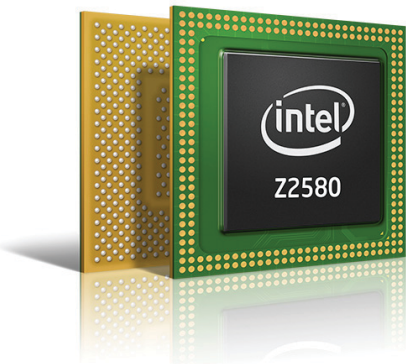


Intel® Atom™ Processors Z2580, Z2560, and Z2520 for Smartphones and Tablets

Industry-leading dual-core performance for incredible mobile experiences, rich graphics, fast apps, advanced camera features, and stunning HD video.



Overview

The pace of mobile life is accelerating, and mobile users want smartphones and tablets with the performance to keep up. The Intel® Atom™ processors Z2580 (2.0 GHz), Z2560 (1.6 GHz), and Z2520^A (1.2 GHz) deliver dual-core performance built on Intel's leading 32-nanometer process technology. Intel® Hyper-Threading Technology¹ supports four simultaneous application threads for smooth and seamless multitasking and responsive Web browsing.

And the great experiences don't stop here.

The processors include the Intel® Graphics Media Accelerator for compelling and realistic 3D gaming experiences, 1080p HD video, and crystal-clear graphics. WUXGA 1920x1200 display support is ideal for the larger screens of tablets.

Many users rely on their mobile device as their primary camera, and the fast image signal processor captures all the action with continuous shooting, and 2-axis DVS. Advanced features including face recognition, mobile HDR, and panorama help users create stunning pictures.

The Intel® technology also includes dynamic frequency scaling for outstanding power efficiency. The Intel Atom processors Z2580, Z2560, and Z2520 are optimized for Google Android,* and Intel has developed new firmware, drivers, and middleware to enhance Android power management and security.

Product Highlights

High-Performance Processing

The 2.0 GHz Intel Atom processor Z2580, 1.6 GHz Intel Atom processor Z2560, and 1.2 GHz Intel Atom processor Z2520 are SoCs packed with dual-core performance for incredible mobile experiences. Each processor includes an integrated dual-channel memory controller that supports 2 GB memory capacity, and efficient pre-fetching enables fast read/write performance with low latency. All three processors support 1066 MT/s data rates and max data throughput of 8.5 GB/s.

Intel® Hyper-Threading Technology

Multitasking is a way of life for smartphone and tablet users. Intel Hyper-Threading Technology enables two parallel software threads to run on each processor core simultaneously. With four threads running at once, Web pages download fast, and users can quickly and seamlessly switch between apps.

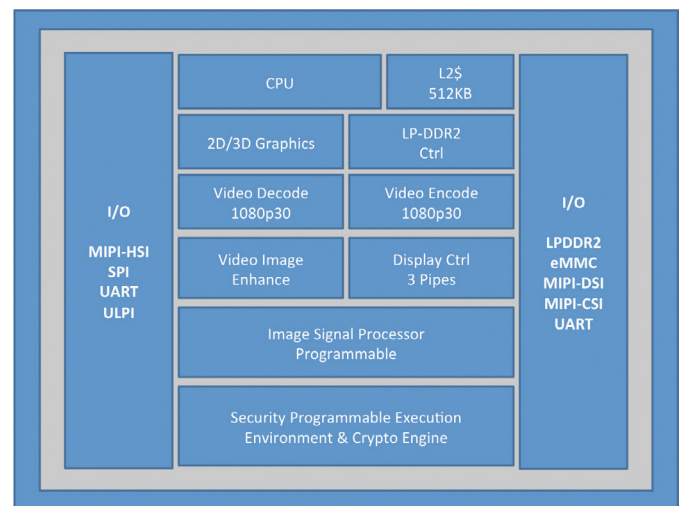


Figure 1. The 2.0 GHz Intel® Atom™ processor Z2580, 1.6 GHz Intel® Atom™ processor Z2560, and 1.2 GHz Intel® Atom™ processor Z2520 are packed with dual-core performance and integrated Intel technologies to deliver the experiences that mobile users want.

Industry-Leading Graphics

Today's users want awesome 3D graphics performance, lifelike gaming experiences, and smooth HD video. Each SoC includes the SGX 544MP2 GPU, delivering 533 MHz performance boost in the Intel Atom processor Z2580, 400 MHz in the Intel Atom processor Z2560, and 300 MHz in the Intel Atom processor Z2520. All provide low memory latencies and feature optimized graphics drivers and support for the OpenGL ES2.0, OpenVG 1.1. WUXGA 1920x1200 display support is ready for the larger screens of tablets.

HD video capabilities include support for 1080p video and audio with multi-stream playback and hardware-accelerated decode (1080p at 30 fps) and encode (1080p at 30 fps). HDMI support lets users share 1080p HD video on a big-screen display. The decoder supports H.264, MPEG4, VC1, WMV9, H.263 standards and the encoder supports H.264, MPEG4, and H.263.

Advanced Camera Capabilities

Capture life's best moments with 8-megapixel photos at 3 frames per second, burst capture of 15 fps for 8-MP photos, zero shutter lag and time-shift, and still image capture up to 16 MP. Advanced capabilities include enhanced HDR, image stabilization and scene motion compensation, automatic night scene detection with advanced noise reduction, and group photo for "all smiles/no blinks" photos to capture the perfect shot with the best facial expression.

The integrated image signal processor supports a primary camera sensor up to 16 MP. With image quality this good, users can rely on their smartphone as their only camera.

Power-Efficient Intel® Burst Performance Technology

Intel® Burst Performance Technology delivers industry-leading performance with the power efficiency that smartphone and tablet users want. The processor intelligently scales between zero-power C6 standby mode, low-frequency mode (LFM), high-frequency mode (HFM), and max frequency, according to demand. Dynamic scaling optimizes performance while minimizing power consumption.

Intel® Smart Sound Technology

Amazing sound is vital for a great user experience. The SoC includes hardware acceleration for audio and voice, optimized for low power and extended music playback.

Optimized for Android*

Smartphone and tablet platforms built on the Intel Atom processors Z2580, Z2560, and Z2520 are optimized for the Google Android operating system. The platform is enhanced using Dalvik VM* runtime optimization, x86 trace-based JIT, Native Code Generation, JavaScript,* and HTML5 code execution.

Intel also developed software specifically targeted at power management and security for Android with new firmware, drivers, and middleware. New Android software integration for Intel® architecture provides superior balance of performance, security, and power efficiency for Android applications.

Smartphones and Tablets with Intel Inside®

The company that revolutionized computing technology is now bringing amazing new experiences to smartphones and tablets. New Intel Atom processors are designed and optimized for lightning fast apps, responsive Web browsing, stunning 3D graphics, advanced camera capabilities, and vivid HD video, with energy efficiency for outstanding battery life. Smartphones with Intel Inside® deliver new experiences at the speed of life.

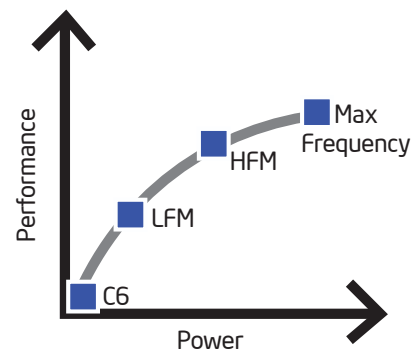


Figure 2. Intel® Burst Performance Technology dynamically shifts the processor's core frequency to match processing demand for optimum performance and power efficiency.

Table 1. Technical Specifications

High-performance Processors	<ul style="list-style-type: none"> ▪ 2.0 GHz (Z2580) ▪ 1.6 GHz (Z2560) ▪ 1.2 GHz (Z2520)
Process Technology	▪ 32 nm High-k/metal gate transistor technology
Compact Co-POP Package	▪ 14 mm x 14 mm, 760 balls, 0.483 mm pitch, LPDDR2 PoP package
Intel® Atom™ Microarchitecture	<ul style="list-style-type: none"> ▪ Intel® Smart Cache, 512 KB per core ▪ Advanced 32nm, dual-core Intel architecture with High-K metal gate transistor technology ▪ Intel® Enhanced Deeper Sleep C6E state ▪ SOi1/SOi3 power reduction features
3D Graphics Engine	<ul style="list-style-type: none"> ▪ Dual-core graphics @ up to 300 MHz (1.2 GHz processor)/400 MHz (1.6 GHz processor)/533 MHz (2.0 GHz processor) ▪ Supports EGL 1.4 + extensions, OpenGL ES1.1 and Open GL ES2.0+ extensions, OpenCL 1.1e, OpenVG 1.1
Hardware-accelerated Video Encode and Decode	<ul style="list-style-type: none"> ▪ 1080p30 video encode ▪ 1080p30 video decode
Display Controller	<ul style="list-style-type: none"> ▪ X4 MIPI-DSI ports ▪ HDMI 1.3a interface
System Memory Interface	<ul style="list-style-type: none"> ▪ Dual-channel 32-bit LPDDR2 interface ▪ Total capacity up to 2 GB ▪ Supports up to 1066 MT/s (533MHz) data rate
Image Signal Processor	<ul style="list-style-type: none"> ▪ MIPI CSI-2 interface ▪ Primary camera support for up to 16 MP still image capture and full HD 1080p30 video capture with digital video stabilization ▪ Secondary camera support for up to 2 MP still image capture ▪ Supports auto-exposure, auto-white balance, and auto-focus ▪ Zero shutter lag with time shift ▪ Continuous image shooting at 3 fps for 8 MP images ▪ Real-time face detection and face recognition for face/friend optimized image capture ▪ HDR image capture with image stabilization and scene motion compensation ▪ Smile shutter ▪ Group photo for the perfect shot ▪ Automatic night mode scene detection with advanced noise reduction ▪ Panorama captureBurst shot capture @ 15 fps for 8 MP images
6 High-Speed Master I2C Controllers	▪ Supports high-speed, full-speed, and low-speed modes
SPI Controller	<ul style="list-style-type: none"> ▪ 2 master and 1 master/slave ports ▪ 1 dedicated port for PMIC interface
USB-OTG 2.0 Interface	▪ ULPI interface to discrete USB-OTG PHY
Intel® Smart Sound Technology	▪ Low-power programmable codec to decode/encode popular audio formats
Flexible GPIO Configuration	<ul style="list-style-type: none"> ▪ Configurable mux with functional blocks ▪ Up to 93 GPIO – always-on to enable wake events ▪ Up to 69 GPIO balls – core power GPIO shuts down in sleep states
Test Interface	<ul style="list-style-type: none"> ▪ IEEE-1149.1 (JTAG) Boundary Scan ▪ MIPI Parallel Trace Interface (PTI)
Intel® Smart and Secure Technology	▪ Low-power programmable security engine

For more information about smartphones with Intel inside, go to:
www.intel.com/content/www/us/en/smartphones/smartphones.html

⁴ Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number for details.

¹ Requires an Intel® HT Technology enabled system, check with your PC manufacturer. Performance will vary depending on the specific hardware and software used. Not available on Intel® Core™ i5-750. For more information including details on which processors support HT Technology, visit <http://www.intel.com/info/hyperthreading>.

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