SOLUTION BRIEF
The 4th Generation
Intel® Core™ Processor Family
Gaming

Upping the Ante for Gaming Innovation

The 4th generation Intel® Core™ processor family is helping transform gaming, from slot machines to arcade games

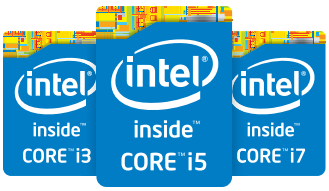
Manufactured on industry-leading 22nm process technology with 3D Tri-Gate transistors, the 4th generation Intel® Core™ processor offers superior CPU, graphics, and media performance

CHALLENGES

- **Gaming enthusiasts have increasingly high expectations** when it comes to user interfaces.
- Gaming's richer graphics content, including increased use of video, 3D, and HD content, **requires new levels of performance** to meet the growing compute-intensive demands.
- **The importance of cost, operational efficiency, and system reliability is leading to a heightened need for solutions** that offer low-power and/or integration.
- **Companies want to future-proof their large technology investments** to secure long-term gains in security, efficiency, performance per watt, and integration.
- **Data and transactional security are increasing concerns** as devices and systems connect to networks and to each other and rapidly developing gaming models proliferate across multiple devices and multiplayer systems.
- **The gaming industry is moving to network/server-based gaming and handheld wireless gaming**, driving a need for secure, cost-effective solutions with the analytics capabilities to turn data into business value.

SOLUTIONS

- **The 4th generation Intel® Core™ processors include enhancements to Intel® Advanced Vector Extensions (Intel® AVX) 2.0** and a significant performance improvement in integer/matrix-based calculations for quicker delivery of images.
- **Intel® HD Graphics 4600, Intel® HD Graphics 5000**, and other built-in visual features provide rich interactive graphics with high-quality visual playback, including excellent 3D performance and support for HDMI 4K.
- **Intel® vPro™ technology**, enabled when processors are paired with the Intel® Q87 chipset, simplifies the security and management of unattended systems.[1]
- **Intel® Active Management Technology (Intel® AMT) 9.0 allows firmware images to be rolled back and ease the provisioning of end devices at a lower cost,**[2] without compromising features or security.
- **The 4th generation Intel Core processor family delivers faster analytics and decisions** for targeted promotions, as well as a smooth, responsive interactive experience thanks to significant CPU performance upgrades compared to the 3rd generation Intel® Core™ processor family.[3]
- **The built-in Digital Random Number Generator (DRNG)** is compliant with NIST SP800-90, FIPS 140-2, and ANSI X9.82 standards, perfect for highly regulated gaming, government, and commerce application domains.[4]
- **Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI)**[5] **enhancements** enable hardware acceleration for data encryption and decryption without slowing response times.
- **The U-series processor platform offers significantly lower power design** than the previous generation.[3]



The 4th generation Intel® Core™ processor family is helping transform gaming

Superior Performance Meets Superior Graphics

As intelligent systems increasingly communicate with each other and through the cloud, industries and organizations of all kinds are poised to benefit. Commonly referred to as the Internet of Things, this expanding web of connections—and the data it generates—is making possible a world of new services, jobs, real-time decisions, and efficiencies.

Today's evolving gaming industry is among those looking for the best ways to capitalize on these emerging opportunities, transforming gaming systems ranging from traditional slot machines and arcade games to pachinko and video lottery terminals. Gaming equipment makers are finding the new 4th generation Intel® Core™ processor family provides the rich immersive graphics and application performance that end users demand, while also meeting low-power, integration, and extended availability requirements.

Manufactured on industry-leading 22nm process technology with 3D Tri-Gate transistors, the 4th generation Intel Core processor offers superior CPU, graphics, and media performance. Along with flexibility and enhanced security, it is ideal for a wide range of intelligent systems, including those used in gaming.

Delivering Premier Graphics

Captivating visuals are vital for attracting customers, and the built-in visual technologies on 4th generation Intel Core processors boast market-leading video playback and improved graphics for rich interactive 2D/3D graphics and compelling interactive digital experiences.

The next-generation Intel® graphics engines significantly improve graphics and media performance. The platform supports up to three independent displays, enabling one system to drive multiple screens without the need for a discrete graphics card. Built-in visual features, including Intel® Clear Video HD technology and Intel® Quick Sync Video 2.0, deliver smoother visual quality, improved ability to decode and transcode simultaneous video streams, and outstanding HD media playback. Additionally, the platform supports next-generation graphics APIs, such as Microsoft DirectX* 11.1, OpenGL* 4.0, and OpenCL* 1.2.

Securing Transactions

Secure, fast transactions are a must-have during peak times. The 4th generation Intel Core processor family delivers security enhancements compared to the previous generation processor, including Intel® AES-NI, which provides faster data encryption and decryption for securing personal data, without compromising performance.

Unattended gaming device deployments require enhanced remote manageability, which is made possible by the 4th generation Intel Core processor family. Intel® vPro™ technology, enabled when processors are paired with the Intel® Q87 chipset, simplifies the security and management of unattended systems.[1]

Managing Networked Computing Assets

Intel® Active Management Technology (Intel® AMT) is a feature of Intel Core processors with Intel vPro technology[1,2] and workstation platforms based on select Intel® Xeon® processors. Intel AMT 9.0 allows gaming companies to roll back firmware images and ease the provisioning of end devices at a lower cost, without compromising features or security.

Using integrated platform capabilities and popular third-party management and security applications, Intel AMT equips IT or managed service providers to better discover, repair, and protect their networked computing assets.

It also enables management and repair of workstations and entry servers, utilizing the same infrastructure and tools across platforms for management consistency.

The 4th generation Intel® Core™ processor family delivers security enhancements compared to the previous generation processor, including Intel® AES-NI, which provides faster data encryption and decryption for securing personal data, without compromising performance.

For embedded developers, this means that devices can be diagnosed and repaired remotely, ultimately lowering IT support costs.

Turning Data into Value

Viewer analytics are the foundation of targeted promotions, and the compute power of the 4th generation Intel Core processor family delivers faster analytics and decisions for customized promotions, while also offering a smooth, responsive interactive experience, thanks to significant CPU performance upgrades compared to the 3rd generation Intel Core processor family.[3]

Improving System Support

By implementing key features in its silicon platforms, Intel is bringing the benefits of virtualization to the communications and embedded applications marketplace to enable greater support for system stability, serviceability, performance, and testing. Intel® Virtualization Technology[6] (Intel® VT) enables a single hardware platform to support multiple software environments as though they were deployed on separate systems.

LEARN MORE ABOUT INTEL IN GAMING

For more information on 4th generation Intel® Core™ processors in intelligent systems for gaming, visit **http://intel.ly/15PBqRu**.

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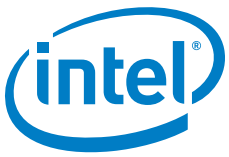

1. Intel® vPro™ technology is sophisticated and requires setup and activation. Availability of features and results will depend upon the setup and configuration of your hardware, software, and IT environments. To learn more, visit: www.intel.com/content/www/us/en/architecture-and-technology/vpro/vpro-technology-general.html.

2. Requires activation and a system with a corporate network connection, an Intel® AMT-enabled chipset, network hardware, and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating, or powered off. Results dependent upon hardware, setup, and configuration. For more information, visit www.intel.com/technology/vpro/index.htm.

3. Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors. Performance tests, such as SYSmark* and MobileMark*, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchase, including the performance of that product when combined with other products.

4. Intel® Digital Random Number Generator (DRNG) Software Implementation Guide: http://software.intel.com/en-us/articles/intel-digital-random-number-generator-drng-software-implementation-guide

5. Intel® AES-NI requires a computer system with an AES-NI-enabled processor, as well as non-Intel software to execute the instructions in the correct sequence. AES-NI is available on select Intel® processors. For availability, consult your reseller or system manufacturer. For more information, see http://software.intel.com/en-us/articles/intel-advanced-encryption-standard-instructions-aes-ni/.

6. Intel® Virtualization Technology (Intel® VT) requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM), and, for some uses, certain platform software enabled for it. Functionality, performance, or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

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