Build Your Own Gaming PC

Play Hard. Go Pro. What Else Is There?

Gamers practice hard to make it to the professional ranks. Because competition is fierce, gaining the competitive edge you need to outmaneuver your opponents is critical. Use this guide to build a screaming gaming system today.

GETTING STARTED

Introduction

Serious gamers need the power of the Intel® Pentium® 4 Processor with HT Technology[1] Extreme Edition to exceed the performance demands of next-generation game developers. Premium processors, high-end video cards and advanced components are essential as application designers continue to push the envelope with ultra-sophisticated, photorealistic games that feature incredible surround sound effects. For dedicated gamers, that means taking your system off autopilot and flying free with your own platform.

There are several components to consider as you move through each phase of the build process. This interactive tool provides you relevant information about the components and the phases involved in building your own top-of-the-line, performance-optimized system, as well as locations where you can purchase Intel components.

This configuration supports a wide range of gaming uses, including:

- First-person shooter games
- Real-time strategy games
- LAN and massive multiplayer online games
- Role playing games
- Simulation games

Links:

Play with an Unfair Advantage

Tech Edge Showcase: New Intel® Products for Passionate Gamers and Power Users

Before You Begin

Before building an Intel® Pentium® 4 processor-based system, you should consult the motherboard manual, boxed processor manual, and the Integration Overview for Systems Based on the Boxed Intel Pentium 4 Processor in the LGA775 Package. Also, check out the motherboard integration guide and find out what it takes to have an optimized system.

Next, pick an area where you have plenty of room to spread out parts and documentation. Electronic components like the CPU, RAM memory, and the motherboard can be damaged by static electrical discharges. To avoid this:

- Work on surfaces that do not generate static electricity. If necessary, stand on cardboard or some other material that does not generate static.
- Before handling an electronic component, touch a metal object that has contact with the floor.
- Your component package might include a grounding strap you wear on your wrist. Put this on and you'll look just like the folks who work assembling systems for the big manufacturers!

Be sure you have the manuals for each component nearby. Have your assembly tools handy, too. Usually a Phillips head screwdriver is all you need.

System Specs

- Chassis/Case: Chassis for optimal system performance
- Processor: Intel® Pentium® 4 Processor Extreme Edition 3.46 GHz supporting Hyper-Threading Technology[2] (1066 MHz Front Side Bus)
- Motherboard: Intel® Desktop Board D925XECV2
- Chipset: Intel® 925XE Express Chipset
- Fan Heatsink: Comes bundled with the Boxed Intel® Pentium® 4 Processor
- Power Supply: 450 watt ATX12V, comes bundled with chassis.
- Memory (RAM): 2 x 512MB (1GB) DDR2 533 Dual Channel
- Hard Drive: 2 x 120 GB
- CD/DVD: DVD +/- RW / CD-RW
- Video Graphics: ATI Radeon X800 XT* or NVIDIA GeForce 6800 Ultra*
- Sound Card: Creative Sound Blaster Audigy 2 ZS* Platinum Pro
- I/O Ports: 8 USB 2.0 connections, 4 in front and 4 in back
- OS: Microsoft* Windows* XP (Home or Professional Edition)

CORE COMPONENTS

Case/Power Supply

- Look like a winner, play like a winner. You'll need to keep your mental edge razor sharp in the heat of battle, and one of the keys to victory is projecting superiority. A sleek, professional gaming case will help you reach your full potential when you need it most.
- Also, PCs with Intel® Desktop motherboards and Intel® processors operating at 3 GHz or higher require a case with appropriate airflow to ensure proper cooling of the components on the desktop board.
- Carefully consider the total maximum power required to support all system components. In general, the power supply should exceed the maximum required by the system components. Check to see that a 450 watt ATX12V power supply comes bundled with your thermally advantaged case.

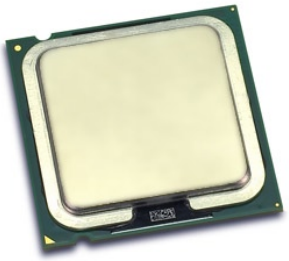
Links:

How to Recognize a Thermally Advanced Chassis

More about Thermal Management

PC Modding: Inspired PC Designs Built with Intel® Pentium® 4 Processor Performance

CPU



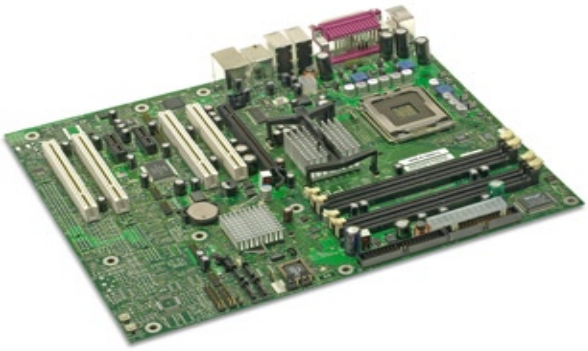
- Insert the CPU into the motherboard before installing the motherboard into the case. CPU connectors are very susceptible to the oils on your hands, so wear latex gloves when doing this.
- The Intel® Pentium® 4 processor Extreme Edition supporting Hyper-Threading Technology[2] enables the CPU to execute two series, or threads, of instructions at the same time, improving system responsiveness for gamers and power users who need to run advanced applications full-bore without experiencing performance drags.
- This processor is available at 3.46 GHz with an advanced 1066 MHz system bus and a whopping 2 MB of L3 cache, enabling users to play multiple instances of the same game or play more than one character at the same time. It is also available at 3.20 and 3.40 GHz with an 800 MHz system bus.
- Modern PCs are predominantly cooled using forced convection. They replace hot air in the system chassis with cooler ambient air from outside the chassis. Boxed Intel® Pentium® 4 processors at 3 GHz or higher ship with a fan heatsink that supplies appropriate airflow for the processor and nearby board components.

Links:

Where to Buy

More Information about Desktop Processors

Motherboard



- After you have seated the CPU, follow manual instructions and seat the motherboard in the case.
- Designed for the Intel® 925XE Express Chipset, the Intel® Desktop Board D925XECV2 with Intel® Matrix Storage Technology[3] and Intel® High Definition Audio (Intel® HD Audio) is Intel's highest performance desktop platform and includes an advanced 1066 MHz system bus.
- The Intel Desktop Board D925XECV2 features dual-channel DDR2 533/400 with four 240-pin SDRAM DIMM sockets, allowing you to easily upgrade your memory.
- PCI Express* x16 bus add-in card connector supporting PCI Express x16 graphics cards.
- 8 USB 2.0 connections, 4 in front and 4 in back, so you can connect all your peripherals.
- BIOS enabled for Hyper-Threading Technology[4].

Links:

Where to Buy

Check Out Product Features of the Intel® Desktop Board 925XECV2

Get Support and Downloads for the Intel® Desktop Board 925XECV2

See all Hyper-Threading Technology Compatible Motherboards

Chipset

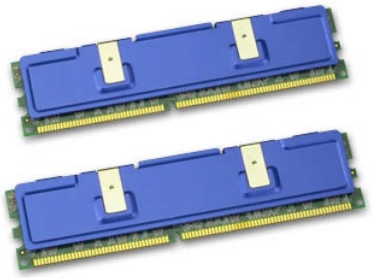
- Optimized to support the Intel® Pentium® 4 processor supporting Hyper-Threading Technology[5], the Intel® 925XE Express Chipset helps manage and prioritize multiple threads received from the microprocessor.
- The Intel® 925XE Express Chipset supports 1066 MHz system bus, dual-channel DDR2 533/400 SDRAM memory, and PCI Express* to enable incredible performance across the full range of multimedia and 3D-intensive applications.
- Built-in Intel® Matrix Storage Technology[3] supporting RAID 0 and 1 configurations and utilizing the latest Serial ATA interface for accelerated disk I/O.
- 1066 MHz FSB enables support for the highest performing Pentium 4 processors.

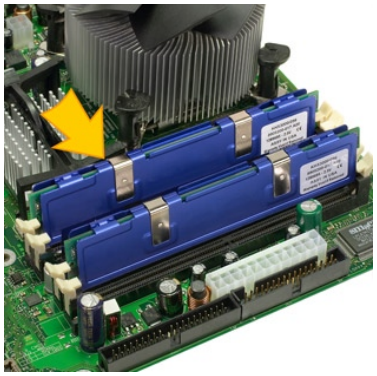
Links:

More Information about Chipsets

Chipset Driver Matrix

RAM





- Seat both 512 MB RAM modules in the motherboard. Memory is very susceptible to static electricity damage, so remember to ground yourself before touching it. Also, avoid touching the gold pins, as the oils on your skin can affect the connection.
- The Intel® Desktop Board D925XECV2 features dual-channel DDR2 533/400 with four 240-pin SDRAM DIMM sockets, allowing you to easily upgrade your memory.
- The MCH Intelligent Memory Manager in the Intel® 925XE Express Chipset automatically identifies the speed and placement of the DDR2 DIMMs, and applies the appropriate memory frequency and speed depending on the type and placement of the memory DIMM modules.
- Intel's own chipset platform validation and compliance testing assures that DDR2 memory enables awesome performance and wide interoperability on the Intel 925XE Express Chipset-based platform.

Hard Drives

- The Intel® Desktop Board D925XECV2 comes with Intel® Matrix Storage Technology[3] and brings new levels of performance to the desktop with native SATA 150. This means that you can physically connect two 120 GB Serial ATA hard drives to each other in a RAID array on your system to generate exceptional storage performance.
- You will want to create a Serial ATA RAID 0 array for your system to optimize the data transfer rates demanded by disk-intensive, next-generation gaming applications. This kind of RAID setup maps data across both drives to create one large, virtual drive.
- Refer to the manual that comes with your hard drives and set the jumpers for one hard drive to serve as the master. Install the hard drives into the chassis. Remember to connect the power cables.
- You will need to configure the RAID array in your system BIOS and should install Intel® Application Accelerator RAID Edition software for best results.

Links:

Configuring Intel® Matrix Storage Technology

Information about Intel® Matrix Storage Technology

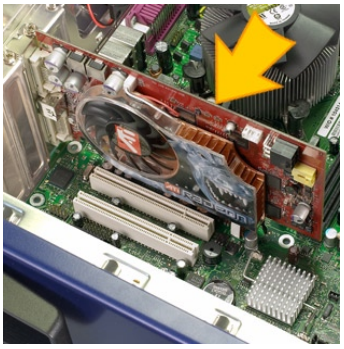
Learn More about Intel® Application Accelerator RAID Edition

CD/DVD Drive

- To join a massively multiplayer game online or burn your multimedia creations onto a DVD to share with friends and family, you will need a fast, flexible optical drive that supports multiple standards.
- Flexibility and speed are some of the top features you should look for in a CD/DVD drive. The Plextor* PX-504A/SW is a 6-in-1 drive, featuring 4X DVD+R, 2.4X DVD+RW, 12X DVD-ROM, 16X CD-R, 10X CD-RW, and 40X max CD-ROM capabilities.
- Refer to the manual that comes with your optical drive and use the jumpers to set the drive to be either a master or slave. Use the master setting if the drive is going to reside on its own IDE cable. Install the drive into the chassis. Remember to connect the audio and power cables.

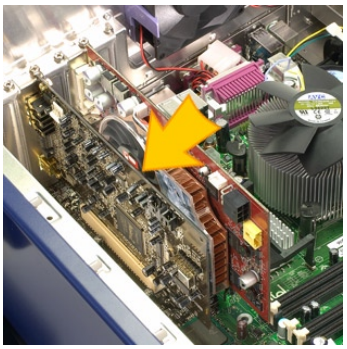
Video (AGP) Card

- Seat the video card in the motherboard.
- The high resolution textures, characters and environments of today's most sophisticated games demand next-generation technology to ensure rapid rendering and a cinematic quality gaming experience.
- The Intel® Desktop Board D925XECV2, Intel® 925XE Express Chipset, and the Intel® Pentium® 4 processor Extreme Edition supporting Hyper-Threading Technology[5] provide the highest bandwidth graphics interface available, allowing you to use the latest PCI Express* compatible cards like the ATI Radeon* X800 XT or the NVIDIA GeForce* 6800 Ultra.
- PCI Express x16 doubles the bandwidth of the AGP 8x graphics bus, providing theoretical throughput of up to 4 GB/sec for both upstream and downstream data transfers.



Link:
Intel® Graphics Gaming Guide

Sound Card



- Seat the sound card in the motherboard.
- While the Intel® Desktop Board D925XECV2 features integrated audio, many 24-bit sound cards – like the Creative Sound Blaster Audigy 2 ZS* Platinum Pro – have THX* and surround-sound to deliver the immersive audio experience demanded by the entertainment industry's most advanced music, movie and gaming applications.
- The Sound Blaster Audigy 2 ZS Platinum Pro card includes a THX Setup Console to give serious gamers the same setup capabilities found on THX home theater receivers.
- The sound card allows you to channel your games' sound effects through a powerful set of desktop speakers.

WRAPPING UP

Peripherals

Other considerations based on your preferences:

- Flat Panel Monitor – Pick a screen size and resolution suitable for your gaming environment. The wider the viewing angle the better. A fast response LCD monitor with a response time of 25ms or lower helps avoid image smearing during rapid play.
- Headset – A lightweight stereo headset with volume control and a good boom microphone can filter out background noise and complement the digital quality of your audio. Comfort is key during extended gaming.
- Broadband Internet Access – For playing the most powerful, multi-user online games, downloading demo games and full-length feature films, and streaming video with your web cam. Test your broadband connection!
- 8-Channel Audio with High-End Speakers including sub-woofer – Gives your gaming and movie watching a home theater-like experience.
- Keyboard and mouse – Think about the ergonomics of the keyboard and mouse.
- Gamepads and Joysticks.

Powered Up

It's time to see if all your hard work paid off.

- Check that the CPU fan is spinning to prevent heat damage to the CPU. You should be able to hear the faint 'rushing' noise of some fans and the noise of the hard drives (HDDs) spinning up.
- The 'power' light on the PC case should illuminate and the HDD light may flicker a little.
- After a few seconds, the monitor will begin to display various text and eventually stop at a message that says, "Unable to load operating system" - or a similar message.
- This is actually a good response and demonstrates that the system is ready to have the Operating System installed.

Links:

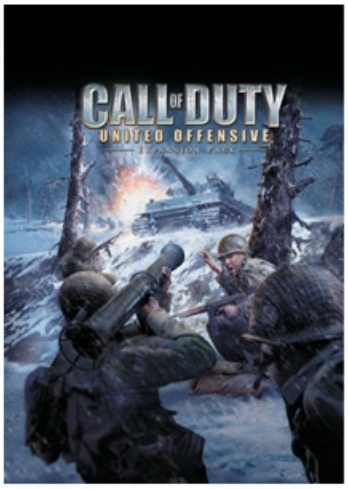
System Set Up Guide for Microsoft Windows XP*

For more information, see Tips for Installing the Processor, Memory, IDE Cables and More.

PC Modding: Inspired PC Designs Built with Intel® Pentium® 4 Processor Performance

Recommended Software

Enjoy extreme performance in your favorite virtual world with these recommended gaming titles played on a system powered by the Intel® Pentium® 4 processor Extreme Edition supporting Hyper-Threading Technology[2].



- Call of Duty*
- Horizons: Empire of Istaria*
- IL2- Sturmovik: Forgotten Battles*
- Max Payne* 2
- Unreal Tournament* 2004

Link:
See more Featured Gaming Software Titles

Performance Tips

There are a number of very important steps that need to be carried out to ensure your platform keeps running at top speed. Use the tools and tips below to manage your system performance on a regular basis.

- Configuring Systems for Optimum Performance and Control
- Intel® Pentium® 4 Processors System Optimization Guide
- Intel® Desktop Control Center
- Intel® Audio Studio

Intel Corporation
2200 Mission College Blvd.
Santa Clara, CA 95052-8119
USA

[1] Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo which your system vendor has verified utilize Hyper-Threading Technology. Performance will vary depending on the specific hardware and software you use. See http://www.intel.com/products/ht/hyperthreading_more.htm for information.

[2] Hyper-Threading Technology requires a computer system with an Intel® Pentium® 4 processor supporting HT Technology and a Hyper-Threading Technology enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See http://www.intel.com/products/ht/hyperthreading_more.htm for more information including details on which processors support HT Technology.

[3] System must be configured as "RAID Ready" to take advantage of Intel® Matrix Storage Technology, which includes enabling the RAID controller in the BIOS and installing the Intel® Application Accelerator software driver.

[4] Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo and also including an Intel® 925, 915, or 910 Express Chipset (see the product spec sheet or ask your salesperson). Performance and functionality will vary depending on (i) the specific hardware and software you use and (ii) the feature enabling/system configuration by your system vendor. See http://www.intel.com/products/ht/hyperthreading_more.htm for information on HT Technology or consult your system vendor for more information.

[5] Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo and also including an Intel® 925X or 915 Express Chipset (see the product spec sheet or ask your salesperson). Performance and functionality will vary depending on (i) the specific hardware and software you use and (ii) the feature enabling/system configuration by your system vendor. See http://www.intel.com/products/ht/hyperthreading_more.htm for information on HT Technology or consult your system vendor for more information.

*Other names and brands may be claimed as the property of others.