this is not physically possible. Since it comes with 1GB of RAM, this is actually spread across TWO 512MB RAM modules (circuitboards).



So you must remove both of the included 512MB RAM modules before you can add any more RAM. So, to add the maximum amount of RAM to a 20-inch iMac, you must purchase ONE 1GB RAM module and ONE 2GB RAM module. (If you install TWO 2GB RAM modules, the iMac will register 4GB in the "About This Mac" dialog box but the Operating System will only access 3GB.)

The removed RAM modules will no longer be needed and can be sold. HOWEVER it's best to hang on to them. IF the new RAM ever goes bad (develops a technical problem), you'll be able to use the original RAM while the "bad" RAM is shipped off to be replaced.

Here's a chart of the iMac's RAM configurations:

- **NOTE:** The latest iMacs come with two RAM modules — the \$999 model has 512MB (each module is 256MB in size, for a total of 512MB. The other iMac models come with 1GB of RAM (each module is 512MB in size). This means one or both will have to be removed before any new RAM module is added. Since Apple is suggesting that RAM be added in "matched pairs", this is a non-issue.

*RAM Configurations for iMacs which come with a "SuperDrive"
(\$1,199, \$1,499 and \$1,999)*

	RAM Slot 1	RAM Slot 2	NOTES
Total RAM is 1GB	512MB (original RAM)	512MB (original RAM)	This is the standard iMac configuration. Your iMac will come this way unless you buy more RAM. (These are probably "Matched Pairs".)
Total RAM is 2GB	1GB (purchased RAM)	1GB (purchased RAM)	To achieve this configuration, you would purchase a TWO 1GB RAM modules. (For best results, be sure to buy "matched pairs")
Total RAM is 3GB	1GB (purchased RAM)	2GB (purchased RAM)	To achieve this configuration, you would purchase TWO RAM modules: ONE 1GB and ONE 2GB. Both of the original 512MB RAM modules would have to be taken out first (they will no longer be used. This is the most RAM the iMac can handle.

My Comments On Purchasing A New Macintosh

The best value for the money is Apple's "Consumer" line. If you need something portable, take a close look at the MacBook (not the MacBook "Pro") options.

If you need something which is both portable and for use on a desk, a MacBook may still do the trick. If your desk places the MacBook's keyboard too high for you to type comfortably, simply purchase a separate keyboard and mouse. If your desk has a keyboard drawer which pulls out, place the keyboard and mouse there and connect them to the MacBook whenever your MacBook is on the desk. A 3-foot to 6-foot USB "Extension" cable can be purchased, if your keyboard's cable will not reach under the desk then over the top to the MacBook's USB connector. (The shorter the USB cable, the better. With some devices, the USB signal starts to degrade when a 10-foot cable is used. This shouldn't harm the device. It just won't work properly all the time.)

If you don't need portability, I would suggest the iMac. (This is my computer of choice.) Although not a "portable" computer, the iMac can be packed back into its box and used in other locations "fairly easily". Weighing in at 15.5-pounds (for the 17-inch model) and 22-pounds (for the 20-inch model), it's not as compact as the MacBook or MacBook Pro but it is still doable. In the "MacPlus" days (during the Mac's first few years of existence, starting in 1984), their owners would pack up those bulky, cube-looking Macs into reinforced canvas zippered bags, along with keyboard and mouse, and tote them to school, the office, etc.

If you need a Desktop computer with excellent value look into the iMacs.

- **NOTE:** Even the lowest-priced iMac is more than capable of keeping up with whatever tasks you throw at it. Short of needing even more horsepower to make **professional-grade**: Movies, Music editing, Photo retouching, etc., the iMac is still a very powerful computer. I use mine to make movies, music and entire 3D worlds.

✓ As a side note, regarding the \$999 iMac...

Although this model will fulfill any basic-user's needs, it would be a wiser purchase for you to spend the extra \$200 and get the \$1,199 iMac. Doing so, you will have:

- ➔ Twice as much RAM (1GB instead of 512MB),
- ➔ SuperDrive, to create DVDs (instead of a ComboDrive, which only makes CDs),
- ➔ "Better" graphics (photos and general images) and "faster" graphics processing. This one point alone will mean you'll be able to use this Macintosh further into the future than the \$999 model... In the future, the Macintosh Operating System (which is about to be "Leopard", Mac OS X 10.5), may not work properly on Macs which use the graphics processing technology inside the \$999 iMac.

So, for an extra \$200, you get a lot more value for your investment.

When people buy one of Apple's "Professional-level" Macintoshes it's usually because they are using professional-grade software which requires the speed, graphics-capability, etc. the MacPro and MacBook Pro provide. They also buy these models because, in a working environment, time is money. Apple's Professional line can shave seconds and even minutes off certain tasks, thereby helping that person be more productive. For the average user, or even the semi-professional, paying an extra \$500 to \$1,000 for a top-of-the-line Macintosh, just to see a web page appear 1-second faster, is not worth it.

A Note About Running "Leopard" On Today's Macs

"Leopard", Mac OS X version 10.5, will contain a technology referred to as "resolution independence". Most of Apple's Displays (the screen where we interact with the Macintosh) have a resolution of 72 dots-per-inch (dpi). Newer Displays can have a higher resolution. With Leopard's "resolution independence" technology, the Macintosh will show its images (your photos and its windows and menus) at a crisp quality, regardless of a Display's resolution. This means everything we see on the screen will look better and therefore cause less fatigue on the eyes than we experience today.

This technology will also allow us to Zoom-In or Zoom-Out of whatever we're looking at and everything will remain at a high quality. It also means we'll be able to adjust the Display's resolution, which we can do now, but in Leopard, the quality of all the images shown will remain high. (Currently, when we do this, as we decrease the resolution (to make the images larger and easier to read), we make the pixels larger and everything becomes grainy.)

This new technology, "in my opinion", will come with a "graphics" price tag... In order to accomplish this graphics-intensive feat, Leopard will most-likely require a Macintosh which has a "GPU" (Graphics Processing Unit). This is basically, a graphics computer on a circuitboard or silicon chip. Whenever the "CPU" (Central Processing Unit, also referred to as the computer's "brain") needs to perform certain graphics calculations, it simply sends them to the GPU. Since the GPU has been optimized to only deal with this type of information, it is VERY efficient and quick. This not only performs graphic-oriented manipulations fast, it also frees up the CPU so it can perform more of the other types of tasks.

Leopard, "in my opinion", may also require the "GPU to have a minimum of 128MB of RAM.

What does all this have to do with your buying decision today? Well, most Macs come with a GPU and some do not. If you are going to purchase a new Macintosh before Leopard comes with it AND you are planning on buying Leopard when it arrives, I would strongly suggest buying a Mac which has a GPU with at least 128MB of RAM. Even if you're just a casual user (occasional eMail and Internet), if you want the ability to view everything on the screen at a high-quality resolution, you will need to purchase a

Macintosh which can handle this function. This will be especially true for people who have difficulty seeing what's on the screen.

Right now, the models which have the "Intel GMA 950 graphics processor", and therefore "may not" have enough graphics horsepower for Leopard, are:

- Mac mini (all models: \$599 and \$799).
- MacBook (all models: \$1,099, \$1,299 and \$1,499).
- iMac (the \$999 model only).

Keep in mind that Apple has not stated which Macintosh models Leopard will work with. Even when they do, they may not explain whether or not older Macs (which are today's current Macs) will be capable of taking advantage of ALL of Leopard's features. For example... Apple states that their current Operating System "Tiger" (Mac OS X version 10.4) requires a "Macintosh computer with a PowerPC G3, G4 or G5 processor...". In the real world, "Tiger" does work just fine on those older Macs BUT they cannot take advantage of ALL of Tiger's capabilities (such as the water-ripple effect in Dashboard, etc.).

••• beginning of new information •••

Leopard Security

While we're talking about "Leopard", I'll mention something else here, which you may want to consider when thinking about your next Macintosh purchase, "security".

A function, referred to as "code signing", will be used by Apple for the first time, in Leopard. This allows Developers (the people who create the programs we all use) to give their software a "digital signature". When Launched (activating) that program, Leopard will verify its authenticity on the fly!

This means, as long as you use programs which contain a digital signature, Leopard will make sure they have not been tampered with! (Some viruses are attached (integrated into) to everyday programs by the creator of the virus. When that program is Launched, the virus activates. By having Leopard verify each program when it's Launched, if that program contains a virus, Leopard will not allow it to activate! Thank you Apple!

- **NOTE:** Even though Apple has added this extra security to Leopard, it "may" still be possible to Launch a program which has a virus. For example, if the person who creates a virus also creates a useable program (a game, word processor, etc.), they could easily attach the virus to this program AND add the respected "digital signature" to it. If Leopard encounters such a program, it will simply verify the digital signature against the contents of the program and allow it to open. Using this method of verifying a program, Leopard is stating that this program has not been altered — which it hasn't... the virus was added as a part of the program itself. So the digital signature includes the virus. If we go a step further, we see that if someone were to actually REMOVE the virus from such a

program, Leopard will not allow the program to Launch — because now, the program has been altered.

This new technology is a welcome step forward. However, as you've seen from my example, we all still need to take some personal responsibility. This means not downloading Attachments from eMail or items from the Internet which we do not trust. If you don't think the source is reliable, don't download it. If you really need that item, take a little extra time and verify the source or the item with a source which is known to be reliable... Check with various forums (discussion groups) online to see if someone has used the questionable source or that particular file or program. If the item you're after is a program, you may be able to find it on www.versiontracker.com or www.amazon.com. If you can, read through any comments from those who have used that program.

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The 3-Year Buying Cycle

A few more comments regarding how often you should purchase a new Macintosh and whether or not you should purchase the most expensive model in a particular "line" (iMac line, MacBook line, etc.)...

When you do buy a new Macintosh, you'll notice there are 2, 3 or more models in that particular line. (The iMac line has a \$1,299 and \$1,699 model. When my iMac G4 was 3-years old, I started to notice its limitations. This is because I have to keep up with the latest software technology. If you purchase a Macintosh and only use the programs which come with it or which you purchase shortly thereafter, and never need to update them, your Macintosh investment will go much farther before you feel the need to replace it.

When Sylvia's iBook (Graphite, Clamshell model) was just about 3-years old, Apple had come out with yet another update to Mac OS X. Even though Apple stated she could install it in her specific iBook model, she started to notice some glitches while scrolling windows and a few other minor quirks (and she had added a lot more RAM to her iBook).

If you find yourself buying new software from time-to-time, you might also think of your Macintosh investment as a 3-year investment. Under this scenario, buying a top-of-the-line Macintosh might be a bit of a waste of money. For my personal and business needs, the \$1,199 iMac would work just fine.

A Note About The Current Models

Apple will release "Leopard" (Mac OS 10.5) in Spring 2007. It won't be long after that when all Macintosh models will ship with 10.5. Because of this and because I keep seeing reports of "some" (not "all") MacBook and MacBook Pro owners complaining about heat, battery, video and noise problems, etc., the closer we get to Spring 2007 the more it makes sense to postpone your next Macintosh purchase until it comes with Leopard. (Leopard will "probably" cost \$129 by itself.)

Why should you care that your Macintosh will run Mac OS 10.5?... Even for a light user (eMail and Web browsing) or a casual user (a few hours a week), if your next Macintosh comes with the latest "major" update in the Operating System, not only will you have all the "bells and whistles" but when it comes time to sell it, you'll be able to get more money for it. In the meantime, you'll be able to enjoy all the newest features.

— [Paul Rego](#)

Printers and Scanners

When buying your new Macintosh, from that day forward, make sure anything you purchase for it is "USB 2.0" and / or "[Tiger](#)" compatible. (Released on 4/29/05, Tiger, Mac OS 10.4, is Apple's current Operating System version — it's the software which controls the Macintosh and is included with your new Macintosh.) Not all products require these technologies but if you look for these items in all the new Mac-related products you buy, your Mac will stay at the leading edge of features and will work more efficiently.

If you do buy a product which only works in USB 1.1, there is no problem. The USB 2.0 technology included in each Macintosh, is "backward compatible". This means the newer technology, USB 2.0, in this case, will work with the older USB 1.1 technology. It won't operate as quickly but it will be compatible.

As for printers... I would suggest you purchase the "[Epson](#)" or "[Canon](#)" brand — in that order. I would stay away from "HP" (Hewlett-Packard) and Lexmark — even if they come free with your new Mac!!! (If you're getting advice from someone who uses PCs (non-Macintosh computers), they will probably tell you "HP" printers and scanners are the best. This might be true in the world of PCs but, from my experience as a Macintosh technician, this brand has not proven itself to be Macintosh-friendly, in terms of troubleshooting and long-term compatibility.)

NOTE: Never use ink-refill kits or non-brand-name ink in your printer! Always use Epson-brand ink in an Epson printer and Canon-brand ink in a Canon printer. (Watch out for phrases like "Epson compatible ink". These are not Epson "brand" inks.) Other inks "can" ruin the printer — I've seen this happen several times.

As for scanners... I would suggest purchasing "[Canon](#)" or "[Epson](#)" brand. I would stay away from "HP" and "UMAX" — even if they come free with your new Mac!!!

If a Hewlett-Packard, Lexmark, Umax, etc. product is included with your new Macintosh purchase as "free with rebate", ask if you can get just as good a deal on an Epson or Canon product. Sometimes the mail-order companies are flexible in working with you so you end up with exactly what's right for you.

What To Do With Your Old Macintosh

When someone buys a new Macintosh, what happens to their old one? Remember, this is now an "old" Macintosh — one you've grown out of. Who would want such a dinosaur? The majority of the time, that "old" Macintosh is sold or given to someone (or organization) who has an even older computer or doesn't currently own one. To them, this Macintosh can still do wondrous things!

Some people keep their older Macintosh and use it for faxing (yes, most Macs made after 1986 can still fax), word processing, scanning, etc. If that older Macintosh can access the Internet, you may want to dedicate it to that function. Think of it... In a business situation, you may not want the office computers susceptible to viruses and other Internet-related problems. In this case, one Macintosh devoted to eMail and Internet browsing would be an island unto itself.

If you want to recycle your old Macintosh, please visit [this Apple web page](#) for details.

— [Paul Rego](#)

The "Portable" Printer

With more and more people buying iBooks and PowerBooks, I thought this information would come in handy when deciding which printer to buy.

Maybe you've thought, as my wife and I have, that we should simply use our current printer with our portable Macintosh.

Although brand new printers are fairly inexpensive, you should resist the temptation to buy one just to carry with you when you are "remote computing". When my wife purchased her iBook, I thought it would be a smart idea to simply buy a cheap inkjet printer to carry around with it. After hearing that I could buy a Canon printer for \$50, I decided to contact their tech support department for some details. The technician told me my idea would probably cause more problems than it was worth. "The standard desktop inkjet printer will leak if tipped or tilted. There are 'portable' printers which are designed so the ink stays under pressure. This will keep the ink from going where it's not supposed to." (Of course, if you're not planning on constantly moving your printer from building to car to building, etc., any standard inkjet printer will work just fine.)

My wife purchased the Canon BJC-85. (Similar to the more-recent Canon i80.)

So, if you've ever wondered why some small, inkjet printers still cost around \$300, when other models are well under \$100, this is why. Sometimes you DO get what you pay for.

— [Paul Rego](#)

Mac mini Information



Mac mini with a CD sticking out of its optical drive.

Yes, this 6.5 x 6.5 x 2-inch box is the entire Macintosh. However, the \$599 or \$799 (depending on model) price tag ONLY includes this box (the "CPU" - Central Processing Unit, hard drive, CD/DVD drive and connectors for external peripherals). You must still purchase a keyboard, mouse, monitor and cables!

Who Would Buy A Mac mini?

- Someone who wanted to purchase a low-cost computer, AND already owns a USB-compatible keyboard and mouse, as well as a VGA- or DVI-compatible monitor.

Yes, with Apple's optional \$19 "DVI to Video Adapter" you can connect the Mac mini to a standard television and use that for your monitor but the images would be so fuzzy you'll strain your eyes trying to read the text.

If you're thinking the Mac mini is the most cost-effective Macintosh, let's compare some general prices:

- Mac mini: \$600
- Apple Keyboard: \$30
- Apple Mouse: \$30
- Generic 17-inch flat-panel monitor: \$200 (Apple displays start at \$699)
- Total Cost: \$860

For a little more you could purchase a MacBook or iMac. Not only does it include everything in the box, ready to go, but you'll also have an Apple-brand monitor. Whenever a hardware or software product is made by Apple, it is more compatible in the long-term and if you need tech support in the future, you'll only have to contact one company — Apple. Have you ever tried to troubleshoot a problem between a Macintosh and a printer? It's not fun. Each company will only provide information on how to get THEIR product working again. If part of the problem lies in one product and you discover there's still a problem in the other product, it can be a real nightmare trying to resolve all the issues. If you purchase a Mac mini and then buy the keyboard, mouse and monitor from three different companies, troubleshooting most problems will not be a happy experience.

Another point to consider is your monitor investment. Once you buy a monitor, you'll want to simply buy a new Macintosh — without buying another monitor. So, 3 to 5 years down the road you decide your Mac mini is a bit outdated and you buy another Mac mini (new and improved 3-years from now) or a PowerMac Tower (although this model comes with its own keyboard and mouse — now you'll have an extra set lying around). Although there is nothing wrong with this approach, as you keep doing this, somewhere down the road you'll have a brand new Macintosh with a 10-year old monitor. During all that time, you'll also never want to consider a new MacBook or iMac — because they come with their own monitor, keyboard and mouse.

Even if you have a PC... beware that some PCs do not have USB-compatible keyboards and mice. In those situations, you'll have to purchase a new keyboard and mouse — so consider those prices when thinking about buying a Mac mini.

Speed And Graphics

Because the Mac mini's hard drive spins slower than those in the iMac and Mac Pro, it's overall performance will be slower than those models.

The Mac mini use the Intel "Core Duo" processor. This is slower and one-generation behind the iMac's Intel "Core 2 Duo" processor.

The Mac mini does not have dedicated graphics memory (RAM). This means the graphics system shares the RAM with the CPU (the "brain" or central processor). Because of this, not only is there a MINIMUM of 80MB (megabytes) of RAM set aside for the graphics processor but in some video-intensive situations, the Mac mini will be MUCH slower than the iMac and may not be able to perform some graphical computations. (If water is supposed to ripple or fog is supposed to appear, for example, the Mac mini may not be able to display it.)

In other words, the Mac mini isn't the preferred Macintosh if you're going to make movies or do a lot of advanced photo editing (with a program such as Photoshop or Photoshop Elements. The Mac mini is also not the first choice if you're going to play some video games — especially 3d, walk-around / shoot-em-up types. In fact, the Mac mini "may" not even be able to keep up with all the visual features offered by "Leopard" — Apple's next Operating System, due Spring 2007!

Remember, the Mac mini is Apple's "entry-level" Macintosh.

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A Note About Buying A Used Macintosh

Used versus Refurbished versus Apple Refurbished

Yes, there is a difference...

- **Used:** Typically, this is a computer which is being sold "as is" by a private party or a company. The Seller "may" or "may not" have gone through the computer to clear out any personal information, corrupted software, etc. — they may not even know if all of the computer's functions work.
- **Refurbished:** This is a used computer which is sold by a company and has been checked over in some way. The previous owner's personal information should have been removed before you receive it. The company "may" or "may not" offer a warranty. Any damaged parts "may" or "may not" have been replaced with Apple-brand or Apple-approved items. Because each company uses different criteria for checking (verifying) a computer's usability, this type of purchase is better than buying Used computer but there may still be some unknowns. Be sure to:
 - ✓ know what you are buying BEFORE you buy it,

- ✓ verify the company's reliability with friends, online discussion groups, etc.,
- ✓ get any all information in writing:
 - ➔ warranty (if one is offered),
 - ➔ model numbers of the items you will be buying,
 - ➔ version numbers of any software included,
 - ➔ the ORIGINAL CDs of any added software, etc.
- ✓ know if you can return it. If so, how many days do you have?
- ✓ know what you must do in order to return it (if you have to).
- **Apple Refurbished:** This is a used computer which is sold by Apple or an Apple-authorized reseller and has been verified according to Apple's instructions. The previous owner's personal information should have been removed before you receive it. Any damaged parts WILL have been replaced with Apple-brand or Apple-approved items. As of this writing (3/11/07), this computer comes with a 1-year Apple warranty, just like a new Macintosh, AND this computer is eligible for AppleCare — just like on a new Macintosh. AppleCare extends the original 1-year warranty two more years — giving you 3-years of protection.

Loaded With Software

No matter which type of Macintosh you buy, it would be a good idea to format (erase) the entire hard drive and re-install all the software yourself. I was the local (Asheville, North Carolina) Apple mass merchant rep. for several years. During that time, I personally unpacked and set up brand new Macs. After each set up, I would run DiskWarrior (www.alsoft.com). This is the best tool for checking and repairing the "Directory Structure" (similar to the Index of a book) of the hard drive. More times than I can count, the program would find problems with the Directory Structure. Although DiskWarrior also fixed every problem it found, it told me that even some brand new Macs can have problems.

So, whenever I buy a new Macintosh (this is even more important if you buy a used one), I will use it "as is" for about 2-weeks. Then, I will use its original CDs or DVDs to format (erase) the entire hard drive and install all the software I'm going to use.

Yes, this is a LOT of work but it ensures me that this Macintosh now has a reliable foundation and any problems which I encounter are strictly based on events which occurred from that point forward.

With a used computer, you run the risk of software, from the previous owner, which can automatically and invisibly report back to them various bits of your information:

- web sites you visit,
- which devices are attached to the computer,
- and even any personal information you type in.

Of course, if the previous owner doesn't give you the ORIGINAL CDs and DVDs, you won't be able to re-install ANY software. Yes, they can give you COPIES of those original items but this is illegal. You won't be able to get another CD or DVD from the

manufacturer, if the one you have becomes scratched or damaged AND you won't be eligible for any upgrade pricing for the next version of that program.

So, if you buy a Used computer based on all the software that's included, be sure to have the previous owner show you that same software on the ORIGINAL CDs and DVDs they will be giving you, once you decide to buy their computer. Without those ORIGINAL items, you might as well think of the hard drive as being blank (empty).

- ▶ The Seller: "Just look at all the software I'm including on the hard drive!"
- ▶ You: "Which "CDs and DVDs will you be including?"
- ▶ The Seller: "You won't need any because it's all here on the hard drive."
- ▶ You: "I'm going to erase the hard drive as soon as I get it home."
- ▶ The Seller: "Why would you do that?"
- ▶ You: "I want to be sure this Macintosh has a reliable foundation."
- ▶ The Seller: "Oh, I've already cleaned it up. Everything checks out fine."
- ▶ You: "That's fine but I'll still need the original CDs and DVDs."
- ▶ The Seller: "I just don't have them. If you want to erase everything, just copy the programs onto a CD and put them back in later."
- ▶ You: "Bye."

Keep in mind that "some" programs cannot simply be "copied" or "backed up" onto a CD, for future installation. Sometimes a program will place one or more items into different folders. Some of those items may be invisible. In either case, there may be no easy way to locate all of those items and without ALL of them some program will simply not work. So, you must have the software on their ORIGINAL CDs or DVDs. This will ensure that you have that program's "Installer". The Installer knows which pieces to place into which folders. It's the only sure way to know the program you are adding to the hard drive has all the items it requires.

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