



# Intel Transforms the Shopping Experience

Driving enhanced user experiences in retail environments with the 4th generation Intel® Core™ processor family



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## CHALLENGES

- **Retail is changing**, with modern shoppers empowered as never before by greater choice and access to data about everything from products to pricing.
- **Brick-and-mortar businesses now compete head-to-head** with smartphone comparison shopping in-store.
- **Exciting new models of engagement** like touch, gesture, and voice make shoppers expect retail interactions to be rich, engaging, and immersive.
- **Connecting and managing disparate in-store devices** puts pressure on retail staff and can result in inconsistent consumer experiences.

## SOLUTIONS

- **One-size-fits-all print advertising is replaced** by personalized, rich media experiences and directed ads through devices at the edge (ATM, kiosks, signs) that bring online experiences into the store.
- **Traditional customer loyalty cards and coupon schemes are replaced** by customized offers and product information in real time, for maximum shopping value.
- **Enhanced security and manageability, and breakthrough performance** allow customers to check out anywhere in the store, or use their phones for tap-and-pay transactions.

Enabling a new world of shopping experiences, the 4th generation Intel® Core™ processor family enhances intelligent retail through improved media and graphics, enhanced security and manageability, and breakthrough performance to transform retail: ranging from point-of-sale (POS) devices, interactive kiosks, and intelligent vending to digital signage and automated teller machines (ATMs).

This new generation of processors delivers improved media and graphics capabilities, enhanced security and manageability, and breakthrough performance, enabling OEMs and SIs to develop enhanced user experiences and drive intelligent retail.

▪ **Captivating visuals** are vital for attracting retail customers, and the built-in visual technologies on 4th generation Intel Core processors boast market-leading video playback and up to 60 percent<sup>1</sup> graphics improvement, for rich interactive 2D/3D graphics and compelling interactive digital experiences.

▪ **Secure, fast transactions** at point-of-sale devices are a must-have during peak selling times. The 4th generation Intel Core processor family delivers security enhancements when compared with the previous generation processor, such as Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI), which provides faster data encryption and decryption for securing personal data without compromising performance.



## 4th generation Intel® Core™ processors enable tools for real-time customer response

### ▪ Unattended retail 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. Intel® Active Management Technology (Intel® AMT) 9.0 allows retailers to roll back firmware images and ease the provisioning of end devices at a lower cost, without compromising features or security.

### ▪ Anonymous viewer analytics

are the foundation of directed promotions, and the compute power of the 4th generation Intel Core processor family delivers faster anonymous analytics and decisions for directed promotions, while also offering a smooth, responsive interactive experience, with CPU performance improvement of up to 15 percent when compared with the 3rd generation Intel® Core™ processor family.<sup>2</sup>

### Shoppers Experience the Responsive Store

What will shopping at a brick-and-mortar store be like five years from now? The future may be closer than you think.

Technology already available from the 4th generation Intel Core processor family is at the heart of new tools to help customers find what they need, exactly when they need it. These new tools help people make sense of the dizzying choices laid out in front of them through a more engaging shopping experience that can offer instant, just-in-time incentives based on expert suggestions. Here's how.

### Digital signage innovations

Whether incorporated into a point-of-sale end-cap display, used as a stand-alone marketing system at an airport, or designed to draw customers to interactive vending systems, digital signage is expanding rapidly with the help of 4th generation Intel Core processors.

### THE OPEN PLUGGABLE SPECIFICATION

The OPS specification benefits both digital signage system manufacturers and users.<sup>3</sup> When manufacturers employ the OPS specification, their products will be compatible with more systems—installed and future—which opens up new sales opportunities. Users can upgrade their infrastructure more easily because components will be interchangeable by design. Additionally, installing digital signage equipment based on Intel® architecture helps users implement scalable applications that can network easily with other equipment. This approach further safeguards interoperability and simplifies application upgrades in a way that allows users to future-proof their technology investments.

OPS defines standards for a pluggable computing module used in media players and a docking board in display panels, as well as the connector and signals that link them. Digital signage systems using OPS pluggable modules have several advantages over proprietary and built-in solutions:

- Development and implementation cost can be spread over higher volumes, thus reducing cost per unit
- Fewer cables, smaller space requirements, and no additional hardware brackets
- Lower power consumption
- Easier installation

OPS-compliant systems are modular in nature, which provides significant operational benefits. For instance, a media player with a hardware fault can be repaired quickly by simply replacing the entire pluggable module. This is a significant advantage over built-in solutions, which require the replacement of the entire display unit in case of a PC failure.

Modularity also provides more lifecycle management flexibility compared to built-in solutions because upgrades can be performed at a subsystem level. As a result, it is possible to exchange out short lifecycle components, like the control unit, to incorporate the latest technology, while leaving in long lifecycle components, such as the display panel, user interface, and sensors.

Likewise, OPS-defined pluggable modules can be easily upgraded when newer technology is available, thus keeping a digital signal system up-to-date in a cost-effective manner. Getting maximum value from OPS digital signage is pushing the envelope of computing technology, particularly with the emergence of sophisticated applications, such as anonymous facial recognition and audience impression measurement. Defined with these applications in mind, OPS supports today's high performance Intel® Core™ i7 processors and Intel® Core™ i5 processors, and paves the way for future pluggable modules based on next-generation Intel® processors.

Developers can download the Open Pluggable Specification, as well as detailed design guides for pluggable modules and docking boards, at <http://edc.intel.com/Applications/Digital-Signage-Solutions/OPS>.

Point of sale is moving away from passive marketing and promotions to engaging, two-way experiences that actively change shopping behavior. From the moment consumers enter a store to the point at which they make a purchase, new innovations enhance variety, convenience, and personal service.

As vending technology evolves, new machines are going well beyond dispensing snacks and drinks. Intel helps transform these machines into intelligent, seamless systems with a multitude of new features—including HD digital signs, interactive touch screen controls, even cashless payment mechanisms—to

create a fuller, more engaging shopping experience that motivates consumers to buy. Intel® technology is driving this transformation. Intel®-based digital signage can interact intelligently with consumers via a range of digital media—from HD and 3D video to touch-enabled displays to gesture-controlled screens.

### Web, mobile, and social integration

When in-store digital signage connects to the Web, social media, and mobile devices, it becomes an engaging access point to a wealth of information—for consumers and retailers alike. Consumers get the experience of shopping online along with the chance to physically compare products and services. Best of all, they can start enjoying their purchases on the spot.

Increasingly, these digital signs can go further—delivering coupons, shopping lists, recipe suggestions, and product information to customer mobile devices.

### New Tools for Retail Associates

The benefits of networked signage also extend to retail employees. Sales associates can use intelligent digital

signage to demonstrate products to customers, provide training, check inventories, and more. These all contribute to better overall customer satisfaction and loyalty.

### Central management and control

Digital signs with Intel AMT can deliver rich multimedia content while enabling remote management, advanced security, energy savings, and lower total cost of ownership. The benefits are both practical and measurable. For example, systems can be scheduled to automatically turn on and off, dramatically reducing power consumption. Plus, as more and more systems operate over WiFi networks, implementation gets even easier.

### Signage interchangeability with OPS

Intel developed the Open Pluggable Specification (OPS) to simplify the installation, usage, maintenance, and upgrade of digital signage infrastructure.<sup>3</sup> The OPS helps make digital signage devices more intelligent and connected while reducing costs by ensuring that components are interchangeable by design.

What's more, installing Intel-based digital signage gives retailers a way to implement scalable applications that can network easily with other equipment. This approach further safeguards interoperability and simplifies application upgrades in a way that allows users to future-proof technology investments.

### Intel® Embedded Design Center

Get technical resources and tools that software and hardware developers can use for embedded designs in retail. Visit the [Intel Embedded Design Center](#).

### Keep up with Intel Innovations

Get the latest news and stay current with Intel® technology in the retail space. Register to receive regular newsletter updates. [Register today](#).

### LEARN MORE ABOUT INTEL IN RETAIL

For more information on 4th generation Intel® Core™ processors in intelligent systems for retail, visit <http://intel.ly/1464jNA>.

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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. *Open Standard Simplifies Digital Signage Development and Deployment: Intel creates specification that increases compatibility and interoperability:* <http://www.intel.com/content/dam/www/public/us/en/documents/solution-briefs/open-standard-simplifies-digital-signage-development.pdf>

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