Revolutionizing IoT Applications with Tablet-Like Form Factors
From digital signs and gaming kiosks to handheld tablets in retail, clinical, and factory settings, delivering a top-quality user experience is essential to the success of new IoT usage models. Systems must be responsive and visuals must be vibrant and clear if edge devices are to truly engage consumers and support professionals in complex environments. Yet many other factors are also important. Security, connectivity, battery life, manageability, and low total cost of ownership are all integral to delivering high-value, low-risk innovation for next-generation IoT solutions.

The Intel® Atom™ x5-Z8350 processor combines substantial compute capacity with high-definition graphics and advanced touch and audio capabilities to meet these needs in both Windows* and Android* operating environments. Based on Intel’s latest 14nm manufacturing process, this tightly integrated SoC is built for IoT use cases. With hardware-enhanced security and manageability,1,2 flexible connectivity options, and a power envelope of just 2 watts, the Intel Atom x5-Z8350 processor can help you design cost-effective tablets, digital signs, printers, and other IoT edge devices that are thin, manageable, secure, and engaging.

Stunning Visual Capabilities
Intel® HD Graphics1 and Intel® Built-in Visuals deliver eye-popping visual experiences and high-quality image capture to improve results for visually-intensive IoT applications. Users can enjoy sharp, vibrant multimedia experiences in almost any setting. Integrated support for hardware-accelerated video transcoding, video conferencing, wireless display connectivity, and the latest graphics APIs (DX11.2, DX12) provide the foundation for flexible, high-quality user experiences on small, lightweight, low-power mobile devices.

Greater Intelligence at the IoT Edge
The Intel® Atom™ x5-Z8350 processor provides up to four CPU cores and 2 MB of last level cache for fast computing and efficient multi-tasking. Intel® Burst Technology1 dynamically optimizes compute and graphics performance for better experiences under heavier loads with lower overall power consumption. Support for Windows* 10 Desktop, Windows* 8.1 (Pro), Android* Lollipop (Android 5x), and 64-bit applications can help you deliver higher performance and greater functionality across a wide range of IoT use cases.
Long Battery Life and Thin, Fanless Designs
Intel’s 14nm manufacturing process and extensive power optimization across the platform (CPU, graphics, I/O, and power management) combine to deliver excellent performance and advanced functionality with a scenario power envelope of just 2 watts. You can use this efficiency to simplify your designs, reduce BOM costs, and deliver longer active battery life for enhanced productivity.

Better Security with Less Effort
Intel® Security technologies\(^1,2\) help to reduce the risks associated with IoT innovation through integrated, hardware-based support for secure boot, accelerated data encryption, and automated whitelisting to ensure that only signed software can run on the device.

Flexible Connectivity and Expansion Options
The outstanding balance of performance, integration, and low power of the Intel Atom x5-Z8350 processor is complemented by flexible connectivity and expansion options for wireless networking, external displays, external storage, sensors, and other peripherals. You can deliver advanced innovation on a single platform that is easily adapted for diverse use cases and environments.
INTEL® ATOM™ X5-Z8350 PROCESSOR KEY FEATURES

**PERFORMANCE**

Intel® Burst Technology\(^1\): Delivers higher performance when needed by dynamically optimizing core frequencies to take advantage of thermal and power headroom.

Universal Serial Bus 3.0/2.0: Integrated USB support enhances performance with design data rates of up to 5 gigabits per second (Gbps) using USB 3.0 and up to 480 megabits per second (Mbps) using USB 2.0.

Integrated Memory Controller: Accelerates memory read/write performance through improved prefetching, latency, and bandwidth.

Intel® Smart Cache: Dynamically optimizes cache allocations to cores for reduced latency and higher performance.

Enhanced Intel SpeedStep\(^1\) Technology: Dynamically adjusts processor voltage and core frequency to reduce power consumption and heat production, for increased battery life and more innovative, small form factor designs.

PCI Express\(^2\) 2.0 Interface (1x1): Offers up to 5 GT/s for fast access to peripheral devices and networking.

Enhanced Intel SpeedStep\(^1\) Technology: Dynamically adjusts processor voltage and core frequency to reduce power consumption and heat production, for increased battery life and more innovative, small form factor designs.

**SECURITY**

Intel® Advanced Encryption Standard New Instructions (Intel® AES–NI)\(^1,2\): Accelerates and strengthens encryption to help improve security without impairing performance. Ideal for whole disk encryption, file storage encryption, content access controls, internet security, and VoIP.

Intel® BIOS Guard\(^1,2\): Augments existing BIOS flash protections by guarding against both unauthorized modification and low-level denial of service (DOS) attacks and restoring BIOS to a known good state after an attack.

Intel® Boot Guard\(^1,2\): Hardware-based boot integrity protection helps to prevent unauthorized software/malware takeover.

Intel® Platform Trust Technology\(^1,2\): Provides enhanced security by verifying the boot portion of the boot sequence.

**GRAPHICS: INTEL® BUILT-IN VISUALS**

Intel® HD Graphics: Enables exceptional clarity for HD video, gaming, and photo editing.

Intel® Quick Sync Video: Improves performance for video conferencing and for video conversion, sharing, editing, and authoring.

Intel® Clear Video HD: Enhances quality and color fidelity for immersive visual experiences.

Intel® Wireless Display: Provides a simple wireless connection for beaming apps and content to an HDTV.

**ADDITIONAL FEATURES**

Intel® Power Optimizer and Processor C-States: Helps to reduce power consumption through more and longer silicon sleep states across the CPU, chipset, and third-party system components. Processor C-states (C7) provide low idle power.

Intel® High Definition Audio\(^1,2\): Supports premium digital surround sound with multiple audio streams, jack re-tasking, and more.

Intel® Ready Mode Technology (Intel® RMT): Enables an "always on, always available" experience with low power consumption during idle states.

Support for Multiple Operating Systems: Optimized support for Windows\(^\circledast\) 10 Desktop, Windows\(^\circledast\) 8.1 (Pro), and Android\(^\circledast\) Lollipop (Android 5x) provide flexible deployment options using a single platform.

Intel® Virtualization Technology\(^1\): Allows one hardware platform to function as multiple “virtual” platforms to isolate computing activities. Can help to improve manageability, reduce downtime, and increase productivity.

Comprehensive BOM reference for tablets: Simplifies and accelerates the development of innovative new tablet designs.

**SUSTAINABILITY**

Green Technology: Manufactured with lead-free and halogen-free component packages.

Conflict Free: Does not contain minerals that directly or indirectly finance or benefit certain armed groups as defined by the Securities and Exchange Commission’s DRC conflict-free rules.

3-year Lifecycle Support: Standard product availability is aligned to tablet lifespans and refresh cycles in the IOT space and is suitable for innovative usages.
<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>INTEL® ATOM® X5-Z3850 SOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch Date</td>
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<tr>
<td>L2 Cache</td>
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<td>Conflict Free</td>
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### Performance
- Cores/Threads: 4/4
- Processor Base Frequency: 1.44 GHz
- Burst Frequency: 1.92 GHz
- Scenario Design Power (SDP): 2 W

### Memory Specifications
- Max Memory Size: 2 GB (dependent on memory type)
- Memory Types: DDR3L-RS 1600
- Max # of Memory Channels: 1
- Max Memory Bandwidth: 12.8 GB/s

### Graphics Specifications
- Processor Graphics: Intel® HD Graphics
- Graphics Base Frequency: 400 MHz
- Graphics Burst Frequency: 500 MHz
- Execution Units: 12
- Graphics Output: eDP/DP/HDMI*
- Independent Displays Supported: 2
- DirectX* Support: Yes
- OpenGL* Support: Yes
- Intel® Quick Sync Video: Yes
- Intel® Clear Video HD Technology: Yes
- Intel® Clear Video Technology: Yes
- Intel® Wireless Display*: Yes
- Intel® Insider™ Technology: No
- Video Decode: Yes

### Expansion Options
- PCI Express* Revision: 2.0
- PCI Express Configurations: 1x1
- Max # of PCI Express Lanes: 1

### I/O Specifications
- USB Revision: 2.0/3.0
- # of USB Ports: 5
- UART: Yes

### Package Specifications
- T JUNCTION: 90°C
- Package Size: 17mm x 17mm

### Advanced Technologies
- Secure Boot: Yes
- Intel® Virtualization Technology* (VT-x): Yes
- Intel® VT-x with Extended Page Tables (EPT): Yes
- Intel® 64: Yes
- Idle States: Yes
- Enhanced Intel SpeedStep* Technology: Yes
- Thermal Monitoring Technologies: Yes
- Intel® HD Audio Technology*: Yes
- Intel® Identity Protection Technology*: Yes
- Intel® Platform Protection Technology
- AES New Instructions*: Yes
- Secure Key*: Yes

### Intel® Data Protection Technology
- AES New Instructions*: Yes
- Secure Key*: Yes

### INTEL® Platform Protection Technology
- Execute Disable Bit: Yes
- OS Guard*: Yes

For more information about Intel® components, platforms, and solutions for the Internet of Things, visit intel.com/iot.

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2. No computer system can be absolutely secure. Intel does not assume any liability for lost or stolen data or systems or any damages resulting from such losses.

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