The Right Touch for Windows* 8 Tablets:
Choosing Among Intel® Processors

Tablet PCs based on Intel® architecture and Microsoft Windows* 8 unleash a bold new experience that keeps up with your life, wherever it takes you.

At both work and play, computer usage models demand increasing mobility, performance, and convenience. Users want inspiring new devices tailored to their needs, with the flexibility to handle a rainbow of tasks. And they want to use familiar tools and applications. The latest Intel® architecture-based platforms for tablet PCs are an excellent fit for the many dimensions of our digital lives.

In recent years, users have embraced the convenience and compelling user experience of tablet PCs, but popular options in the market have lacked the capabilities of a full PC. Intel® Core™ vPro™ processors, Intel® Core™ processors, and Intel® Atom™ processors overcome those limitations, powering a new generation of tablets that deliver new capabilities.

- **Embrace the future, without compromise.** Exciting new devices deliver enhanced experiences based on clean design, smooth interactivity, and rich performance for both leisure time and serious business.
- **Choose from an enormous breadth of software.** Microsoft Windows* 8 is an advanced, tablet-native OS, optimized for Intel architecture with an enormous x86 application and driver ecosystem.
- **Protect sensitive information.** A range of security capabilities—enabled by both hardware and software features—helps keep everything from financial information to vital business data safe.

Intel architecture-based tablets are powerful, eminently portable, and provide an enjoyable user experience. They offer advanced entertainment capabilities for multimedia and HD video, but they can also hold their own with enterprise IT standards, such as making it easier to join a Windows network.

Tablets based on the robust Intel Core processor deliver performance that will adapt for effortless multitasking and high productivity, as well as outstanding security and responsiveness. Intel Core vPro processors build on the capabilities of the Intel Core processor with enhanced security and manageability. The power-optimized Intel Atom processor is the basis for tablets that are very thin and lightweight, with outstanding battery life.

All Intel® platforms offer state-of-the-art, compelling user experiences. This paper compares them, providing guidance to help match the right tablet to every user. It consists of the following primary sections:

- **Overview: Robust Choice in Tablet Hardware Platforms** introduces how users benefit from the choice among Intel processors as they match the right tablet to their needs.
- **Intel Platforms for Tablets Deliver the Windows 8 Advantage** shows how synergies between Windows 8 and both Intel platforms for tablets deliver outstanding experiences for work and play.
- **Mapping Task Requirements to the Right Intel Tablet Platform** provides guidance in selecting Intel processors based on the needs of individual users.
- **Determining Platform Benefits in Key Feature Domains** follows the decision-making process by hypothetical user Guillermo as he chooses the best tablet for his needs.
Overview: Robust Choice in Tablet Hardware Platforms

The availability of Windows 8 tablets based on the Intel Core vPro processor, the Intel Core processor, or the Intel Atom processor provides excellent flexibility and choice for end customers, according to their specific usage models. The choices made by the following pairs of hypothetical end customers demonstrate how the hardware platforms might address individual needs, based on the key functional differentiators that Table 1 summarizes:

• University students can choose a tablet according to their course of study. Emma, a future engineer, uses a tablet based on the Intel Core processor for maximum compute power, while Steve, who studies literature, selected the Intel Atom processor for maximum portability.

• Mainstream consumers can choose a tablet based on daily activities. Allen, a teenage avid gamer, has no doubt that the Intel Core processor is the right tablet platform for him, while his father John stays organized and manages social networking and email tasks with a lightweight tablet based on the Intel Atom processor.

• Business users can choose tablets for the way they work. Cheryl, a business analyst, crunches client-side numbers and performs business intelligence functions on an Intel Core vPro processor-based tablet; Phil, a sales rep, chose a tablet based on the Intel Atom processor for long battery life during client presentations.

Select the combination of form factors to match individual needs

Tablets based on Intel architecture provide an outstanding user experience for usage models that don’t require a built-in physical keyboard, with the touch-optimized, enterprise-ready experience of Windows 8 and the Intel Core processor, Intel Core processor, or Intel Atom processor. Windows 8 tablets are also an excellent basis for synching applications and data across a broad array of devices through the cloud using Windows Live* and SkyDrive*. For many users, these capabilities make them the ideal choice, according to their specific needs, as illustrated in Figure 1.

• Tablets are excellent for usages that need lighter weight, long battery life, and an always-connected experience, where a physical keyboard isn’t required.

• Ultrabook™ devices are sleek, powerful, highly portable devices with built-in hardware keyboards that are well suited to both consumer and business computing.

• Ultrabook convertibles offer the flexibility of transitioning from a laptop-like form factor with a built-in keyboard to that of a touch-oriented tablet.
### Table 1. Key differentiators between Intel® platforms for tablets.

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### Whichever Intel® platform-based tablet you choose, you’ll unleash groundbreaking user experiences with Windows® 8.

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**Figure 1.** Choice of form factors allows the device to be tailored to individual needs.
Choose the right tablet to simplify your life

Preparing for a long-awaited escape to the Canary Islands, Marie knows that she may need to log in while she’s away to prepare month-end sales reports and authorize equipment purchases.

A tablet PC is an excellent solution, because she also wants to keep in touch with people back home and upload vacation photos. The tablet will simplify Marie’s quest for work/life balance, helping her quickly tend to business when necessary.

In choosing the best tablet for her needs, Marie considers her choices.

• Intel Core vPro processor-based tablets provide capabilities similar to full business clients, including robust performance and security. Marie considers the value of that extra robustness in case she needs to run ad hoc sales reports or more importantly, edit vacation videos on the beach.

• Intel Atom processor-based tablets can handle most of the business tasks Marie is likely to need while she is away. They are also small and lightweight, providing portability as she strolls to an outdoor cafe, a workspace far better than any corner office.

Whichever tablet she chooses, the Microsoft and Intel combination will serve her well, both as a personal device and when connecting to her company network.

Intel® Platforms for Tablets Deliver the Windows 8 Advantage

The development of Microsoft Windows 8 and Intel platforms for tablets represents the latest achievement in a decades-long history of collaborative co-engineering. Together the two companies carefully tune their products to deliver an unmatched user experience.

Tablets based on Intel processors running Windows 8 have far more extensive capabilities for both consumer and business use than the competing tablets in the market.

Experience the new Windows 8 UI built explicitly for touch

Windows 8 is engineered specifically for use with tablet touch screens, on equal standing with other types of PCs. To deliver an experience tailored to the capabilities of touch devices, Windows 8 introduces the new user interface (UI) shown in Figure 2. This re-imagined approach to human-machine interaction is meant to be as fluid and intuitive as it is powerful.

The new Windows 8 UI responds instantaneously to touch input, providing an engaging, immersive experience as the user navigates the environment and interacts with content through direct manipulation. The primary user modality consists of gesture-oriented controls such as stretching or pinching with two fingers to zoom in and out, as well as swiping from the edges of the screen to access commands and navigate between apps. Users may also choose to complement the touch-screen interface with additional, optional input devices, such as the following:

• Digitizers and pens make Windows 8 more useful by providing the same precision on a tablet that one would get from a touchpad or mouse on a laptop.

• Removable hardware keyboards let users travel light when they want to or use a traditional QWERTY keyboard, including highly portable ones built into tablet portfolios.

Figure 2. The new Windows UI start screen.

INTEL® VPRO™ TECHNOLOGY: Ultimate Security and Manageability for Business

Intel® Core™ vPro™ processors build on the capabilities of the Intel® Core™ processor with enhanced security and manageability:

• Remotely access device, even if it is powered down or the OS is missing, using leading manageability consoles

• Verify a tamper-free environment with Intel® Trusted Execution Technology

• Improve authentication security with Intel® Identity Protection Technology

For more information, visit www.intel.com/vpro
A growing ecosystem of new Windows 8 Store applications helps deliver the full value of the new Windows 8 UI. Distributed online, these offerings are being built by Microsoft and by independent, third-party developers. Before an app is posted for general availability, it is vetted by Microsoft to ensure that it runs as intended and meets rigorous security standards.

Windows 8 also offers the choice of the traditional Windows desktop interface in addition to the new Windows 8 UI. Desktop applications will continue to play an important role in the industry, even as they evolve to become more touch-friendly. For example, the Microsoft Office® 2013 suite of applications is designed specifically to provide new options and capabilities on touch-enabled devices. The flexibility of having both UIs available is also particularly valuable in environments such as academic institutions where many generations of software typically exist side by side.

**Run the applications and other software you depend on, without compromise**

Select from the unparalleled ecosystem of more than four million applications that run under Windows on Intel architecture. The choice of Intel platforms supports the varying demands of these applications, enabling an excellent user experience for different sizes of workloads. For example, users of processor-intensive software such as Adobe Photoshop®, Adobe Director, and high-end games should opt for tablets based on the Intel Core vPro processor or Intel Core processor, while those with more modest needs, such as social media, watching YouTube® videos, and casual games, will also run well on Intel Atom processor-based tablets.

The broad and deep ecosystem of x86 software for Windows extends beyond the main applications people use every day and includes other types they may not have considered, such as the following:

- **Device drivers.** Keith, a technology enthusiast, is immediately taken with his new tablet and designates it as his primary computer. As he connects it to a printer, a scanner, and a video camera, he scarcely even considers how seamlessly all the devices interoperate. Since Windows is by far the most common environment for device makers to target when they develop drivers, everything “just works.”

- **Browser add-ons.** Joshua doesn’t have particularly complex computing needs, and he takes it for granted that when he needs added functionality in his browser, it will be available without any fuss. With Windows, he is not disappointed, as he installs the tools he needs such as Adobe Acrobat® Reader, Adobe Flash® Player, the Java® Runtime Environment, and Microsoft Silverlight®.

- **Utilities.** While configuring client system in the late-night hours, Sylvia, an IT tech, remembers a Microsoft Management Server snap-in module she used at a previous job. It works for all Windows clients on the network, including the new tablets, and after setting it up she finishes her work in time to go home and get some sleep.

**EASILY MANAGE AND UPDATE WINDOWS® 8 WITH THESE SELF-SERVE RESOURCES:**

- **Windows Store** is an online distribution point to purchase applications built for the new Windows 8 UI that have been pre-screened by Microsoft for security and quality.

- **Windows Restore** helps resolve serious issues with the system environment, including the OS, registry, device drivers, and DLLs, by reverting to a known good configuration restore point.

- **Microsoft Update** makes it easy to keep Windows 8 and other Microsoft applications in peak operating condition with simple, automated delivery of software updates and patches.

**Personalize the tablet using multiple user profiles**

Windows 8 is the only mainstream tablet OS that supports multiple unique user profiles that personalize the tablet for the user when he or she logs in. This capability helps to enhance efficiency and privacy, important considerations when sharing a tablet with family and friends.

- **Keep your system configured the way you want.** Lisa and Michele run a shop together, and they share a tablet for keeping track of inventory, ordering new stock, and maintaining the store’s financial records. Although they have been friends for many years, Lisa is thankful that a separate user profile means she doesn’t have to put up with the same toolbars, active desktop elements, and novelty sound effects that Michele loves to use.

- **Let kids be kids, but in their own sandbox.** Matt often lets his sons, Ian and Paul, use his tablet on trips. Because Matt sets up separate profiles for them, the tablet provides a different environment for each user, including private settings such as stored passwords, desktop themes, and the ability to make sure no one else inadvertently deletes an important document. It also keeps Matt’s saved credit card information on a need-to-know basis, just in case.

- **Keep your personal life separate from work.** Svetlana keeps her tablet with her from the time she gets up in the morning until she goes to bed at night. Her user profile at work lets her connect to the corporate network, use the intranet, and access data warehouse systems. Her user profile for home is set up for off-hours activities such as games, entertainment, and social networking.
Depend on a tablet that’s ready to work as well as play
As users adopt tablets, many naturally want to use them at work, in addition to personal use, connecting them to corporate networks and hosting business data on them. This bring your own device (BYOD) model introduces significant security and interoperability risks, and if the device in question is not able to handle the security protocols and other guidelines that IT puts in place, many issues can arise.

BYOD is a reflection of another trend: the growing sophistication of consumer technologies, including hardware, software, and services. In this model, end users purchase devices, install their own software on them, and connect them to personal service accounts. The heterogeneity of technologies introduced by the consumerization of IT and BYOD creates particular challenges in terms of securing network access when the technologies are not enterprise-ready.

Some companies disallow BYOD tablets, while others accept the challenge of supporting their use on the network. As shown in Figure 3, however, the emerging dominant trend is for companies to actually purchase tablets for their employees. This approach allows the IT organization to exert some control over the choice and configuration of the technology.

Businesses (or business end users) that choose tablets based on Intel architecture and Windows 8 get full fidelity with the rest of the environment, including Windows 8 security and management features, for high productivity with an outstanding user experience. Windows 8 tablets are both consumer- and enterprise-ready, right out of the box, with support for key foundational security and management features of Windows networks, including the following:

- **Domain join.** The ability to join a Windows domain allows an Intel architecture-based tablet running Windows 8 to be a full-fledged enterprise device. It instantly partakes of domain features such as role-based security, single sign-on, and mapping to network resources. Moreover, it supports that productivity and security without burdening IT.

- **Group Policy.** Another advantage of being full members of the company network is that Intel architecture-based tablets running Windows 8 can be managed using Group Policy. That capability allows IT to automatically configure, secure, and patch the device as needed, maintaining its suitability and value as a true network device.

- **Windows 8 Professional security feature support.** Intel architecture-based tablets take full advantage of security features built into Windows 8 Professional, including BitLocker*, BitLocker to Go, and Encrypting File System. Users also have extensive choices among the many security applications available for Windows.

**Standardized management.** IT organizations can easily extend their existing client configuration and management practices to personal Windows 8 tablets on the network. Microsoft System Center Configuration Manager’s unified infrastructure provides IT with a single pane of glass to manage BYOD Windows 8 tablets in tandem with all the other client devices on the network. With Intel Core processors and Intel Atom processors, IT has foundational manageability with familiar controls through leading manageability consoles to remotely manage devices when the device is powered on and the OS is operational. With Intel Core vPro processors, IT can remotely manage the devices regardless of power or OS state.

**Mapping Task Requirements to the Right Intel Platform-based Tablet**

Whether a user wants a tablet for personal use, to use when working, or both, they can choose the Intel processor that best meets their specific needs. Both platforms deliver the compelling Windows 8 user experience with great responsiveness and seamless downloads, support the applications users depend on, and operate smoothly on corporate networks.

For users with rigorous performance requirements for tasks such as demanding productivity applications and content creation, or who have advanced security needs, the Intel Core vPro processor or Intel Core processor is typically the right choice. Because the Intel Atom processor is optimized for portability and long battery life, it may be preferred by users who place a premium on mobility and whose typical tablet use includes light productivity applications and content consumption.

![Figure 3](image_url)
Demanding Tasks
(Best Suited to Intel® Core™ vPro™ Processors and Intel® Core™ Processors)

Light Tasks
(Well Supported by Intel® Atom™ Processors)

| Productivity and Communications | • Client-side enterprise apps  
| • Ad hoc business intelligence reporting | • Email, blogging, and social media  
| • Cloud based enterprise apps for Atom   | • Media consumption (for example, watching video)  
| • Media development (for example, creating Flash* animations)  
| • Video editing | • Photo editing  
| Gaming | • Mainstream PC games (for example, Guild Wars* 2, Diablo* III)  
| | • Casual online games (for example, Angry Birds*, Cut the Rope*)

Although there is often no clear distinction between the definitions of light and demanding productivity tasks, some typical examples are shown in Table 2. Note that all Intel architecture-based tablets will handle any of these tasks to some extent; in particular, the Intel Core vPro processor and Intel Core processor are capable of providing excellent results on light as well as demanding tasks. These guidelines are meant to illustrate the types of tasks that require the higher level of resources offered by the Intel Core vPro processor or Intel Core processor for optimal results.

With these task distinctions in mind, a user can determine the best-suited platform to choose according to how he or she intends to use the tablet. The following examples suggest how distinctions in usage among different types of users might dictate which tablet platform they should choose.

**Platform Decisions by Consumer Users**

**Why Hans chose the Intel Core processor:** Hans has the heart of an adventurer, and he pictures himself editing video and posting it to YouTube* while sitting on the Great Wall of China and playing Game of Thrones while touring Stonehenge. The 3rd gen Intel Core processor is the obvious choice for him.

**Why Mei chose the Intel Atom processor:** Mei imagines trouncing her son at Facebook Scrabble from the kitchen table and then using Skype to watch her baby grandson take his first steps. An Intel Atom processor-based tablet works well for light tasks such as these.

**HOW FINGERPRINT READERS AND THE RIGHT TABLETS HELP A BOUTIQUE SHINE**

In the swanky mountain resort town of Bernard Lake, Guy and Roxanne envisioned a unique shopping experience using tablet computers at their clothing boutique.

They planned to invite each customer to use a store-owned tablet to set up and later access their personal shopping profile as he or she peruses the store. The entrepreneurs initially intended to use Windows* networking with Intel® Atom™ processor-based tablets to support simple profiles that would include shopping history and related information, such as:
- **A record of purchases and wish lists** to encourage future sales
- **Sizes and color preferences** to help store staff better assist customers
- **Saved credit card information** to speed up and simplify payment

The profiles need to be private, and customers would most likely forget usernames and passwords—especially from one ski season to the next. The owners therefore decided to base user access on the Intel® platform-based tablet’s optional fingerprint reader.

In another burst of inspiration, Guy decided to use the tablet’s built-in camera to include in application images of customers, clothing, and accessories, creating a virtual dressing room. To support image rendering by that feature and enhance security, they chose the Intel® Core™ vPro™ processor instead of the Intel Atom processor.

With the solution fully up and running, the boutique has generated a buzz in the community, enhanced customer loyalty, and substantially driven up sales volume.
Platform Decisions by Business Users

Why Zhi Peng chose the Intel Core vPro processor: In his work as a creative professional, Zhi Peng routinely does tasks such as rendering video using Adobe Premiere* and creating graphics-intensive marketing materials using Adobe Photoshop and InDesign*. His tablet of choice is based on the Intel Core vPro processor.

Why Anaïs chose the Intel Atom processor: Anaïs makes sales presentations all over the city, and her tablet provides access to marketing materials using her standard corporate desktop more conveniently than carrying her laptop around. The Intel Atom processor also provides excellent battery life on the go.

Platform Decisions by IT Decision Makers: Why Joe Embraces the Ability to Choose

As the CTO for a midsize company, Joe is considering the standards for tablets the company intends to buy for all of its employees. He wants to use Intel platforms running Windows 8, because they can easily integrate with the rest of the infrastructure. Where possible, he wants to deploy the added security and manageability advantages of the Intel Core vPro processor.

Ultimately, Joe decides to deploy tablets based on Intel Core vPro processors for some employees and Intel Atom processors for others. That flexibility lets him choose tablets according to individual needs, while still avoiding the requirement to build and support any new desktop images. Both types of tablets can also use existing network policy and security standards.

Determining Platform Benefits in Key Feature Domains

For most people, choosing an Intel platform involves weighing the capabilities of each, then deciding which are most important to them. Each of the options provides excellent results in the functional areas that users are likely to consider.

Guillermo wanted to understand how the features of each platform enable various functional categories, helping him come to an informed decision about the relative strengths of each Intel processor choice in meeting his personal needs.

High Performance for Demanding Applications (Advantage: Intel Core vPro Processor and Intel Core Processor)

After considering the performance-enabling features of each platform, Guillermo—a self-professed power user—determined that tablets based on the Intel Core vPro processor and Intel Core processor are superior in this area.

Best: Key Performance Features of the Intel Core vPro Processor and Intel Core Processor

For outstanding performance on the most demanding workloads, Guillermo concludes that the Intel Core vPro processor and Intel Core processor have the edge. Standout features include the following:

- **Large-scale on-die resources** include up to four processor cores and 8 MB cache, with the last-level cache shared between the processor and integrated graphics. Guillermo appreciates the breadth of these features, which provide excellent application performance that extends from general-purpose applications to graphics-intensive ones such as games.

- **Intel® Turbo Boost Technology** (available on select processors only) automatically raises the processor clock speed temporarily when additional performance is needed for workload peaks. Guillermo sees the value in this feature, especially for his multi-tasking activities that include playing a high-end game on his tablet.

- **Intel® QuickSync Video** provides hardware acceleration to the processes of creating, editing, synchronizing, and sharing video. Guillermo is excited about the prospect of using this technology to create and edit 3D videos, convert 2D video files into 3D, and convert video for upload to social networking sites.

Good: Key Performance Features of the Intel Atom Processor

Guillermo found that the Intel Atom processor also has an impressive set of performance features, including the following:

- **Integrated image signal processor** provides hardware offload for graphics, video, audio, and networking, taking much of the burden off of the main processor for those tasks. That frees up execution resources so they can be applied to make applications run faster.

- **Integrated memory controller** reduces memory-access latency by moving data between the processor and controller right on the chip instead of through a separate, slower bus connection. Memory reads and writes are made even faster with high bandwidth connections to the memory and efficient pre-fetching algorithms.

- **Intel® Burst Performance Technology** lets the processor dynamically burst to higher performance for short intervals, giving the tablet extra horsepower when it needs it most to handle workload peaks while staying within the rigorous thermal design power requirements that are needed for compact, efficient tablets.
Information Security (Advantage: Intel Core vPro Processor)
As the owner of a small consulting agency, Guillermo appreciates the robust security features of the Intel Core vPro processor, which he concluded offers substantial advantages over the Intel Atom processor for mobile access to sensitive information.

Best: Key Security Features of the Intel Core vPro Processor
Guillermo recognizes that the Intel Core vPro processor provides security features that can help protect the data assets his business depends on. He made particular note of the following:

- **Intel® Trusted Execution Technology (Intel® TXT)** compares the sequence of events that occur at system startup to the expected sequence. If software-based attacks have made changes to the system, Intel® TXT can detect them and take actions such as preventing startup and issuing alerts.

- **Intel® Identity Protection Technology (Intel® IPT)** provides two-factor authentication based on mechanisms built into the platform, similar to the capabilities of hardware-based or software-based tokens but without the added expense and potential for loss of hardware-based tokens and without the vulnerability to attacks on the OS that affect software tokens.

- **Intel® Anti-Theft Technology (Intel® AT, also available in Intel Core processors)** locks access to system data if the tablet is lost or stolen, which reduces the impact of the loss. Protecting the data on his tablet is a critical requirement for Guillermo, so Intel AT delivers significant potential benefits to him.

- **Intel® Secure Key (also available in Intel Core processors)** is a hardware-based digital random number generator for use in encryption. This feature is far more efficient than the analog mechanisms used in other processors, in terms of both processor design and power usage.

Good: Key Security Features of the Intel Atom Processor
Guillermo's research revealed that the Intel Atom processor provides features that complement the robust security features in Windows 8. In particular, Guillermo understands that it is valuable to have hardware-based security features provided by the Intel Atom processor, because they cannot be tampered with using malware or other software-based attacks. The processor’s specific hardware-based security features include the following:

- **Secure Boot** verifies at startup that the hardware and software environments have not been tampered with. For Guillermo, this functionality is valuable in guarding against difficult-to-detect attacks such as rootkits and other sophisticated malware, which are potential threats against his company—and therefore his livelihood.

- **Trusted Platform Module (TPM)** is an optional feature that meets the added security criteria set up by some organizations (especially in the public sector) to operate on a network, to access certain information, or to run certain applications. Because Guillermo’s consulting company often works for government agencies, this feature is valuable to him.

- **Platform Secure Storage** is an optional feature that allows OEMs to encode keys in the platform firmware to verify the identity of the system at startup. Guillermo notes that the presence of such innovation in the Intel Atom processor platform confirms the dedication of the design team to creating a secure platform more generally.

Intelligent Responsiveness (Advantage: Intel Core vPro Processor and Intel Core Processor)
Guillermo has a busy life. This morning, for example, he went from home to a coffee shop, to a customer’s location, to his daughter’s violin performance before lunch, using his tablet along the way. Looking into features that can make his tablet more responsive under such conditions, he concluded that a tablet based on the Intel Core vPro processor or Intel Core processor offers the best capabilities in that area.

Best: Key Responsiveness Features of the Intel Core vPro Processor and Intel Core Processor
The features of the Intel Core vPro processor and Intel Core processor that enable high responsiveness impress Guillermo as being truly innovative, and he decided that this platform’s capabilities, including the following, best meet his needs:

- **Intel® Rapid Start Technology** brings the tablet from hibernate to a fully active state in just five to six seconds, so Guillermo can quickly return to unfinished tasks on his tablet.

- **Intel® Smart Connect Technology** periodically wakes the tablet briefly from sleep or standby mode to keep applications that automatically get information from the Internet (such as email or social networks) up to date during low-power states.

- **Intel Smart Response Technology** increases tablet responsiveness by using a fast-access solid-state drive (SSD) as cache memory between the hard disk drive and system memory. This capability gives Guillermo the advantage of a high-capacity conventional hard drive to store large media and other files while also getting an SSD-like overall system performance experience.
The Right Touch for Windows® 8 Tablets

Good: Key Responsiveness Features of the Intel Atom Processor

For Guillermo, the Intel Atom processor also provides compelling responsiveness features, particularly the Windows 8 Connected Standby feature, which is the result of the significant forward-looking collaboration between Intel and Microsoft.

- **Connected Standby** continually updates content, even when the tablet is in sleep mode, in applications such as email and social media that automatically gather information from the Internet. Enablement of Connected Standby (a Windows 8 feature) for the Intel Atom processor Z2760 reflects a significant amount of collaborative engineering by Intel and Microsoft.

- **Near-Field Communication** allows information to be wirelessly shared between enabled tablets, allowing flexible usages such as interactive gaming and sharing media content.

- **High-quality, optimized dual cameras** include a 2-megapixel front-facing camera and an 8-megapixel rear-facing one. Since those camera specifications are required by Intel's reference design, Guillermo can count on them in any tablet based on the Intel Atom processor Z2760. Having cameras built into the tablet that can capture as many as 10 photos per second helps ensure Guillermo never misses the shot, an advantage as he updates his Facebook page.

**Long Battery Life and Optimum Portability (Advantage: Intel Atom Processor)**

Although high portability and long battery life in a tablet are not his highest priorities, Guillermo is out of his office a lot, so he sees the value of these features. After considering the features of both processors, he concludes that Intel Atom processors are superior in this area.

Best: Key Battery Life and Portability Features of the Intel Atom Processor

Guillermo is impressed by the features and capabilities of the Intel Atom processor that enable tablets based on the platform to be small, light, and battery-efficient. Features that seem to him to be particularly valuable in this category include the following:

- **Intel Burst Performance Technology**, which Guillermo also considered when he looked at the performance features of the Intel Atom processor (described above), briefly increases performance when the processor needs it, without excessively raising thermal design power. Lower processor energy and cooling requirements help enable small, highly portable tablet form factors as well as the ability to do more work per battery charge.

- **Low-power DDR2 memory (LPDDR2)** helps reduce the power requirements of the memory subsystem while still operating at 400 MHz, further helping enable tablets based on the Intel Atom processor to deliver excellent battery life without sacrificing performance.

- **A low-height system-on-chip (SOC) package of less than 9 millimeters**, compared to 18–21 millimeters for the Intel Core processor, helps lower the tablet’s overall system board profile, so tablets can be thinner and therefore more portable.

Good: Key Battery Life and Portability Features of the Intel Core vPro Processor and Intel Core Processor

Even though he knows that the Intel Core vPro processor and Intel Core processor are optimized primarily for performance, Guillermo notes that they incorporate sophisticated features that help boost tablet battery life, including the following:

- **3D Tri-gate transistors** operate at lower voltage and have less leakage than conventional planar transistors, so they require less energy to switch on and off. This innovation, which essentially redefines transistor design, helps the tablet platform deliver energy-efficient performance.

- **22nm process technology** enables more transistors per unit of die area than other processors. The densely packed, small components operate with lower power requirements and less waste heat than those created with other process technologies, extending battery life.

- **Power-aware interrupt routing** increases energy efficiency by making the processor aware of which cores are awake, so it can route interrupts from applications and peripherals to them, instead of to cores that need awakening.

- **Support for low-voltage DDR3 (DDR3L)** enables high memory performance with low power requirements.

**High-End Entertainment (Advantage: Intel Core vPro Processor and Intel Core Processor)**

Guillermo considers himself to be something of a mediaphile, and he concludes that he prefers the more sophisticated entertainment-focused capabilities of Intel Core vPro processor and Intel Core processor over those of the Intel Atom processor.

Best: Key Entertainment Features of the Intel Core Processor

Guillermo finds the suite of entertainment features supported by the Intel Core vPro processor and Intel Core processor to be amazing. The platforms’ built-in visuals4 offer outstanding performance and quality, and their support for advanced media sharing and transfer makes the offering even better:

- **InTru® 3D technology** enables 3D display of on-screen content such as movies and games, using special 3D glasses.
• **Intel® Insider™ technology** is a processor feature that allows users to download encrypted HD movies and other content from participating online services, even allowing the purchase of movies before they are released, for viewing as soon as the movie starts showing in theaters.

• **Intel® HD Graphics** accelerates the performance of gaming graphics without the need for a discrete graphics card, for a high-quality, immersive experience.

• **Intel® Clear Video HD Technology** vastly improves video playback, delivering cleaner, sharper images; more natural, accurate, and vivid colors; and a clear and stable video picture.

• **Intel® Wireless Display (Intel® WiDi)** connects the tablet wirelessly to an HDTV, enabling users to stream video directly from the tablet to the big screen.

Good: Key Entertainment Features of the Intel Atom Processor

While not as compelling as those of the Intel Core vPro processor and Intel Core processor for Guillermo, the entertainment features of Intel Atom processor-based tablets are impressive. These devices would let him have a higher-quality media experience away from home than he would expect from a tablet, based on features that include the following:

• **Advanced 8-megapixel HD camera** makes taking high-quality pictures easy, with fast image capture that enables as many as 10 frames per second to help ensure getting the best shot, even in difficult circumstances such as fast-moving subjects.

• **Video capture at 1080p with full HD playback** lets users create HD video easily, without additional equipment, and play it back with brilliant quality, for a mobile personal theater experience.

• **HD video projection** supports playing back a true HD media experience to a larger display or TV set, directly from the tablet.

• **Advanced integrated graphics** provides immersive gameplay and a rich online experience, with sharp, precise 3D effects and great responsiveness.

Making the Choice

Guillermo ultimately chooses a tablet based on the Intel Core i7 vPro processor. For him, the value of superior performance for high-end applications outweighs the convenience of a more portable tablet with longer battery life based on the Intel Atom processor. The platform’s responsiveness is also a winning set of capabilities for Guillermo, since anything that makes his work easier is a welcome addition to his tablet.

On the other hand, because he is also on the run a lot of the time, Guillermo was almost swayed by the superior portability features of the Intel Atom processor. In particular, as a heavy email and social media user, he sees tremendous value in that platform’s extended battery life while he is on the move.

Guillermo is also pleased with being able to protect his business data with the Intel Core vPro processor’s security advantages, especially Intel AT. Finally, he was attracted to the processor’s superior capabilities for entertainment. Still, seeing the robustness of the tablets on the market based on the Intel Atom processor, he is considering buying a pair of them as gifts for his twin sons’ upcoming 18th birthdays.

Conclusion

Intel architecture-based tablets have emerged as a flexible choice for either consumer or business use, and they are equally well suited to a combination of the two. Intel architecture-based tablets help deliver the full potential of the Windows 8 experience. This combination of hardware and OS offer brilliant, immersive user experiences with beautiful visuals, great responsiveness, and seamless downloads.

With support for the entire ecosystem of software built for Windows, these devices also offer extraordinary performance, battery life, responsiveness, and security. The fundamental distinctions between the two hardware platforms are as follows:

• **Tablets based on the Intel Core vPro processor and Intel Core processor** are optimized for performance and security. They are well suited both to content consumption and content creation. In addition, the Intel Core vPro processor delivers security and manageability advantages for business users.

• **Tablets based on the Intel Atom processor** are optimized for portability and long battery life. They are better suited to content consumption than content creation.

Windows 8 is designed explicitly for touch. In fact, the innovative new Windows 8 UI emphasizes the point that touch is no longer a second-tier input option, but a compelling, future-focused one. Intel platform-based tablets running Windows 8 also take full advantage of all the access, security, and management infrastructure already in place in business networks, streamlining adoption for IT shops and reducing the risk associated with BYOD models, harmonizing the worlds of work and leisure.

Looking ahead, tablets based on Intel architecture will create even more delightful experiences for users. As the Intel technology roadmap continues to unfold, we all have a breathtaking future at our fingertips.
The Right Touch for Windows® 8 Tablets

For more information about Intel® architecture-based tablet PCs, visit

For more information about Windows 8, visit
http://windows.microsoft.com

1 All users named in this document are personas created to illustrate platform usage, not actual individuals or companies.
2 Requires near-field communication capability.
3 Source: Morgan Stanley, February 2011.
4 Requires a system with Intel® Turbo Boost Technology. Intel® Turbo Boost Technology and Intel® Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer.
5 Built-in visual features are not enabled on all PCs and optimized software may be required. Check with your system manufacturer. Learn more at www.intel.com/go/biv.
6 No computer system can provide absolute security under all conditions. Intel® Trusted Execution Technology (Intel® TXT) requires a computer with Intel® Virtualization Technology, an Intel TXT-enabled processor and BIOS, a chipset, Authenticating Code Modules, and an Intel TXT-compatible measured launched environment (MLE). Intel TXT also requires the system to contain a TPM v1.1. For more information, visit www.intel.com/technology/security.
7 No computer system can provide absolute security under all conditions. Requires an Intel® Identity Protection Technology-enabled system, including a 2nd or 3rd generation Intel® Core™ processor, an enabled chipset, firmware, software, and a participating website. Consult your system manufacturer. Intel assumes no liability for lost or stolen data or systems or any resulting damages. For more information, visit http://intel.com.
8 No computer system can provide absolute security under all conditions. Requires an enabled chipset, BIOS, firmware, and software, and a subscription with a capable service provider. Consult your system manufacturer and service provider for availability and functionality. Intel assumes no liability for lost or stolen data and/or systems or any other damages resulting thereof. For more information, visit www.intel.com/security/theft.
9 Requires a select Intel® processor, Intel® software and BIOS update, and an Intel® Solid-State Drive (Intel® SSD). Depending on system configuration, your results may vary. Contact your system manufacturer for more information.
10 Requires a select Intel® processor, Intel® software and BIOS update, Intel® wireless adapter, and Internet connectivity. Solid-state memory or drive equivalent may be required. Depending on system configuration, your results may vary. Contact your system manufacturer for more information.
11 Requires a select Intel® processor, enabled chipset, Intel® Rapid Storage Technology software, and a properly configured hybrid drive (a hard disk drive plus a small solid-state drive). Depending on system configuration, your results may vary. Contact your system manufacturer for more information.
12 Viewing stereo 3D content requires 3D glasses and a 3D-capable display. Physical risk factors may be present when viewing 3D material.
13 Intel® Insider™ technology is a hardware-based content protection mechanism. Requires a 2nd or 3rd generation Intel® Core™ processor-based PC with built-in visuals enabled, an internet connection, and content purchase or rental from qualified providers. Consult your PC manufacturer. For more information, visit www.intel.com/go/intelinsider.
14 Requires an Intel® Wireless Display-enabled system, compatible adapter, and TV. 1080p and Blu-ray® or other protected content playback only available on 2nd or 3rd generation Intel® Core™ processor-based PCs with built-in visuals enabled, a compatible adapter and media player, and supporting Intel® Wireless Display software and graphics driver installed. Consult your PC manufacturer. For more information, see www.intel.com/go/widi.
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