Intel® Atom™ processor Z5xx series

The Intel® Centrino® Atom™ processor technology platform will include a new processor, called Intel® Atom™ processor Z5xx series, based on the new 45nm Hi-k Intel® process technology. The platform also includes Intel® System Controller Hub which combines the traditional north and south bridges into a single-chip. Both processor and system controller hub were designed from the ground-up for Mobile Internet Devices (MIDs).

The Intel® Atom™ processor Z5xx series has been designed to deliver the fastest performance in the sub 3 watt space and consume drastically lower idle and average power. The Intel® Atom™ processor micro-architecture will also be used in other market segments such as Netbooks, Nettops, and embedded applications.

High Performance Technologies

Intel® Hyper-Threading Technology [1]

Hyper-threading Technology provides performance & support for multithreaded apps which enables increased performance and system responsiveness in today's multitasking environments by enabling the processor to execute two instruction threads in parallel. Newer operating systems allow the application to support threading and control/share machine resources at a finer degree of granularity.

Intel® Smart Cache

Smarter, more efficient cache & bus design thus offering even more efficient data sharing, providing enhanced performance, responsiveness and power savings.

Power Optimized Front Side Bus (533MHz and 400MHz)

533MHz FSB provides increased data bandwidth vs. prior generations (400MHz) for faster data transfer to meet the requirements of demanding applications. Macro-ops Fusion allows for faster execution of instructions at lower power.

Enhanced Data Prefetcher

Efficient speculation and loading into L2 cache of data likely to be requested by processor.

Intel® Virtualization Technology [2]

Intel® Virtualization Technology is a set of hardware enhancements on the Intel® Atom™ processor Z5xx series that provide the flexibility to run dual operating systems and applications in independent partitions.

Intel® Digital Media Boost (SSE, SSE2, SSE3, SSSE3)

Enhanced Performance on Floating Point intensive applications such as CAD tools, 3D & 2D modeling, Video Editing, Digital Music, Digital Photography & Gaming. SSE3 has 13 additional SIMD instructions over SSE2. The 13 new instructions in SSE3 are primarily designed to improve thread synchronization and specific application areas such as multimedia and graphics applications. Intel® Atom™ michroarchitecture supports full ISA compatibility[3] with Intel® Core® 2 Duo (Merom) processor.

Low Power Capabilities

Enhanced Intel® SpeedStep® Technology
Allows for better match of performance to application demand.

Low Thermal Design Power
Lower thermal design power enables thinner, lighter MID devices as it reduces the cooling requirements. This enables MID devices to be pocketable.

Enhanced Deeper Sleep (C4)
Saves power by flushing cache data to system memory during periods of inactivity to lower CPU voltage.

Deep Power Down Technology (C6) with Dynamic Cache Sizing
Dynamic Cache Sizing saves power by turning off Cache ways that have had data saved in memory. This is a one of the key new power saving features that enables 80-100mW idle power[4] and 160-220mW average power[4] for the processor.

Support for Intel® Mobile Voltage Positioning (Intel® IMVP VI)
Dynamically lowers voltage based on processor activity to lower thermal design power.

Small Packaging

Ultra Small Form Factor CPU Package
The new lead free[5], halogen free[6] Micro-Flip Chip package (13x14mm) is 85% smaller than a notebook processor (35x35mm), saving system board real estate which enables a much thinner and smaller industrial design.

[1] Intel® Hyper-Threading Technology requires a computer system with an Intel processor supporting Hyper-Threading Technology and an HT Technology enabled chipset, BIOS and operating system. Hyper-threading technology is available on select The following Intel® Atom™ processor SKUs (Z520=1.33GHz, Z530=1.60GHz and Z540=1.86GHz) support HT Technology.

[2] Intel® Virtualization Technology requires a computer system with Intel® processor supporting Virtualization Technology, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor. Virtualization technology is available on select The following Intel® Atom™ processor SKUs (Z520=1.33GHz, Z530=1.60GHz and Z540=1.86GHz) support Intel® VT

[3] Intel® Atom™ processor Zxxx does not support IA-64 instruction set

[4] Idle and Average Power power quoted is using a median leakage CPU which means that 50% of the CPUs will have leakage values below the median value and 50% will have leakage values above the median.

[5] Intel 45nm product is manufactured on a lead-free process. Lead-free per EU RoHS Directive (2002/95/EC, Annex A). Some RoHS exemptions may apply to other components used in the product package.

[6] Applies to components containing flame retardants & PVC only. Halogens are below 900 PPM bromine, 900 PPM chlorine, and 1500 PPM combined bromine and chlorine.

*System performance, battery life, high-definition quality and functionality, and wireless performance and functionality will vary depending on your specific operating system, hardware and software configurations. Wireless connectivity and some features may require you to purchase additional software, services or external hardware. Availability of public wireless LAN access points is limited, wireless functionality may vary by country.

*Other names and brands may be claimed as the property of their respective owners.

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