iMac

Technology Overview
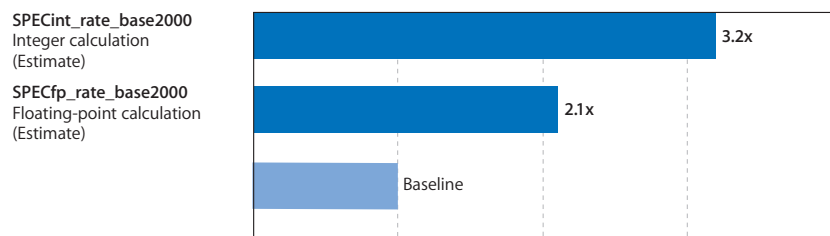January 2006

Contents

iMac: Turbocharged

What's new
Inside the same striking exterior are advances that kick iMac into high gear.

- The new Intel Core Duo with 2MB of shared L2 cache brings dual-core processing speed to the tasks you do every day.
- 667MHz DDR2 main memory increases responsiveness when you work (or play) with large media files.
- The ATI Radeon X1600 graphics processor with up to 256MB of GDDR3 SDRAM enhances your visual experience and accelerates 3D game play.
- The mini-DVI port allows you to connect iMac to the 23-inch Apple Cinema HD Display—and increase your creative space using extended desktop mode.
- iLife '06, Apple's biggest iLife upgrade ever, and Mac OS X version 10.4.4 take full advantage of the processing power of the Intel Core Duo.

iMac has always made it fast and easy to do the most amazing things. And now Apple raises the bar—again. The new iMac with the Intel Core Duo processor revs up your digital life, so you'll accomplish those amazing things faster than ever before.

Benchmark performance: Up to two times faster than iMac G5

SPECint_rate_base2000
Integer calculation
(Estimate) — 3.2x

SPECfp_rate_base2000
Floating-point calculation
(Estimate) — 2.1x

Baseline

Times faster than 20-inch iMac with 2.1GHz PowerPC

Testing conducted by Apple in December 2005 using preproduction 20-inch iMac units with 2GHz Intel Core Duo; all other systems were shipping units. Estimated SPECint_rate_base2000 score: 32.6. Estimated SPECfp_rate_base2000 score: 27.1. See www.spec.org for more information. Benchmarks were compiled using the IBM compiler and a beta version of the Intel compiler for Mac OS.

With the new iMac, you'll have all the hardware and software you need to lead a rich digital life—in a stunning all-in-one system that looks great in any room.

- **Introducing the Intel Core Duo.** iMac is the first Mac desktop computer powered by the revolutionary Intel engine. This dual-core chip delivers the horsepower of two processors—boosting iMac performance to a whole new level.

- **Video communications made simple.** Ready for a face-to-face chat with friends or family? Just click the iChat AV icon. With an iSight video camera built in, there's nothing to configure, no cables to connect.[1]

- **Control your media from any seat in the house.** Pick up the included Apple Remote, find a comfortable chair, and treat the gang to a show. The Front Row full-screen interface lets you navigate photos, music, and videos from across the room.

- **World's most advanced operating system.** Mac OS X Tiger sets the standard for what any modern operating system should include: a mail program, web browser, widgets, address book, calendar, dictionary, image capture, and much more.

- **Photos, movies, music, and now blogs.** iMac comes with iLife '06—including iPhoto, iMovie HD, iDVD, GarageBand, iWeb, and iTunes—so you can make music, organize photos, edit movies, burn DVDs, and even create your own blogs in an instant.

What's an Intel chip doing inside an iMac? A whole lot more than it's ever done in a PC.

Product Overview

Intel is the first microprocessor supplier to move into high-volume production using industry-leading 65-nanometer process technology. By partnering with Intel, Apple can continue to design thinner and lighter Mac computers without compromising on performance.

No other computer features so many innovative ways to create, share, and enjoy digital media as iMac. And now that it's powered by the next generation in processor design, the Intel Core Duo, iMac does all these tasks at blazing speeds.
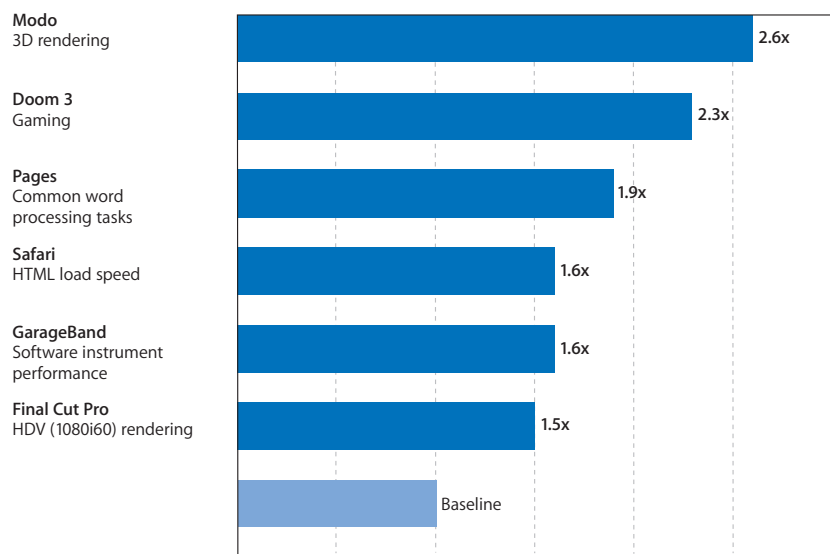
First Intel-Based Desktop Mac

The Intel Core Duo packs two execution cores on a single silicon chip. A feat of advanced fabrication technology, this new processor includes a generous 2MB of shared L2 Smart Cache and sophisticated Dynamic Power Coordination technology. Its superefficient design enables awesome performance while consuming very little energy. The upshot? It's possible to fit dual-core horsepower into the sleek iMac enclosure.

Next-generation performance
With two processor cores, you'll do more. From the moment you turn it on, you'll notice how quickly your iMac is ready to play. Participate in a video chat while importing CDs into iTunes.[1] Stream QuickTime media over the Internet while you encode a DVD. You'll also enjoy new levels of performance in tasks such as web browsing, word processing, 3D rendering, and intensive game play.

Application performance: Up to two times faster than iMac G5

Modo 3D rendering	2.6x
Doom 3 Gaming	2.3x
Pages Common word processing tasks	1.9x
Safari HTML load speed	1.6x
GarageBand Software instrument performance	1.6x
Final Cut Pro HDV (1080i60) rendering	1.5x
	Baseline

Times faster than 20-inch iMac with 2.1GHz PowerPC

Testing conducted by Apple in December 2005 using preproduction 20-inch iMac units with 2GHz Intel Core Duo; all other systems were shipping units. Doom 3 benchmark = Timedemo Demo1. Safari HTML Load Speed (cached) test is a subset of the i-Bench 5.0 benchmark. All of the iMac and iMac G5 systems ran beta versions of Modo and Doom 3 universal binaries. All other applications were beta versions.
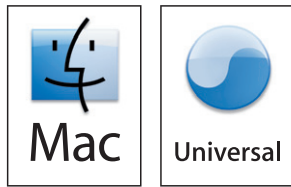
Universal applications

Mac OS X version 10.4.4, iLife '06, and iWork '06 run 100 percent natively on the Intel-based iMac. To identify other Universal applications, look for the Mac OS X Universal logo on software packages and websites.

Seamless compatibility

iMac runs your favorite software, such as Quicken and Microsoft Office, thanks to Rosetta technology in Mac OS X version 10.4.4.[2] Rosetta translates most of your PowerPC-based applications dynamically, so they run on the Intel-based iMac. Rosetta is completely transparent and requires no configuration.

To enjoy the full punch of the Intel Core Duo, you can use Universal applications— software that runs natively on both PowerPC- and Intel-based Mac computers. Apple's iLife '06 and iWork '06 are Universal applications, which means they'll take immediate advantage of the two Intel processor cores in the new iMac.

Video at the Ready

A built-in iSight video camera and integrated microphone give you everything you need to participate in video chats—with no additional costs and no complicated configuration. Just open iChat AV (included with Mac OS X), click the video icon to choose a friend or family member, and start your conversation.[1] With dual-core processing power, the iMac supports up to four video chat participants in stunning clarity. And with AirPort Extreme wireless technology built in, you can join a video chat from just about anywhere.[3]

With recording technology so convenient, imagine the possibilities. Create your own video podcasts using iMovie HD and publishing them with iWeb.[4] Or create a quick video clip using iMovie and email it to the family. Video communications have never been so easy.

You can chat with up to three other parties at once in a three-dimensional view—it feels like your friends are right in the room with you.

Now Showing

iMac comes with Front Row software and the simple-to-use Apple Remote, so you can access and control your digital media from across the room. Ideal for watching music videos or TV shows, showing off your latest iPhoto album, browsing a DVD, selecting an iTunes playlist, or previewing your latest iMovie production, the Apple Remote allows you to navigate from up to 30 feet away. A push of the Menu button takes you to Front Row, a full-screen interface that makes it remarkably easy to find the music, photos, or videos you want to play.

The full-screen Front Row interface—with its intuitive menus, large text, and brilliant graphics—lets you browse the photos, music, and videos on your iMac.

All-in-One Creative Studio

Right out of the box, the new iMac is ready to rev up your digital life. Enjoy a video conference with friends and family using iChat AV and the built-in iSight camera. Burn your own double-layer DVDs on the SuperDrive. Create and edit photos, music, videos, and blogs using iLife '06, preinstalled on every system.[4] And enjoy your digital media from anywhere in the room using Front Row and the Apple Remote.

With iMac, the creative genius in you will have an inspiring new playground.

Built-in iSight camera
An integrated iSight camera makes it easy to start a high-quality video chat using iChat AV.[1] Shoot fun pictures, complete with trippy effects, using Photo Booth—or join the podcast revolution and produce your own video podcasts with iMovie HD and iWeb.[4] The LED indicator tells you when the iSight is active.

iLife '06
The most exciting upgrade to iLife expands your creative options. Native on both PowerPC- and Intel-based Mac systems, iLife '06 includes updated versions of iPhoto, iMovie HD, iDVD, GarageBand, and iTunes—and introduces iWeb, an innovative application that lets you share photos, movies, podcasts, and blogs on the Internet in minutes using .Mac.[4]

Mac OS X Tiger
With best-in-class applications including Safari, Mail, Spotlight, Dashboard, and Automator, the world's most advanced operating system runs 100 percent natively on the Intel-based iMac.

Built-in stereo speakers and microphone
Listen to your iTunes playlists through the stereo speakers below the iMac display. Use the integrated microphone, located above the display, to chat with friends or to record your own podcasts.

IR receiver and Apple Remote
With an IR receiver hidden behind the Apple logo, iMac works with the Apple Remote—without all the fuss or clutter of external signal receivers. When not in use, just rest the Apple Remote on the side of iMac.

SuperDrive
You're all set to author your own DVD movies using iDVD software, included with iLife '06. The SuperDrive built into every iMac reads and writes a variety of DVD and CD media, including double-layer DVDs.

The Center of Your Digital Life

The back of iMac is every bit as elegant as the front. Convenient ports make it easy to plug in high-performance speakers, digital cameras, printers, and cable or DSL modems. Wireless connectivity is even easier: With AirPort Extreme and Bluetooth 2.0 built in, you can place your new iMac anywhere that suits you.

Built-in AirPort Extreme and Bluetooth 2.0 + EDR
Connect to a wireless network from almost anywhere in your home or office, and share the same Internet connection with all the Mac and Windows-based computers in your network.[3] You can also connect cable-free to Bluetooth devices—such as cell phones and PDAs—and to the Apple Wireless Mouse and Apple Wireless Keyboard.

Mini-DVI port
Connect a 23-inch Apple Cinema HD Display, TV, or projector to your iMac using a video adapter (sold separately). iMac supports both video mirroring— perfect for classroom instruction and presentations— and extended desktop mode, giving you even more room to spread out your creative projects.

Ethernet port
Broadband ready, the iMac features an integrated Gigabit (10/100/1000BASE-T) Ethernet interface for easy connections to the Internet using a DSL or cable modem.

Optical digital audio and analog audio ports
Experience pristine, multichannel sound when playing games, watching DVDs, or listening to your favorite iTunes playlist—just connect your choice of advanced speakers or home theater receivers to your iMac.

FireWire and USB 2.0 ports
Plug in your iPod, digital camera, camcorder, scanner, and printer quickly and easily. Each system has two FireWire 400 ports and three USB 2.0 ports. You'll also find two USB 1.1 ports on the keyboard.
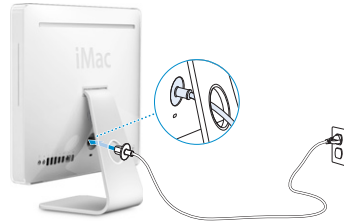
Easy memory installation
An easy-open door allows you to expand the memory on your iMac for even better responsiveness in demanding tasks such as photo management and video editing.
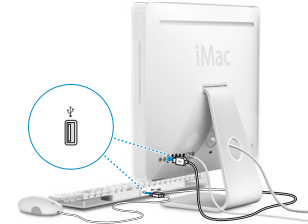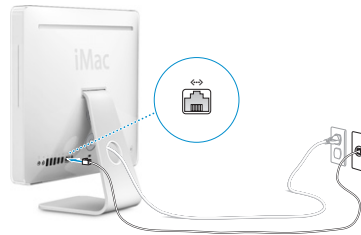
Simple Setup

iMac is designed to be extremely simple to set up and put to use right away. Just follow these four easy steps.
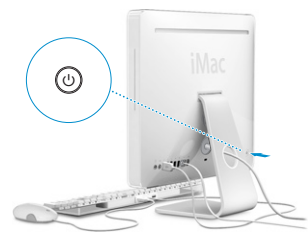

1 Plug in the power cord.

2 Plug in the keyboard and mouse.

3 Plug in your Ethernet cable—or go wireless. (To use a dial-up connection, purchase the Apple USB Modem.)


4 Push the power button, and you're ready to go.

Apple Setup Assistant software opens the first time iMac starts up. It prompts you to enter the information necessary to set the computer's time, date, and country of use and to set up Internet access.

Setup Assistant retains the information you've entered, so it's not necessary to retype personal data in screen after screen or try to figure out where all the data should be placed. After setup is complete, you can register your new iMac with Apple with a single click.

In addition, Setup Assistant walks you through the process of effortlessly moving documents, user accounts, Internet settings, and applications from your existing Mac to your iMac. Your new system will be configured just like your previous one, so you can feel right at home in no time. Upgrading has never been easier, and the transfer is fast using FireWire.

Intel Core Duo Processor
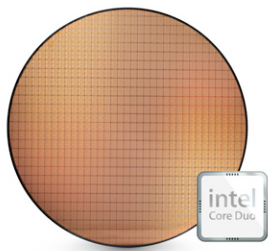
The transistors in the new 65-nanometer process have gates measuring a mere 35 nanometers. To put that in perspective, 100 of these transistors could fit inside a human red blood cell.

Performance benchmarks

SPEC. SPEC rate metrics recognize multiple-core processors by running multiple copies of the benchmark code concurrently, allowing both cores to work in parallel. SPECfp_rate_base2000 and SPECint_rate_base2000 measure the number of times a system can complete a suite of floating-point and integer math based benchmarks, respectively, over a period of time. The performance of the 2GHz iMac is 3.2 times faster in integer calculations than the 2.1GHz iMac G5 and over 2 times faster in floating-point calculations.
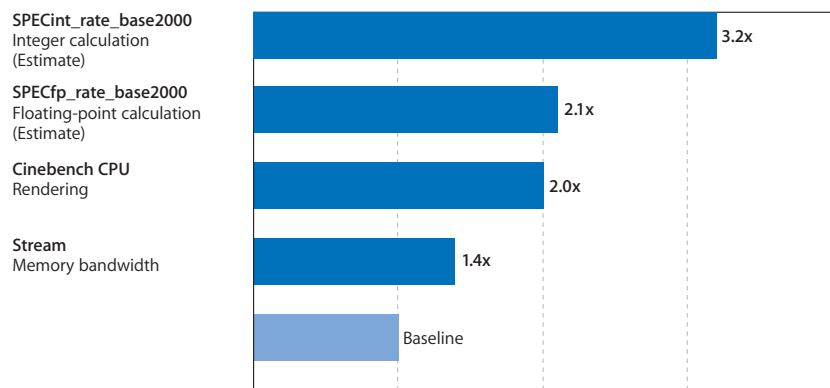
Cinebench. This 3D rendering benchmark based on Cinema 4D has the ability to test the performance of multicore processors. The 2GHz iMac performed the Cinebench rendering test 2 times faster than the 2.1GHz iMac G5.

Stream. This memory bandwidth test indicates how quickly the system can read and write from RAM. The 2GHz iMac completed the test 40% faster than the 2.1GHz iMac G5.

Introducing the Intel Core Duo, a groundbreaking processor from the world's most advanced chip manufacturer. As the name implies, the Core Duo packs two execution cores on a single silicon chip, doubling the computational power in the same space as a single-core processor.

The Intel Core Duo boasts an elegant design that enables very high performance with very low energy requirements—making it possible to fit tremendous punch into the sleek iMac. Compared with the fastest iMac G5, the dual-core iMac runs industry-standard processor benchmarks up to two times faster.

Benchmark performance: Up to two times faster than iMac G5

|	
SPECint_rate_base2000 Integer calculation (Estimate)	3.2x
SPECfp_rate_base2000 Floating-point calculation (Estimate)	2.1x
Cinebench CPU Rendering	2.0x
Stream Memory bandwidth	1.4x
	Baseline

Times faster than 20-inch iMac with 2.1GHz PowerPC

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Dual-Core Processing

With two processor cores at speeds up to 2GHz, iMac can execute multiple data-intensive tasks, each with dedicated processing resources, at the same time. The advanced architecture of Mac OS X detects the Intel Core Duo as two discrete logical processors, each with its own execution resources. This "divide and conquer" strategy divvies up computing tasks across the two cores, so the Core Duo can process up to twice as much work per clock cycle. The result? You'll enjoy new levels of performance across the board, in tasks such as web browsing, video and audio encoding, and manipulation of large photo libraries.
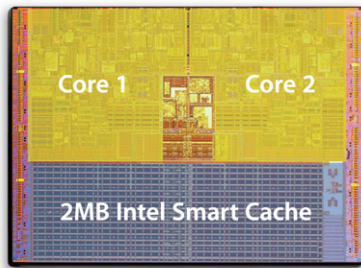
With 2MB of shared Smart Cache, the Core Duo speeds up processing while conserving wattage.

Smart Cache

The Intel Core Duo is the first dual-core processor with a shared L2 cache, which weighs in at an impressive 2MB. The separate cores use Intel Smart Cache technology to share cached data—there's no need to traverse the frontside bus to the system controller. In single-threaded applications, where only one core is in use, the entire 2MB of L2 cache can be allocated to that core, avoiding the 1MB limitation of a dual-core processor with separate L2 caches. Smart Cache also improves cache coherency by allowing each core to access the same piece of stored data.

Digital Media Boost

Intel Digital Media Boost accelerates data manipulation by applying a single instruction to multiple data at the same time, known as SIMD processing. SIMD technology accelerates vector math operations and floating-point calculations, enhancing performance of 2D and 3D design tasks, video editing, music encoding, digital photography, scientific calculations, and the latest blockbuster games. Digital Media Boost supports Intel Streaming SIMD Extensions (SSE) versions 1, 2, and 3 to enhance integer and floating-point performance.

Industry-Leading Power Efficiency

The Intel Core Duo represents the next generation in high-performance power-efficient microprocessors. An advanced 65-nanometer process design combines with Smart Cache and Dynamic Power Coordination to conserve energy without diminishing performance.

Dynamic Power Coordination technology introduces new energy-saving processor states for fine-tuned power management. Under light load conditions, Enhanced Speedstep technology reduces the processor clock speed to as little as 1GHz at less than 0.8 volt. One core can work at a high performance level, utilizing the full 2MB of L2 cache, while the other core idles independently, saving energy when only a single core is needed.

In addition, Smart Cache boosts performance and saves energy by reducing the number of transactions that the processor sends off the chip to main memory—significantly improving the performance per watt of the entire system. For even greater efficiency, Smart Cache dynamically powers down unused areas of cache when the Core Duo enters the deepest sleep mode.

Multiple Cores and Mac OS X

Mac OS X is ideally suited to leverage the power of dual-core systems, since it was originally designed for multiple processors. With symmetric multiprocessing, preemptive multitasking, and multithreading capabilities in Mac OS X, a Core Duo–based Mac delivers impressive performance right out of the box.

With symmetric multiprocessing, Mac OS X dynamically distributes tasks across multiple cores, allowing you to run a processor-intensive task in the background while you work with another application. Mac OS X assigns each task to a different processor core—so the tasks execute simultaneously—and balances the load between cores. Preemptive multitasking further optimizes performance by allowing Mac OS X to prioritize tasks on each core.

100 percent native
Mac OS X version 10.4.4 runs natively on both PowerPC- and Intel-based Mac systems. This means Mail, Safari, Spotlight, Dashboard, Automator, iChat AV, and all Mac OS X features will take immediate advantage of the two Intel processor cores in the new iMac.

Multithreaded applications can take even greater advantage of multiple cores. A multithreaded application can dispatch tasks among several cores at once, achieving up to twice the performance on a dual-core system as it would on a single-core system. Because Apple has been shipping dual-processor Mac systems for more than five years, many popular Mac applications are already multithreaded, so they'll take immediate advantage of dual-core processing.

As a user, you don't need to worry about symmetric multiprocessing or application threading—you'll just enjoy the enhanced performance.

Universal Applications

Mac OS X and the Intel Core Duo processor make an outstanding platform for productivity and creative applications—providing excellent compatibility with the software you have and for new Universal applications built to run natively on both PowerPC- and Intel-based Mac computers.

You'll enjoy all the high-performance features of the Core Duo when you use Universal applications. The latest versions of Apple's innovative software suites, iLife '06 and iWork '06, are Universal applications. In addition, leading software vendors—including Microsoft, Intuit, and Adobe—have announced plans to release their Mac OS X products as Universal applications. To identify Universal applications, look for the Mac OS X Universal logo on software packages and websites.
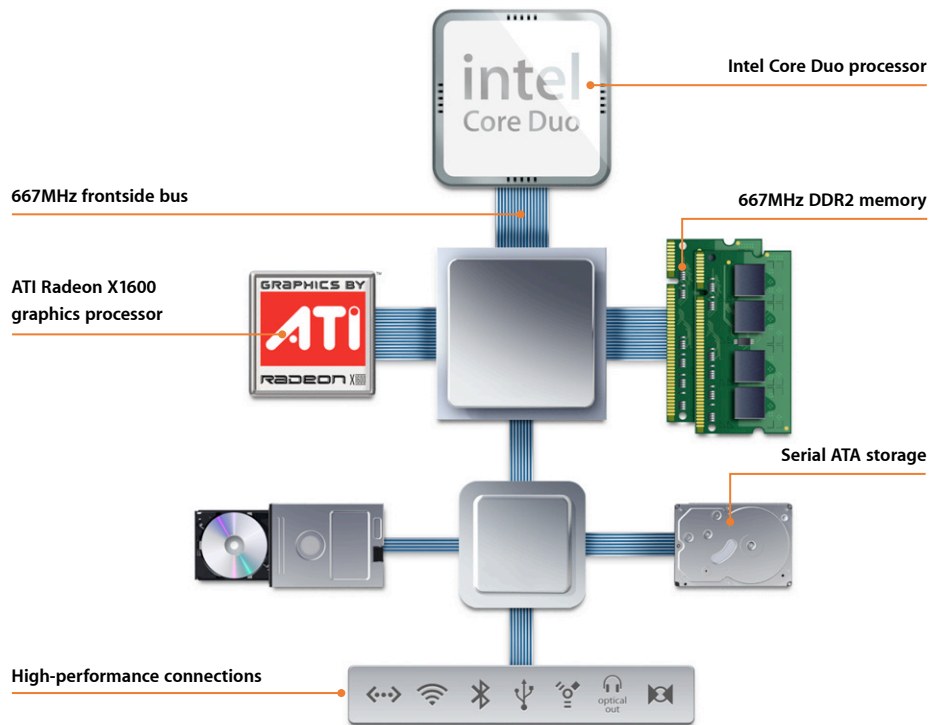
Rosetta for Seamless Compatibility

Mac OS X version 10.4.4 includes an innovative Apple technology called Rosetta that dynamically translates current Mac OS X applications, including those that require the Velocity Engine. This means that most PowerPC-based applications you already have, such as Quicken and Microsoft Office, will run on the Intel-based iMac.[2]

Rosetta is completely transparent and requires no configuration. Just open applications as usual. If the application requires translation, Mac OS X detects it and translates the application using Rosetta.

Developing for the Intel-based Mac
Apple provides a wealth of information to developers who are creating new products or updating existing applications to run on both PowerPC- and Intel-based Mac systems. Intel also provides useful resources for Apple developers, including the Intel C/C++ Compiler for Apple, Intel Fortran Compiler for Apple, Intel Math Kernel Libraries for Apple, and Intel Integrated Performance Primitives for Apple.

For more information about development resources, see developer.apple.com.

High-Bandwidth Architecture

Supporting the fast Intel Core Duo processor is an advanced system architecture that includes a 667MHz frontside bus, 667MHz DDR2 memory, 16-lane PCI Express graphics with up to 256MB of video memory, and a Serial ATA hard drive. This high-bandwidth platform incorporates the latest high-performance technologies without wasting power.

The result? Fast memory, graphics, and storage combine to make working with big files—such as photos, music, movies, and 3D games—a breeze.

Intel Core Duo processor

667MHz frontside bus

667MHz DDR2 memory

ATI Radeon X1600 graphics processor

Serial ATA storage

High-performance connections

Memory modules

Levers will
partially close

Installing additional RAM
An ingenious mechanism makes adding
memory a snap. Unscrew the two captive
screws at the bottom of the display to access
the memory compartment—no special tools
or expertise required.

667MHz Frontside Bus

The new iMac system architecture starts with a wide 667MHz frontside bus. Providing
high bandwidth—up to 5.4 GBps—between the Core Duo and the rest of the system,
it allows large numbers of tasks to run concurrently. This high-performance frontside
bus gives iMac the headroom required by today's demanding applications, as well as
those you can expect in the future.

667MHz DDR2 Main Memory

Fast 667MHz DDR2 main memory ensures that the Core Duo processor is constantly
fed with data without wasting clock cycles. Fast memory improves performance in
video, graphics, audio, and other media-rich applications, including your favorite games.

The new iMac comes standard with 512MB of DDR2 memory in a single SO-DIMM,
leaving one slot open for future memory upgrades. For a performance improvement
when working with large files, configure your iMac with up to 2GB of memory. And if
both slots are loaded with an equal amount of RAM, you can take advantage of the
system's dual-channel memory interface for an additional performance boost.

PCI Express

iMac uses a modern PCI Express architecture that speeds up communication to and
from the devices you attach to your system. This serial technology guarantees each
connection dedicated bandwidth to and from the system controller. Data can flow
upstream and downstream simultaneously. A series of point-to-point, individually
clocked "lanes" eliminates contention for the bus. Each PCI Express lane is capable of
a 256-MBps data rate in each direction, for a total bandwidth of 512 MBps.

The 16-lane PCI Express graphics bus is capable of a 4-GBps data rate in each direc-
tion, for a total bandwidth of 8 GBps. This wide bus supports the high-performance
ATI Radeon X1600 graphics processor with up to 256MB of dedicated GDDR3 memory.
Delivering astonishing 3D graphics and effects for next-generation games, the Radeon
X1600 takes full advantage of the graphics capabilities in Mac OS X Tiger, including
Core Image and Core Video for ultrafast processing of complex per-pixel imaging
operations.

NCQ support
Native Command Queuing (NCQ) is a new
Serial ATA feature that organizes commands
to the hard drive in the most efficient order.
This means the hard drive performs more
sequential reading and writing and spends
less time scanning the drive for the correct
piece of data. With NCQ support, the hard
drive in the new iMac reads and writes data
faster, while consuming less power.

Serial ATA Hard Drive

iMac comes with a 160GB or 250GB 7200-rpm Serial ATA hard drive,[5] providing plenty
of room to store thousands of digital images, thousands of songs, and your latest
movies. For even more storage, you can custom-build your iMac with a 500GB drive—
and FireWire and USB ports make it easy to plug in multiple devices for virtually
unlimited storage capacity. Designed to keep pace with the demands of digital video
creation and editing, audio storage and playback, and other data-intensive applications,
Serial ATA supports a data rate of up to 150 MBps.

Advanced Connectivity

Packed with features that empower and extend the digital lifestyle, iMac has all the right connections. The iMac architecture uses PCI Express to integrate I/O subsystems— Ethernet, FireWire, USB, audio, and wireless technologies—and connect them to the system controller.

Gigabit Ethernet

Broadband ready, iMac features Gigabit (10/100/1000BASE-T) Ethernet, which switches automatically to the speed of your Ethernet network. Just plug iMac into an Ethernet network, DSL modem, or cable modem, and you can transfer files or browse the Internet immediately.

AirPort Extreme

Apple's AirPort Extreme wireless technology is built into every iMac, giving you instant access to wireless networks without unsightly cables. Simply set up a wireless base station, and you're ready to enjoy wireless networking from anywhere in your home, dorm, or office—not just where the phone or cable connection happens to be.

Based on the IEEE 802.11g standard, AirPort Extreme supports data rates of up to 54 Mbps. That means you can exchange data on an 802.11g network almost five times as fast as on an 802.11b network. AirPort Extreme is also compatible with Windows PCs and with the millions of Wi-Fi Certified 802.11b devices in use around the world.[3]

Bluetooth 2.0 + EDR

iMac features integrated Bluetooth 2.0 with Enhanced Data Rate (EDR). This means you can connect wirelessly with Bluetooth-enabled devices such as PDAs, mobile phones, wireless headsets, HCRP-supported printers, and other Bluetooth-equipped computers—without requiring a direct line of sight between devices and with a bandwidth of up to 3 Mbps. Because Bluetooth was designed to connect to multiple devices simultaneously, you can, for example, use the Apple Wireless Keyboard and the Apple Wireless Mouse at the same time. Every iMac comes ready to connect wirelessly to Bluetooth-enabled peripheral devices within a radius of 30 feet.

With the included iSync software, you can easily synchronize information between your iMac, mobile phone, and Palm OS–based PDA. You can also have cable-free connections between your iMac and your Palm handheld. Use the Bluetooth File Exchange application to transfer files between your iMac and another Mac or a Windows computer. Or use a camera phone to send images to your iMac, put them in an iCard, and send an instant postcard over the phone's GPRS connection.

SuperDrive

The SuperDrive built into iMac reads and writes to a variety of DVD and CD media. It works with the integrated iLife applications to give you the easiest way to create high-quality CD and DVD content. Use iDVD to burn your movies and photos to a disc that can be played in almost any consumer DVD player. You can also use a wide range of media, including double-layer DVDs, which allow you to burn almost twice as much data on a DVD—the equivalent of about 12 CDs, 34 Zip 250 disks, or 5900 floppy disks. With this kind of capacity, you can easily back up entire digital photo collections or thousands of music files and keep them safe for years.

AirPort Extreme Base Station
Apple's AirPort Extreme Base Station is loaded with advanced features that extend beyond Internet access. Share a USB printer or bridge AirPort Extreme or AirPort Express Base Stations to increase the range of your network—without wires. The AirPort Extreme Base Station supports up to 50 simultaneous users, Mac and PC, all sharing a single Internet connection.[3]

AirPort Express Base Station
Apple's AirPort Express Base Station allows up to 10 Mac and Windows users to wirelessly share an Internet connection, stream their iTunes music library to a stereo or set of powered speakers, print to a USB printer, or extend the wireless range of an existing AirPort Extreme Base Station.[6]

Data transfers made simple
Using target disk mode, it's easy to transfer large files between your iMac and another computer. Turn the first computer off and connect it to iMac with a FireWire cable. Then turn the computer on, holding down the "T" key until the FireWire icon appears. As soon as its hard drive icon appears on the iMac desktop, you can copy all the files you need. When you're done, select the hard drive icon and choose Eject from the File menu. Switch off the first computer and disconnect the FireWire cables.

Reinventing the wheel
Mighty Mouse features the revolutionary Scroll Ball, which lets you move anywhere inside a document without lifting a finger. And with touch-sensitive technology concealed under the seamless top shell, you get the programmability of a four-button mouse in a single-button design.

FireWire and USB 2.0
Each iMac system has two 6-pin FireWire 400 ports and three USB 2.0 ports, plus two USB 1.1 ports on the keyboard. These convenient, industry-standard ports make it easy to connect a wide range of high-bandwidth devices such as DV cameras, hard drives, printers, scanners, keyboards, microphones, iPod players, and speakers. Since FireWire and USB cables carry power, iMac can recharge a portable device's batteries, even while it's in use.

High definition audio
Delivering enhanced audio performance with powerful stereo speakers, iMac gives more dimension to games, music, and movies. The integrated microphone, located above the display, lets you take advantage of speech recognition in Mac OS X or use Internet telephone applications without any additional wires or hardware. A standard minijack provides 16-bit audio input, so you can plug in a powered microphone for creating your own podcasts, recording movie voiceovers, or using Internet telephone applications. And with 16-bit audio output at your command, you can plug in head-phones and listen to music using iTunes, watch a DVD movie, play the latest games, or compose a new song in GarageBand in complete privacy.

Built-in optical digital audio output ports enable you to connect the iMac to home theater systems and a new class of speakers that accept optical input. The connector uses the S/PDIF (Sony/Philips Digital Interface) protocol over Toslink optical cables for connecting to decks, receivers, digital instruments, and 5.1 surround sound speaker systems. Because optical digital audio transmits data as impulses of light rather than electrical signals, it enables true noise-free, pristine sound—eliminating troublesome ground loops and ensuring higher audio and signal quality.

Apple Keyboard and Mighty Mouse
The Apple Keyboard offers a complete set of full-size keys, including 16 function keys, navigation keys in an inverted "T" arrangement, dedicated keys for controlling the computer's volume, and a media-eject key for ejecting CDs and DVDs. The keyboard has two USB ports for plugging in the mouse and another USB device such as a digital camera or game controller.

iMac also includes Mighty Mouse, which gives you four independently programmable buttons for increased productivity and an ingenious Scroll Ball that lets you scroll in any direction—vertically, horizontally, and even diagonally—making it perfect for viewing web pages and photos, editing video, and creating music.

Available as a build-to-order option, the Apple Wireless Keyboard and Apple Wireless Mouse use Bluetooth to communicate wirelessly with iMac. Offering complete free-dom from cords, this combination opens up new locations for your computer and provides a nearly cable-free experience.

High-Performance Graphics

From 3D modeling applications to Mac OS X features like Exposé, Mac users enjoy fluid onscreen performance every minute of the day. In the new iMac, the next-generation ATI Radeon X1600 graphics processor joins forces with state-of-the-art graphics technologies in Mac OS X Tiger to deliver even more cutting-edge capabilities.

With over a million pixels, the panoramic iMac display is perfect for editing video, watching DVDs, or sifting through your photo library—as well as the productivity and Internet applications you use every day. To expand your workspace or deliver presentations that dazzle, just connect iMac to your choice of external displays, TVs, and projectors.[7]

PCI Express–based graphics
The ATI Radeon X1600 improves graphics performance across the board.
- Advanced Ring Bus memory controller with 128-bit memory interface delivers supercharged graphics performance.
- Ultrathreaded Shader engine supports Shader Model 3.0 programmable vertex and pixel shaders.
- High-precision floating-point operations provide High Dynamic Range (HDR) rendering for greater visual realism.

ATI Radeon X1600 Graphics Processor

The combination of a 16-lane PCI Express architecture and the new ATI Radeon X1600 graphics processor brings a new level of realism to iMac users. With up to 256MB of dedicated GDDR3 memory, you'll experience sharp video and photos, smooth video playback, astonishing effects, and vibrant colors—as well as incredible, texture-rich 3D performance in next-generation games.

High-Resolution Display

Based on thin film transistor (TFT) active-matrix technology, the flat-panel LCD displays in the iMac line deliver extraordinary image quality. Each display supports 24-bit true color at all resolutions for displaying millions of colors. An all-digital connection from the graphics processor to the display results in pristine video quality and a distortion-free image, even at the highest resolution.

iMac is available in your choice of two flat-panel displays:

- **17-inch LCD display.** With a resolution of 1440 by 900 pixels, the 17-inch (viewable) widescreen flat-panel display delivers close to 1.3 million pixels and allows you to view nearly two pages of text or graphics side by side. This display has a 16:10 aspect ratio for watching DVD movies in widescreen format—the way they were meant to be watched. The 17-inch widescreen display provides about the same viewable screen area as a typical 19-inch CRT, with twice the brightness, sharpness, and contrast.

- **20-inch LCD display.** With a resolution of 1680 by 1050 pixels, the 20-inch (viewable) widescreen display provides 36 percent more viewable area than the 17-inch LCD display. Delivering over 1.7 million pixels, this display allows you to view more than two pages side by side, resulting in less scrolling and flipping between pages, so you can conveniently work with multiple applications. Browse the web, view email, and chat with a friend without having to move or hide program windows.

DVI Video Output

iMac now sports a mini-DVI port that provides the highest image quality for video output. With a pure digital connection from the graphics processor to a DVI-equipped display or projector, it eliminates the degradation inherent in converting a digital signal to analog. Hot-plug capability enables your iMac to recognize and begin displaying content on an external monitor as soon as it is connected to the mini-DVI port.

Video output options
iMac connects to virtually any external display you may have.

- **DVI.** Use the Apple Mini-DVI to DVI Adapter (sold separately) to connect the 20-inch Apple Cinema Display or the 23-inch Apple Cinema HD Display.

- **VGA.** Use the Apple Mini-DVI to VGA Adapter (sold separately) to connect analog monitors and projectors or analog-based flat panels. Hot-plugging is also supported with VGA devices.

- **S-video or composite video.** Use the Apple Mini-DVI to Video Adapter (sold separately) to connect many standard TVs, VCRs, or projectors. This gives teachers and students the ability to present reports, projects, and even websites to an entire class on a television screen. At home, you can attach iMac to a TV to watch DVD movies or share photos using Front Row and the Apple Remote.

Dual-display modes
You can use an external display in extended desktop or video mirroring mode.

Switching modes
To toggle between extended desktop and video mirroring modes, simply press the F7 function key. Alternatively, you can select the mode using the Displays pane in System Preferences.

- **Extended desktop.** Extended desktop mode lets you distribute work across two displays, providing more room for viewing rich content or using applications with floating palettes and tools—or keeping many applications open at once.

Work in iMovie on the iMac display while watching the video you're creating on the external display.

- **Video mirroring.** Video mirroring mode outputs the same information on both displays. This allows you to control a presentation from the iMac display while your class or audience watches it on a second display or projected image, and you can face your audience during the presentation. With hardware-based mirroring in iMac, video content such as QuickTime movies can play on an external monitor with performance equal to that of the built-in display.

Built-in iSight Camera

The iSight video camera and microphone are conveniently integrated into the iMac hardware, making it easier than ever to join a video chat with iChat AV, take fun self- or group portraits in Photo Booth, or create a video podcast using iMovie and iWeb. The high-quality 640-by-480-pixel iSight is located only half an inch from the top of the display, so you can look right into it without having to slouch in your chair or kink your neck. No costs, cables, or complicated setup procedures are required to get started with iSight—just open the application you want to use and you'll be ready for your close-up.

Video Conferencing with iChat AV

With the built-in iSight and iChat AV, you can start or join a video chat at a moment's notice.[1] You can chat with up to three other parties at once in a three-dimensional view; it feels like your friends are right in the room with you.


iSight camera

Just open iChat AV, click the video icon for a buddy, and start your video chat.

Because iChat AV is a feature of Mac OS X Tiger, it works seamlessly with the iSight and Core Duo processor to bring you stunning, true-to-life picture quality and crystal-clear conversation. Whether you're talking to one person or participating in a four-way chat, the new iMac takes maximum advantage of the resolution of the iSight camera, providing up to 640-by-480-pixel resolution and up to four times greater resolution than on the iMac G5.

Recording Video with iMovie HD and iWeb

iSight works with iMovie HD, so you can use it as an input source for creating quick videos complete with titles and effects. Then with iWeb, the newest member of the iLife family, you can effortlessly publish your movies to the Internet as video web pages, video blogs, or video podcasts to share with friends and family.[4]

You can add chapter markers and web addresses to your movies, so subscribers can access their favorite parts and find more information on the web. And since iSight is built into iMac, you don't have to hook up an external video camera each time you want to record a quick message. Just open iMovie, look into the iSight camera, click Record, and start telling the world what's on your mind.
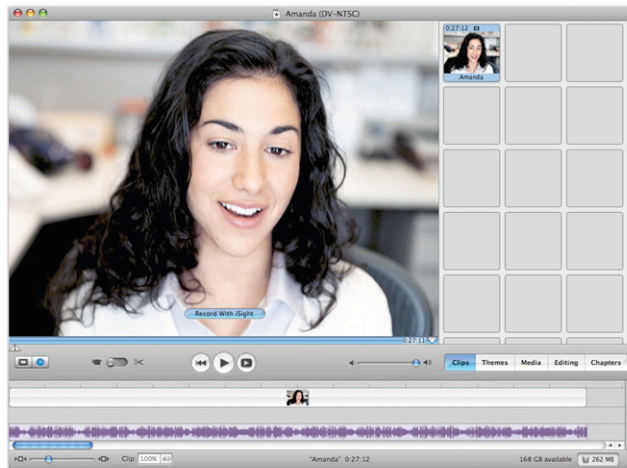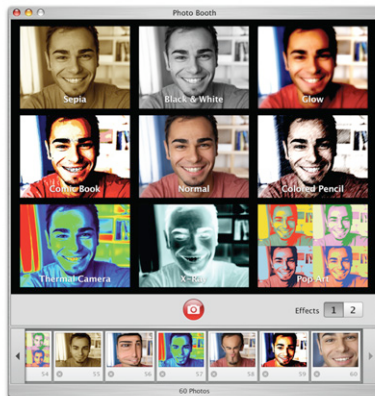

iMovie HD makes authoring video podcasts as easy as any iMovie project.

Snapshots with Photo Booth

Use fun Photo Booth effects to create a "new you."

The included Photo Booth software makes it easy to take a picture of yourself and share it with others. It turns your iMac into a modern-day arcade-style photo booth— without the coin slot. Use Photo Booth and iSight to capture a photo. Then add any of 16 fun and interesting effects, creating photos you can send via email, add to your iPhoto library, or use as your Address Book or Buddy picture, so others can see the "real" you.

With one-click photo capture, taking snapshots is completely effortless. Just open Photo Booth from the Dock, click the camera button, and pose for a picture. You'll hear the countdown time, see the screen flash, and watch as your photo instantly appears in the thumbnail viewer. Take as many photos as you want, keep the ones you like, and delete those you don't. Photos are saved automatically, so you can review them right away or browse them later.

Front Row Media Experience

Keyboard controls
In addition to using the Apple Remote, you can control Front Row from your keyboard. The following keys are equivalent to the buttons on the remote:
- Command-Esc: Menu (launch Front Row)
- Esc or Delete: Menu (menu back)
- Space or Return: Play/pause
- Up Arrow: Volume up, menu up
- Down Arrow: Volume down, menu down
- Left Arrow: Fast forward
- Right Arrow: Rewind

Front Row and the Apple Remote give you a whole new way to enjoy and share your digital media. You no longer have to be at your computer to turn up the volume in iTunes, enjoy an iPhoto slideshow, pause a DVD movie, or play a music video or TV show you've downloaded from iTunes.

With the simple six-button Apple Remote and the full-screen Front Row interface, you can navigate music, photos, and videos from up to 30 feet away. A quick press of the Menu button on the Apple Remote, and an elegant animation replaces your Mac OS X desktop with the beautiful user interface of Front Row—no setup or programming required. The display includes large text and brilliant graphics that can be seen easily from across the room, as well as live previews of photos, music, and videos.
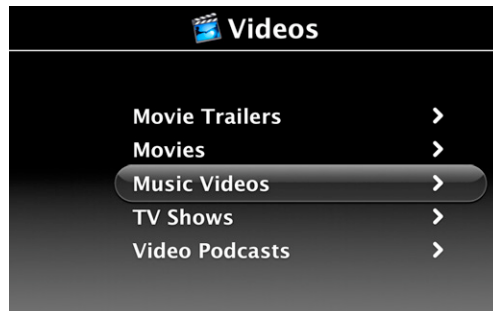
Front Row

The four intuitive Front Row menus allow you to find the photos, music, movies, music videos, TV shows, or movie trailers you want to play.

- **Music.** Front Row makes finding and listening to your iTunes music as simple as using an iPod. It gives you access to all of the music, podcasts, and audiobooks in your iTunes library and even shows album art on the iMac display while your selection is playing. Use the Apple Remote to scroll through albums, artists, and playlists, select the songs you want to hear, adjust the volume, or pause a song—all from across the room.
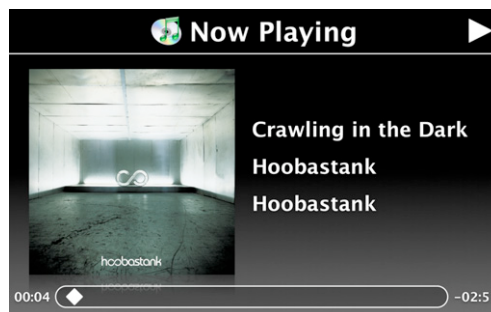

- **Photos.** Front Row gives you access to your iPhoto library and all of your iPhoto albums and lets you play a slideshow of the photos in any album you choose. When you select a photo album, Front Row displays a preview of three images from the album so you can decide whether to play it or choose another album. It also keeps track of the music and transition settings of slideshows created in iPhoto. If you are listening to music in iTunes and decide to watch a photo slideshow that has been set up with music, Front Row stops playing your iTunes music.

• **Videos.** With Front Row you can easily select and play your favorite video content. Access iTunes videos, including purchased TV shows and music videos, and video podcasts. You can also watch QuickTime movies in your Movies folder as well as movie trailers. The movie trailers menu displays the most recent trailers on the QuickTime Movie Trailer site, complete with title, artwork, and rating.
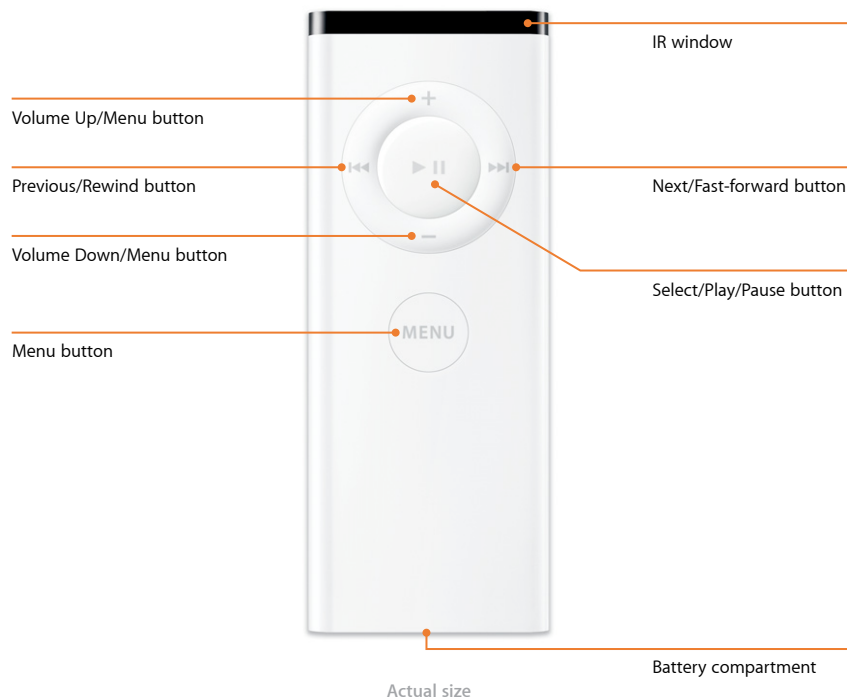

• **DVDs.** Front Row simplifies the DVD experience by giving you full control of all DVD functions through the six buttons on the Apple Remote. Bringing up the main Front Row menu while playing a DVD pauses the DVD, fades the current frame into the background, and adds a virtual chapter marker for easy access to that spot when you resume watching the movie. Now you can sit back and relax while you're watching a DVD on your iMac, instead of having to get up every time you want to pause, fast-forward, or rewind.
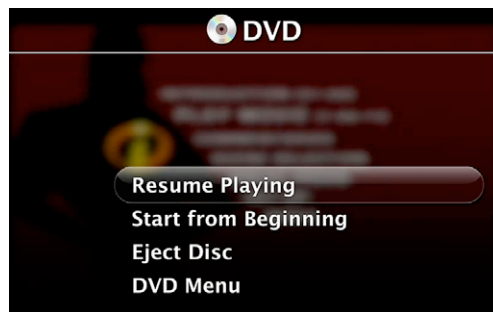
Apple Remote

With an IR (infrared) receiver cleverly hidden behind the Apple logo, iMac works with the Apple Remote without all the fuss or clutter of external signal receivers. iMac also provides the perfect resting place for the Apple Remote when you're not using it—just hold it near the right side of your iMac, and a magnet pulls it into place.

Using the Apple Remote

IR window

Volume Up/Menu button

Previous/Rewind button

Next/Fast-forward button

Volume Down/Menu button

Select/Play/Pause button

Menu button

Battery compartment

Actual size

The remote's powerful signal works from up to 30 feet away, and often you won't even need to point it in the direction of your iMac. To pair the Apple Remote to iMac when there is more than one Mac with Front Row in the room, press the Fast-forward button and Menu button simultaneously for five seconds until the screen indicates that the two are paired.

You can also use the Apple Remote to put your iMac to sleep and wake it, no matter where you are in the room. Pressing the Play/Pause button for three seconds puts the iMac to sleep and pressing any key wakes it. To save battery power when it's not in use, the remote automatically goes to sleep and then wakes up with the press of a button—although the battery should last up to two years with regular use. If the battery starts to run low, you'll know ahead of time, because a low-battery indicator appears on the iMac screen.

Bundled Software

Together, iMac and Mac OS X Tiger deliver an unsurpassed desktop computing experience. Mac OS X provides unparalleled stability and performance. Innovations in such areas as graphics and media, user interface, networking, cross-platform interoperability, and security make Mac OS X the ideal base for Apple's best-in-class applications, including Spotlight, Dashboard, Automator, and iChat AV.

In addition, Mac OS X is the foundation for Apple's integrated iLife applications: iPhoto, iMovie HD, iDVD, GarageBand, iWeb, and iTunes. Device drivers are preinstalled, so you can use today's most popular USB and FireWire digital devices right away. Just plug in a digital camera, camcorder, or iPod, and iMac automatically recognizes it—so you're ready to go.

Best of all, Mac OS X version 10.4.4 and iLife '06 run 100 percent natively on Mac systems, whether built on PowerPC or Intel processors.

Mac OS X Tiger

Change the way you work, play, search, and share on a Mac. Mac OS X Tiger includes the following:

- **Spotlight.** Search and find virtually anything, anywhere on your computer as quickly as you type. Files, images, email, contacts, calendars, and applications appear instantly.

- **Dashboard.** Dashboard zooms onto your desktop with the click of an icon and disappears just as quickly. Use it to access new mini-applications called widgets.

- **Safari RSS.** The world's fastest web browser for the Mac, Safari now features built-in RSS support. Scan the latest news, information, and articles from thousands of websites in one easy-to-read, searchable article list.

- **Automator.** Working like a robot inside your computer, this personal automation assistant helps you streamline repetitive manual tasks without programming.

- **iChat AV.** In Tiger, iChat AV brings multiway video and audio conferencing to your desktop with stunning, true-to-life pictures and crystal-clear communication.[1]

- **QuickTime 7.** Apple's award-winning multimedia software now includes user-friendly controls and pristine H.264 video. Upgrade to QuickTime 7 Pro and capture your own movies, then share them via email or .Mac.[8]

- **Mail 2.** Take control of your correspondence with Mail, featuring Spotlight search technology. Find email instantly and accurately, organize messages using Smart Mailboxes, and share, save, or view emailed images using the slideshow feature.

Secure by design
Central to the design of Mac OS X is a security strategy that emphasizes the adoption of industry standards, open software development, rapid response measures, and a modern security architecture—ensuring that every Mac is safe and secure.
- The keychain makes it easy to manage and safeguard your passwords and permissions.
- FileVault protects your data using strong AES-128 encryption.
- An integrated VPN client gives you secure access to networks over the Internet.
- A powerful firewall secures your network.

Windows compatibility
With Mac OS X Tiger, Mac systems and PCs can easily share files, networks, and even peripherals, such as printers, scanners, and cameras. Tiger supports the same standards used in Windows and Microsoft-specific technologies, enabling compatibility with Active Directory and Microsoft Exchange mail servers.

Your best friend for iLife
Extend your digital life with .Mac. This valuable membership unlocks all that iLife '06 has to offer, including Photocasting, one-click iWeb publishing, free web hosting, and more.[8]

- **.Mac Sync.** Now built into Mac OS X preferences, .Mac Sync makes staying up to date simple. Sync information from your favorite applications to multiple Mac computers and your .Mac account seamlessly.[8]
- **VoiceOver.** The spoken English interface to Mac OS X, VoiceOver provides a new way for those with visual disabilities to access the Mac through speech, audible cues, and keyboard navigation.
- **Parental controls.** Protecting kids from undesirable information as they surf the Internet and use the computer's mail, search, and chat features, parental controls make Mac OS X a powerful, family-friendly operating system.

Look for more information about Mac OS X on the web at www.apple.com/macosx.

iLife '06

Introducing Apple's new suite of digital lifestyle applications. iLife '06 includes the best tools available on any platform for creating, organizing, and editing digital media—giving you more ways than ever to enjoy every element of your digital life. New in iLife '06 is iWeb, an innovative application that lets you share photos, movies, podcasts, and blogs on the Internet in minutes using .Mac.[4] And with Front Row and the Apple Remote, you have an exciting new way to enjoy your digital media with friends and family. From composing music to scrolling through slideshows, iLife and iMac provide the perfect platform for your creative projects.

iPhoto: Share photos in a whole new way
The easiest way to import, organize, edit, and share your digital photos, iPhoto 6 offers blazing-fast support for 250,000 of them. New Photocasting, one-click iWeb publishing with .Mac, and custom calendars and cards guarantee that no one will miss a single smile.

iMovie HD: Turn video into home cinema
Give yourself the green light with iMovie HD 6 featuring new Apple-designed movie themes. Create Hollywood-style movies using full-screen editing, new audio tools, and real-time Core Video effects, then share them online with one-click iWeb publishing using .Mac.[4]

iDVD: Create stunning DVDs

Author and burn movies, photos, and music to widescreen DVDs. From instant grati-
fication with Magic iDVD to next-generation themes, iDVD 6 makes it easy. For your
burning convenience, iDVD now supports an array of third-party DVD burners in
addition to the SuperDrive.

GarageBand: Record your next hit show

The best way to record music on a Mac is also the best way to record podcasts.
Podcasting in GarageBand 3 puts you in the control room of your own full-featured
radio station. And iWeb integration gets your voice on the Internet in minutes.[4]

iWeb: Put your life on the web

Use iWeb to create websites and blogs—complete with podcasts, photos, and
movies—and get them online fast. With the newest member of the iLife family, you
can just drag, drop, and design using your choice of web templates, then publish in
an instant to your .Mac web page.[4]
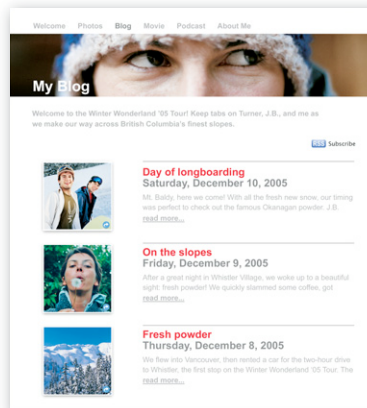
iTunes: The best digital jukebox for music and video

iTunes is the easiest way to discover, organize, and listen to audio on your computer.[9]
Manage your music or watch music videos. Catch the hottest TV shows. Create play-
lists for every activity, burn them to CD, or download them to your iPod.

Additional Software

In addition to iLife '06, every iMac comes with a collection of productivity, Internet, entertainment, and lifestyle software.

· **iWork 30-Day Trial.** Create beautiful documents and stunning presentations in minutes. The trial version of iWork '06 gives you a chance to experiment with Pages 2 and Keynote 3, Apple's innovative word processor and cinema-quality presentation software.

· **Microsoft Office 2004 for Mac Test Drive.** Try out Microsoft's productivity suite including Word, Excel, PowerPoint, Entourage, and MSN Messenger for Mac.

· **Quicken for Mac 2006.** Pay bills quickly, balance your checkbook, create a budget, plan for retirement, simplify taxes, and manage your investments using this best-in-class application from Intuit.

· **Big Bang Board Games.** Enjoy a new take on classic board games—Checkers, Chess, Reversi, Mancala, Backgammon, 4-in-a-Row, and Tic-Tac-Toe—by playing against animated computer opponents or with friends over the Internet.

· **Comic Life.** Use this fun utility to add comic book characteristics such as graphic filters, talk balloons, and bendable lettering to your digital photos.

· **OmniOutliner.** Get your thoughts down fast. Use OmniOutliner to draft to-do lists, create agendas, manage tasks, track expenses, write legal briefs, take meeting notes, monitor project status, or organize just about anything you can imagine.

Configurations and Options

Standard Configurations

The following standard iMac configurations are available from the Apple Store and Apple Authorized Resellers.

Order number	MA199LL/A	MA200LL/A
Display	17-inch widescreen LCD	20-inch widescreen LCD
Processor	1.83GHz Intel Core Duo	2GHz Intel Core Duo
L2 cache	2MB shared L2 cache	2MB shared L2 cache
Frontside bus	667MHz	667MHz
Main memory	512MB of 667MHz DDR2 SDRAM (PC2-5300); supports up to 2GB	
Hard drive	160GB 7200-rpm Serial ATA[5]	250GB 7200-rpm Serial ATA[5]
Optical drive	Slot-loading SuperDrive with double-layer support (DVD+R DL/DVD±RW/CD-RW)	
Graphics support	ATI Radeon X1600 with 128MB of GDDR3 SDRAM; 16-lane PCI Express	
Video camera	Built-in iSight	
Ports	Two FireWire 400 ports; three USB 2.0 ports; two USB 1.1 ports (on keyboard)	
Audio	Built-in stereo speakers, built-in microphone, headphone/optical digital audio output, audio line input	
Video	DVI output, VGA output, S-video and composite video output[7]	
Ethernet	10/100/1000BASE-T (Gigabit)	
Wireless networking	Built-in 54-Mbps AirPort Extreme[3]; built-in 3-Mbps Bluetooth 2.0 + EDR	
Modem	Optional external Apple USB Modem	
Software	Mac OS X, Front Row, Spotlight, Dashboard, Mail, iChat AV, Safari, Address Book, QuickTime, iLife (includes iPhoto, iMovie HD, iDVD, GarageBand, iWeb, and iTunes), Photo Booth, iCal, DVD Player, iWork 30-Day Trial, Microsoft Office 2004 for Mac Test Drive, Quicken for Mac 2006, Big Bang Board Games, Comic Life, OmniOutliner, Apple Hardware Test, and more	
Service and support	90 days of toll-free telephone support and one-year limited warranty	
Also included	Apple Remote, Apple Keyboard, Mighty Mouse	

Configure-to-Order Options

In addition to choosing from Apple's preconfigured systems, you can purchase a customized iMac from the Apple Store or an Apple Authorized Reseller. Options include more RAM and a larger hard drive; 20-inch models can also be upgraded with additional graphics memory. You can substitute an Apple Wireless Mouse and Apple Wireless Keyboard for the Apple Keyboard and Mighty Mouse.

Other Products

These products are available to enhance your iMac system.

- AppleCare Protection Plan, order number M8851LL/A
- Apple USB Modem, order number MA034Z/A
- AirPort Express Base Station, order number M9470LL/A
- AirPort Extreme Base Station with modem and antenna port, order number M8799LL/A
- AirPort Extreme Base Station with Power over Ethernet support and UL 2043 conformance, order number M9397LL/A
- Apple Mini-DVI to DVI Adapter, order number M9321G/A
- Apple Mini-DVI to VGA Adapter, order number M9320G/A
- Apple Mini-DVI to Video Adapter, order number M9319G/A
- Apple FireWire Cable (4-pin to 6-pin), order number M8706G/A
- .Mac, order number MA361Z/A

Extended Service and Support

Give yourself long-term peace of mind by extending the complimentary coverage on your iMac to three years from the computer's purchase date. The comprehensive AppleCare Protection Plan includes direct expert telephone assistance, onsite repairs for your iMac, web-based support resources, and powerful diagnostic tools—all for one economical price. For more information, visit www.apple.com/support/products.

Technical Specifications

Processor and memory
- 1.83GHz or 2GHz Intel Core Duo processor
- 2MB shared L2 cache
- 667MHz frontside bus
- 512MB of 667MHz DDR2 SDRAM (PC2-5300) on a single SO-DIMM; two SO-DIMM slots support up to 2GB

Storage
- 160GB or 250GB 7200-rpm Serial ATA hard disk drive; optional 500GB drive[5]
- Slot-loading SuperDrive with double-layer support (DVD+R DL/DVD±RW/CD-RW)
  - Maximum write speeds: 2.4x DVD+R DL; 8x DVD-R and DVD+R; 4x DVD-RW and DVD+RW; 24x CD-R; 16x CD-RW
  - Maximum read speeds: 8x DVD; 24x CD

Display
- One of the following displays:
  - Built-in 17-inch (viewable) widescreen TFT active-matrix liquid crystal display with 1440-by-900-pixel resolution
  - Built-in 20-inch (viewable) widescreen TFT active-matrix liquid crystal display with 1680-by-1050-pixel resolution
- Millions of colors at all resolutions
- Typical viewing angle: 140° horizontal, 120° vertical (17-inch model); 170° horizontal, 170° vertical (20-inch model)
- Typical brightness: 250 cd/m^2 (17-inch model); 280 cd/m^2 (20-inch model)
- Typical contrast ratio: 500:1 (17-inch model); 800:1 (20-inch model)

Graphics and video
- ATI Radeon X1600 graphics processor with 128MB of GDDR3 SDRAM and 16-lane PCI Express support; optional 256MB of GDDR3 SDRAM on 20-inch model
- Built-in iSight VGA video camera with 640-by-480-pixel resolution
- Mini-DVI output port with support for DVI, VGA, S-video, and composite video connections via adapters (sold separately)
- Support for external display in extended desktop and video mirroring modes[10]
  - Digital resolutions up to 1920 by 1200 pixels
  - Analog resolutions up to 2048 by 1536 pixels

Communications
- Built-in 10/100/1000BASE-T Gigabit Ethernet (RJ-45 connector)
- Built-in 54-Mbps AirPort Extreme wireless networking (based on 802.11g standard)[3]
- Built-in Bluetooth 2.0 + Enhanced Data Rate (EDR) up to 3 Mbps
- Optional external Apple USB Modem

Peripheral connections
- Two FireWire 400 ports; 8 watts shared
- Total of five USB ports: three USB 2.0 ports (up to 480 Mbps) on computer; two USB 1.1 ports on keyboard

Audio
- Built-in stereo speakers
- Internal 12-watt digital amplifier
- Headphone/optical digital output via 3.5-mm jack
- Audio line input
- Built-in microphone

Electrical and environmental requirements
- Meets ENERGY STAR requirements
- Line voltage: 100–240V AC; universal power supply included
- Frequency: 50Hz to 60Hz, single phase
- Maximum continuous power: 180W
- Operating temperature: 50° to 95° F (10° to 35° C)
- Storage temperature: –40° to 185° F (–40° to 85° C)
- Relative humidity: 5% to 95% noncondensing
- Maximum operating altitude: 10,000 feet

Size and weight (17-inch model)
- Height: 16.9 inches (43.0 cm)
- Width: 16.8 inches (42.6 cm)
- Depth: 6.8 inches (17.3 cm)
- Weight: 15.5 pounds (7 kg)[11]

Size and weight (20-inch model)
- Height: 18.6 inches (47.2 cm)
- Width: 19.4 inches (49.3 cm)
- Depth: 7.4 inches (18.9 cm)
- Weight: 22 pounds (10 kg)[11]

For More Information

For more information about iMac, visit www.apple.com/imac.

To find out more about Mac OS X, visit www.apple.com/macosx.

Internet access requires a compatible Internet service provider; fees may apply. Product includes electronic documentation. Backup copy of software is included. [1]Video conferencing requires broadband Internet connection; fees may apply. [2]See www.apple.com/rosetta for information on Rosetta-supported Apple software. Contact the manufacturer directly regarding third-party software. Rosetta does not translate Classic Macintosh applications or applications written for Microsoft Windows. [3]Wireless Internet access requires a base station or other wireless access point and Internet access; fees may apply. Some ISPs are not currently compatible with AirPort. Range may vary with site conditions. Achieving data rates of up to 54 Mbps requires that all users have an AirPort Extreme– or 802.11g-enabled computer and connect to an AirPort Extreme or AirPort Express Base Station or other 802.11g access point. Actual speeds will vary based on range, connection rate, site conditions, size of network, and other factors. Wireless printing over USB requires Mac OS X v10.2.7 or later and a compatible printer. [4]iWeb requires Internet and web server access; .Mac recommended. The .Mac service is available to persons age 13 and older. Annual membership fee and Internet access required. Terms and conditions apply. [5]1GB = 1 billion bytes; actual formatted capacity less. [6]AirPort Express requires an 802.11b- or 802.11g-enabled computer and Mac OS X, Windows XP, or Windows 2000. Wireless printing over USB requires Mac OS X v10.2.7 or later and a compatible printer. Streaming music requires iTunes 4.6 or later. [7]Requires an adapter, sold separately. [8]The .Mac service is available to persons age 13 and older. Annual membership fee and Internet access required. Terms and conditions apply. [9]iTunes is for legal or rightholder-authorized copying only. The iTunes Music Store is available only to persons age 13 and older in the U.S. and many other countries. Requires Internet access. Terms apply. [10]Some third-party DVI displays may not support all resolutions. [11]Actual weight varies by configuration and manufacturing process.