intel ®

Intel® PXA270 Processor
For Embedded Computing

Product Overview

Today's embedded applications demand a unique set of features, packaging, product life cycle and performance. Because Intel solutions deliver key technologies that help drive functionality to new heights, the Intel® PXA270 processor is designed to meet the growing demands of a new generation of leading-edge embedded products. Featuring advanced technologies that offer high performance, flexibility and robust functionality, the Intel PXA270 processor is packaged specifically for the embedded market and is ideal for the low-power framework of battery-powered devices.

Intel is one of the leading suppliers of application solutions for many of today's most innovative embedded devices. Designed from the ground up, the Intel PXA270 processor redefines what an embedded device can do by incorporating innovative new features and enhancements from the world of the PC.
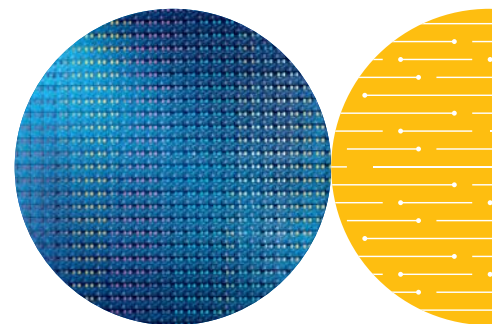
- The Intel PXA270 processor is the first Intel XScale® technology-based processor to include Intel® Wireless MMX™ technology. This enables high-performance multimedia acceleration with an industry proven instruction set.

- Another innovative feature is the Intel® Quick Capture technology, which provides one of the industry's most flexible and powerful camera interfaces for capturing digital images and video.

- The new capabilities of Wireless Intel SpeedStep® Power Manager technology provide a quantum leap forward in low-power operation, while maintaining the highest levels of performance.
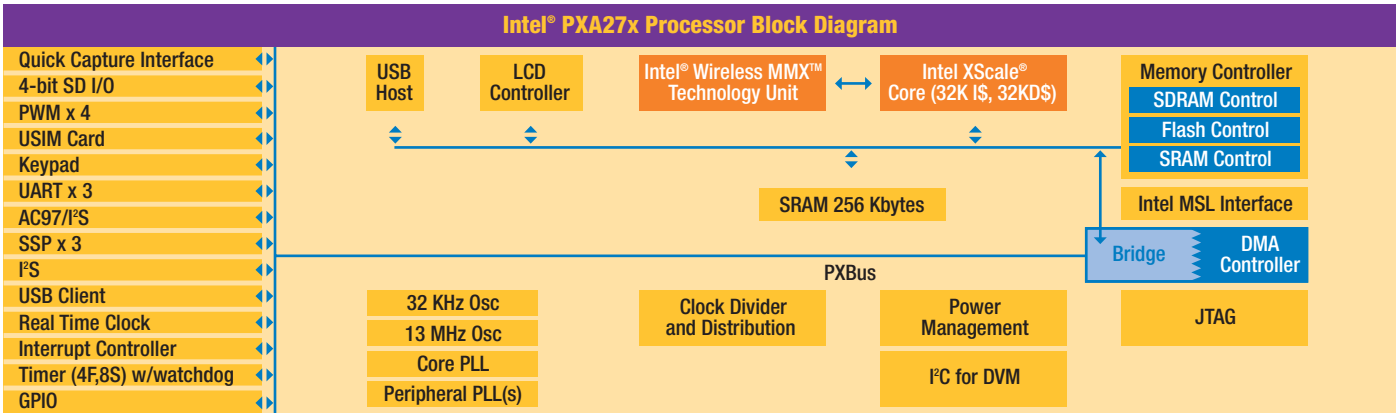
Advanced Multimedia Capability

Instead of using additional processors or accelerators that can reduce battery life, Intel Wireless MMX technology provides an advanced set of multimedia instructions. These help bring desktop-like multimedia performance to Intel PXA270 processor-based clients while minimizing the power needed to run rich applications.

Intel Wireless MMX technology builds on the Intel® MMX™ technology originally introduced in the Intel® Pentium® processor family. The large number of software developers already familiar with these instructions can create

Intel® PXA27x Processor Block Diagram

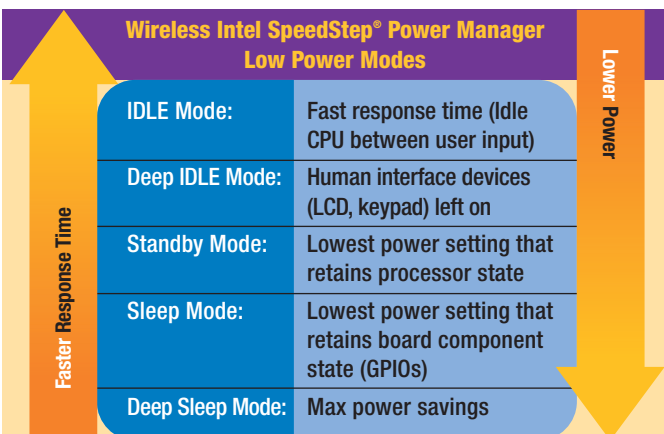|					
Quick Capture Interface	USB Host	LCD Controller	Intel® Wireless MMX™ Technology Unit ↔	Intel XScale® Core (32K I$, 32KD$)	Memory Controller
4-bit SD I/O					SDRAM Control
PWM x 4					Flash Control
USIM Card					SRAM Control
Keypad					
UART x 3			SRAM 256 Kbytes		Intel MSL Interface
AC97/I²S					
SSP x 3					Bridge / DMA Controller
I²S			PXBus		
USB Client	32 KHz Osc	Clock Divider and Distribution	Power Management		JTAG
Real Time Clock	13 MHz Osc				
Interrupt Controller	Core PLL		I²C for DVM		
Timer (4F,8S) w/watchdog	Peripheral PLL(s)				
GPIO					

applications more quickly, including 2D and 3-D gaming, streaming MPEG4 video, wireless encryption/decryption, digital TV reception and voice recognition.

High-Quality Pictures and Video

Intel Quick Capture technology is designed with the ability to capture live video and high-quality still images from a wide range of camera sensors. Performing the image processing on the Intel PXA270 processor reduces the need for an external preprocessor, helping save both cost and power. Intel Quick Capture technology consists of three primary modes of operation: Quick View mode (providing low-power, real-time previews), Quick Shot mode (providing high-resolution image capture up to 4+ Megapixels) and Quick Video mode (providing full-motion, high-quality video capture).

Steps to Lowering Power

Wireless Intel SpeedStep Power Manager technology can dynamically adjust the power and performance of the processor based on CPU demand. This can result in a significant decrease in power consumption for embedded devices.

Wireless Intel SpeedStep® Power Manager Low Power Modes

Mode	Description
IDLE Mode:	Fast response time (Idle CPU between user input)
Deep IDLE Mode:	Human interface devices (LCD, keypad) left on
Standby Mode:	Lowest power setting that retains processor state
Sleep Mode:	Lowest power setting that retains board component state (GPIOs)
Deep Sleep Mode:	Max power savings

(Faster Response Time ↑ / Lower Power ↓)

Wireless Intel SpeedStep Power Manager technology advances the capabilities of functions already built into the Intel XScale micro-architecture by incorporating three new low-power states. Using advanced Wireless Intel SpeedStep Power Manager Software also intelligently manages the power and performance needs for the end user. The technology is able to change both voltage and frequency on-the-fly to save additional power, while still providing the necessary performance to run rich applications.

Development Ecosystem

Intel is a leader in creating comprehensive developer ecosystems for processors. The Intel PXA270 processor is code compatible with all ARM* and Intel XScale technology-based solutions, giving developers and manufacturers the opportunity to maintain code investments. In addition, the Intel PXA270 processor is supported by the ecosystem of reference platforms, compilers, debuggers, code analyzers, codecs, and integrated primitives for performance, graphics and security.

Intel also provides OS board support packages that include drivers and power management software for Linux, Palm* OS, Symbian*, Microsoft* (CE. NET, Smartphone and Pocket PC), as well as Nucleus* and SavaJe*. A number of third-party applications developers are also optimizing for Intel Wireless MMX technology today. This provides the manufacturer with one of the most exhaustive choices of software and development hardware in the industry.

Embedded Features

Intel packaged the Intel PXA270 processor with the embedded market in mind. This product has a 1.0 mm ball pitch so customers can take advantage of lower cost manufacturing. Temperature ranges are extended to -40℃ to 85℃ ambient to meet the specific requirements of the embedded market. Also, Intel understands the importance of a long life cycle and anticipates a life cycle of five years[1].

Feature	Intel® PXA270 Processor For Embedded Computing
Intel XScale® Technology	Highly scalable core up to 520 MHz
Embedded Packaging	23x23 mm with 1.0 mm ball pitch 13x13 mm with 0.5 mm ball pitch also available
Extended Temperature Range	-40°C to 85°C ambient temperature range available
Product Life Cycle	Anticipated five-year life cycle[1]
Incredible Multimedia	Familiar Intel® Wireless MMX™ technology instructions designed for high-performance multimedia, 3-D games and advanced video
Advanced Camera Interface	Intel® Quick Capture technology supports 4+ megapixel cameras for capturing digital images, video and low-power, real-time previews
Enhanced LCD Controller	Dual-panel LCD with up to 24-bit color. Hardware color space conversion with 256 KB of on-chip SRAM for faster video. Two overlays reduce LCD bandwidth. Integrated Intel Quick Capture technology enables fast video preview
Reduced Power Consumption	Wireless Intel SpeedStep® Power Manager technology with five low-power modes can change frequency and voltage dynamically. Wireless Intel SpeedStep Power Manager software enables built-in, intelligent power management
Fast Access to Wireless Data	Intel® Mobile Scalable Link provides up to 416 Mbps link between communications and applications processors
Large Peripheral Set	USB Host/Client USB OTG 4-bit SD I/O MMC/SDCard Memory Stick USIM card interface Keypad controller PCMCIA/CF ICP
Memory Interface	100 MHz memory bus supports a variety of 1.8 V, 2.5 V, 3.0 V and 3.3 V memory

Intel Access

Developer Web Site	developer.intel.com
Embedded Intel® PCA Processors Home Page	intel.com/design/embeddedpca/applicationsprocessors/index.htm
Intel® Technical Documentation Center	intel.com/go/techdoc 800 548-4725 7 am–7 pm CST (USA and Canada)
General Information Hotline	800 628-8686 or 916 356-3104 5 am–5 pm PST

For more information, visit the Intel Web site at: developer.intel.com

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[1] Intel anticipates providing support for the Intel® PXA270 processor for a minimum of five (5) years from launch, pending sufficient, continued customer demand and other market conditions and factors. If and when Intel decides to no longer provide support for these products, we will follow our standard product discontinuance notification guidelines of six months to place last time orders and an additional six months to take delivery of the product.

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