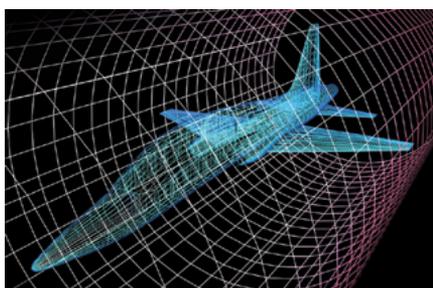




Advancing Mission Success

The 4th generation Intel® Core™ processor family enables improved decision making in critical military, aerospace, and government environments



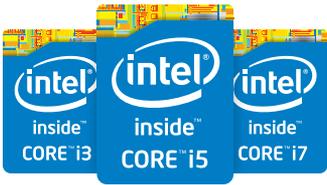
With its flexibility and enhanced security, the 4th generation Intel® Core™ processor is ideal for a wide range of intelligent systems, including those used in today's demanding MAG environments.

CHALLENGES

- **Mission-critical applications in military, aerospace, and government (MAG) environments require the highest possible performance** at the lowest-size weight power possible, without compromising the stringent security and anti-tamper requirements.
- **Mission-critical applications are moving from 2D to 3D**, adding richer content for better, faster intelligence gathering. Richer graphics content, including increased use of video and HD content, requires a new level of performance to meet growing compute-intensive demands.
- **Economic considerations require that large technology investments be as future-proofed as possible**, securing long-term gains in security, efficiency, performance per watt, and other benefits.
- **MAG personnel require long-lasting, portable devices** that enable consistent responsiveness to operational needs, when and where they arise.
- **Greater optimization of the rising volumes of data must be achieved** via improved analytics able to turn rising data volumes into mission value.

SOLUTIONS

- **The 4th generation Intel® Core™ processors include enhancements to Intel® Advanced Vector Extensions (Intel® AVX) 2.0**, which provide a significant performance improvement in floating-point performance, ensuring quicker delivery of images for improved decision making.
- **The hardware-assisted encryption capabilities like new Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI)¹** for fast encryption enable ubiquitous platform encryption without slowing response times or affecting performance.
- **The compute power of the 4th generation Intel Core processor family delivers faster analytics for improved decision making.** It also offers a smooth, responsive interactive experience, thanks to significant CPU performance upgrades compared to the 3rd generation Intel® Core™ processor family.²
- **The 4th generation Intel Core processor family enables compelling visual experiences** in a wide range of intelligent systems that rely on interactive content, such as intelligence, surveillance, reconnaissance (ISR), and avionics.
- **Unattended device deployments require the enhanced remote manageability features of 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.³
- **The U-series processor platform in the 4th generation Intel Core processor family offers significantly lower power design** when compared with the previous generation's ultra-low voltage platform.²



The 4th generation Intel® Core™ processor family enables improved decision making

Enhanced Security and Performance Drive Better Decisions

MAG intelligent system designers are grappling with many of the same technology challenges currently facing those outside their mission-focused environments. As the Internet of Things helps intelligent systems increasingly communicate with each other and through the cloud, these designers are searching for the best means for taking advantage of the transformation.

Security and performance top the list of MAG objectives. Underlying both is the pursuit of reliable strategies for accessing the growing volumes of data made possible by today's increasingly connected world. By capturing data in a timely, efficient manner, and then converting it into meaningful, actionable insight, mission success can be served like never before.

Many are finding the powerful solution they need in the new 4th generation Intel® Core™ processor family. 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. With its flexibility and enhanced security, the 4th generation Intel Core processor is ideal for a wide range of intelligent systems, including those used in today's demanding MAG environments.

Meeting Mission Requirements

A fleet of military vehicles has been deployed as part of an intelligence, surveillance, and reconnaissance (ISR) mission. Each vehicle is equipped with computers, enabling mission personnel to gather and transmit critical data from the field back to the larger team for analysis.

The team selected the 4th generation Intel Core processor family in part because digital signal- and image-processing applications such as the mission's radar and sonar needs, as well as the required communication systems and scientific

simulations, rely on floating-point-intensive computations. Enhancements to Intel® Advanced Vector Extensions (Intel® AVX) 2.0 in the 4th generation Intel Core processor family accelerate floating-point performance for signal- and image-processing applications.

The vehicle computers are also equipped with Intel® Active Management Technology (Intel® AMT), a feature of Intel Core processors with Intel® vPro™ technology^{2,3} and workstation platforms based on select Intel® Xeon® processors. Intel AMT 9.0 allows the team to roll back firmware images and ease the provisioning of end devices at a lower cost, without compromising features or security.

Should unattended device deployments become necessary, enhanced remote manageability will be required—another capability made possible by the 4th generation Intel Core processor family. Intel vPro technology,³ enabled when processors are paired with the Intel® Q87 chipset, simplifies the security and management of unattended systems.

Using integrated platform capabilities and popular third-party management and security applications, Intel AMT equips the team to discover, repair, and protect devices from a safe, remote location.

Intel AMT also enables management and repair of workstations and entry servers, utilizing the same infrastructure and tools across platforms for management consistency. For embedded developers, this means that devices can be diagnosed and repaired remotely, ultimately lowering IT support costs.

Delivering Premier Graphics

The next-generation Intel® graphics engines significantly improve the graphics and media performance. As the team traverses the landscape, it transmits the data it collects, including high-quality images and video.

The 4th generation Intel Core processor family delivers Intel® HD Graphics 4600

Accurate visuals are vital for missions, and the built-in visual technologies on 4th generation Intel® Core™ processors boast market-leading video playback and improved graphics compared to 3rd generation Intel® Core™ processors.

and other built-in visual features for rich interactive graphics with high-quality visual playback, including excellent 3D performance and support for HDMI 4K. This enables compelling visual experiences in a wide range of intelligent systems that rely on interactive content, such as ISR, vehicle electronics, and avionics.

The platform also 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.

Robust Security from the Hardware up

The data being gathered during the mission are sensitive, and protecting that data is a key requirement of the team conducting the ISR sweeps. The 4th generation Intel Core processor family delivers Intel® Data Protection Technology security enhancements not available with the previous generation processor, including hardware-assisted encryption capabilities like new Intel AES-NI.¹ Intel AES-NI provides faster data encryption and decryption for securing data and helping protect media and assets from loss—all without slowing response times or compromising performance.

In addition, the 4th generation Intel Core processor family is equipped with Intel® Platform Protection Technology (Intel® PPT) with boot guard configurable boot.⁴ This prevents repurposing the platform to run unauthorized software and protects against execution of boot-block-level malware. It works with both UEFI Secure Boot and Intel® Trusted Execution Technology (Intel® TXT). And Intel® Platform Trust Technology⁴ helps ensure integrated secure storage of root of trust values for improved platform security.⁵

Turning Data into Value

Effective analytics are a key facet of mission success, and here the team benefits from the compute power of the 4th generation Intel Core processor family, which delivers faster analytics for improved decision making. It also offers a smooth, responsive interactive experience, made possible by the significant CPU performance upgrades compared to the 3rd generation Intel Core processor family.²

LEARN MORE ABOUT INTEL IN MAG

For more information on 4th generation Intel® Core™ processors in intelligent systems for military, aerospace, and government, visit <http://intel.ly/17w9Ifh>.

SOLUTION PROVIDED BY:



1. 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/>.

2. 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.

3. 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.

4. Targeted for 4th generation Intel® Core™ Processor ULT (Mobile) only.

5. Not available on Intel® vPro™ technology, uses Trusted Platform Module (TPM) instead.

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