



# Intel® PXA255 Processor with Intel® XScale™ Technology

Continuing the advance in handheld multimedia functionality.

## Product Highlights

### High Performance:

- Low-power, high-performance 32-bit Intel® XScale™ core-based CPU (200, 300 and 400 MHz)
- ARM\* Architecture v.5TE compliant
- Intel® Superpipelined RISC Technology utilizing advanced Intel® 0.18μ process for high core speeds at low power
- Intel® Media Processing Technology including 40-bit accumulator and 16-bit SIMD to enhance audio/video decode performance
- High-performance glue-less burst and page mode interfaces with Synchronous Intel StrataFlash® Memory

### Low Power:

- Low-Power and Turbo modes enables enhanced battery life
- 32 KB data and 32 KB instruction caches
- 2 KB Mini data cache for streaming data
- Support for 2.5 and 3.3V memories

### I/O Expansion:

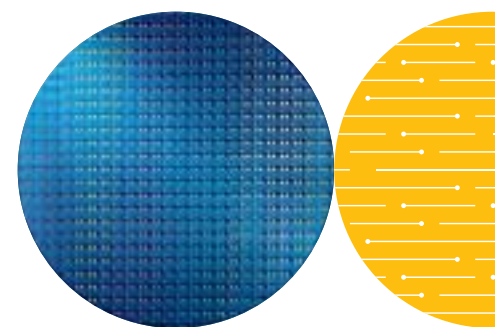
- Integrated Memory and PCMCIA/Compact Flash Controller with 100 MHz Memory Bus, 16-bit or 32-bit ROM/Flash/SRAM (six banks), 16-bit or 32-bit SDRAM, SMROM (four banks), as well as PCMCIA and Compact Flash for added functionality and expandability
- System Control Module includes 17 dedicated general-purpose interruptible I/O ports, real-time clock, watchdog and interval timers, power management controller, interrupt controller, reset controller, and two on-chip oscillators



### Wireless:

- Peripheral Control Module offers 16 channel configurable DMA controller, integrated LCD controller with unique DMA for fast color screen support, Bluetooth\*\* I/F, serial ports including IrDA, I<sup>2</sup>C\*, I<sup>2</sup>S\*, AC97, three UARTs (1 Full H/W flow control), SPI and enhanced SSP, USB end point interface, and MMC/SD Card Support for expandable memory and I/O functionality
- 17x17 mm 256-pin PBGA
- Extended temperature support

Intel®  
**XScale™**  
Technology



## Product Overview

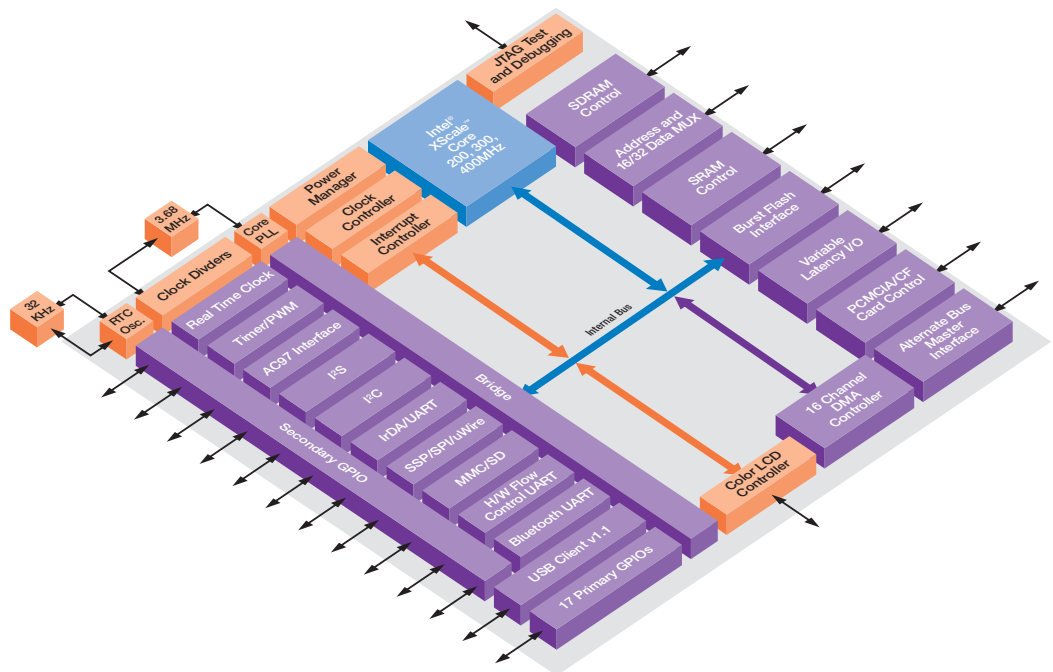
### Wireless Internet Content at Intel Speed

Mobile and wireless devices simplify our lives, keep us entertained and increase productivity. Each day businesses and individuals rely on them more and more. But, to continue satisfying ever-increasing customer demands to communicate and access information anytime, anywhere, manufacturers need technologies that deliver high performance, flexibility and robust functionality—all in the small-size, low-power framework of portable, battery-powered products. The Intel® Personal Internet Client Architecture (Intel® PCA) processors with Intel XScale technology help drive handheld device functionality to new heights. With a seven-stage pipeline and fast processing speeds, these microprocessors help to enable wireless devices to meet many of the performance demands of Enterprise-class wireless computing and feature-hungry technology consumers. All while Intel's power management capabilities deliver operating efficiency. By helping to reduce component count and board space, lower power consumption, minimize system costs and shorten time-to-market, Intel PCA processors deliver leading handheld devices.

### Intel® PXA255 High-Performance Processor

#### Enhancing the wireless, handheld experience.

For advanced devices that run the most impactful mobile applications, the Intel® PXA255 processor is the answer. A pin-for-pin compatible, drop-in replacement for the Intel® PXA250 processor, the Intel PXA255 processor is a highly integrated, 32-bit RISC processor that combines the efficiency of Intel design with the ARM v.5TE instruction set architecture. The Intel PXA255 processor delivers industry-leading processing power with built-in multimedia capabilities for high performance and handheld functionality. This enables increased end-user functionality, helps enhance battery life and provides a rich handheld Internet experience. Based on the Intel XScale technology with a new, faster 200MHz internal system bus, the Intel PXA255 cost-effectively boosts processing speed and power management over the Intel PXA250 processor. Power management features enable lower power dissipation; up to 60 percent less than previous Intel XScale technology-based products. And the processing capabilities of the Intel PXA255 enable portable devices to respond fast to optimized operating systems and performance-intensive applications like MPEG4 video decode speech and handwriting recognition, and Java® interpretation. From surfing animated Web sites to streaming video to mixing MP3s, the Intel PXA255 processor delivers processing power for leading performance.



Intel® PXA255 Block Diagram

## The Development Framework for Wireless Advancement

Outstanding performance and low power consumption are only the beginning when you develop with the Intel PXA255 processor. Our robust software and hardware development environment offers a large library of ARM-compliant applications and tools, as well as an array of wireless operating systems and tool chains to ease application development and system prototyping. The Intel® Integrated Performance Primitives (Intel® IPP) library promises easy access to an array of low-level, cross-platform software algorithms for high-demand communications, signal processing, mathematics and media functions. The Intel IPP's highly optimized implementation helps reduce battery consumption through more efficient CPU execution, enables developers to focus on value-add features, and speeds time-to-market. With the Intel PCA development ecosystem, you have the resources you need to deliver the features your consumers want—efficiently and effectively.

## Intel® Personal Internet Client Architecture

### The blueprint for next-generation wireless development

With Intel Personal Internet Client Architecture (Intel PCA), the next generation of wireless Internet devices, applications and services are at hand. This architecture separates communication and computing sub-systems for parallel development of related wireless devices hardware and software. The scalability of the Intel PCA platform enables compatibility with leading operating systems and many global wireless standards to make porting applications or services across devices and platforms easy and efficient. And with the leading performance of optimized Intel® wireless hardware and software building blocks, Intel makes the promise of a dynamic, multimedia wireless Internet a reality.

The Intel® PCA Developer Network offers device manufacturers, service providers and application developers easy access to the applications, tools and services that speed time-to-market and encourage consumer adoption of Intel PCA-based products. This Web-based community offers platform and software development kits; programming tools; software building blocks; technical information; marketing program opportunities; community networking; and market segment exposure to help developers build value in their Intel PCA products, applications and services.

## The Intel® PXA255 Processor Advantage

### Feature

### Benefit

High-performance, low-power Intel® XScale™ core at 200, 300 and 400 MHz. New power management for low power	Ideal for enabling enhanced battery life and performance for high-performance personal digital assistants and wireless communicators.
Faster internal system bus (At 400 MHz core, internal bus runs at 200 MHz vs. 100 MHz on the Intel® PXA250 processor)	Improved application performance
Intel Media Processing Technology	Optimized audio and video multimedia functionality
Enhanced Memory Controller	Supports low power 2.5V and 3.3V 32-bit and 16-bit memories including enhanced support for low-power SDRAM as well as glue-less burst and page mode interfaces with Synchronous Intel StrataFlash® Memory
MMC/SD and PCMCIA/CF Card support	Expandable storage and I/O device support
USB Client	Fast host synchronization
1.84 MHz cellular baseband interface	Efficient communications integration
920 Kbps Bluetooth** interface	Broad inter-device communication
Variable latency I/O	Add-on functionality capabilities

## Support Collateral

Item	Description	Order Number
Developer's Manual	Intel® PXA255 Processor	278693
Design Guide	Intel® PXA255 Processor	278694
User's Manual	Intel® XScale™ Microarchitecture for the Intel® PXA255 Processor	278796
Specifications	Intel® PXA255 Processor Electrical, Mechanical, and Thermal	278780
	Intel® PXA255 Processor (Update)	278732

## Intel Access

Developer Web Site	<a href="http://developer.intel.com">developer.intel.com</a>
Intel® PCA Processors Home Page	<a href="http://developer.intel.com/design/pca/applicationsprocessors">developer.intel.com/design/pca/applicationsprocessors</a>
Intel® Technical Documentation Center	<a href="http://intel.com/go/techdoc">intel.com/go/techdoc</a> 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

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