

ADSP-BF531/ADSP-BF532 Low Power General-Purpose Blackfin Processor

Key Features

Blackfin Processors Offer Features Attractive to a Broad Application Base

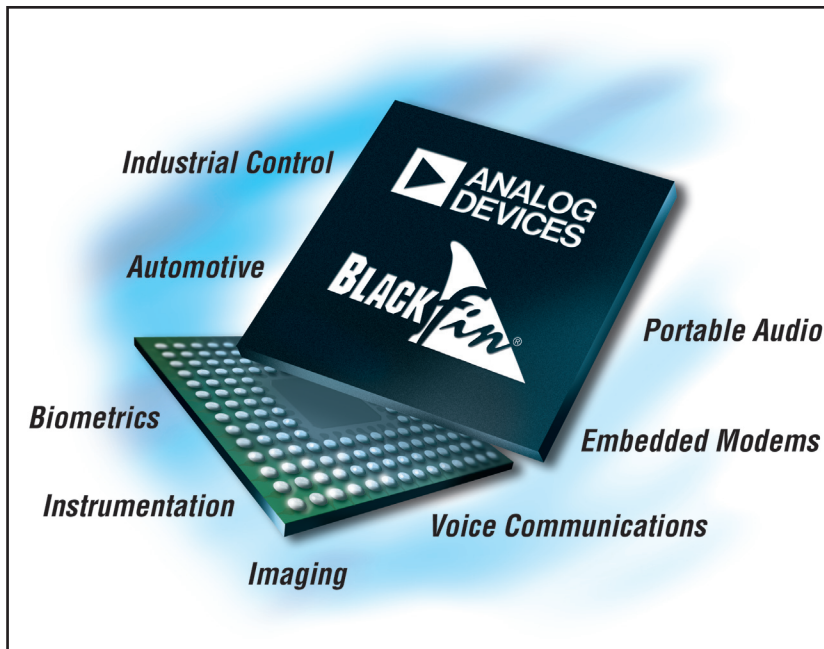
- Up to 400 MHz performance
- Low power .23 mW/MHz @ 250 MHz
- Application-tuned peripherals provide glueless connectivity to general-purpose converters in data acquisition applications
- Multiple low cost, pin- and code-compatible derivatives enable end product differentiation

Architectural Features

- High performance 16-/32-bit embedded processor core
- 10-stage RISC MCU/DSP pipeline with mixed 16-/32-bit ISA for optimal code density
- Full SIMD architecture, including instructions for accelerated video and image processing
- Memory Management Unit (MMU) supporting full memory protection for an isolated and secure environment

High Level of Integration

- Up to 84 KBytes of on-chip SRAM
- Glueless video capture and display port
- Two dual-channel, full-duplex synchronous serial ports supporting eight stereo I²S channels
- 12 DMA channels supporting one- and two-dimensional data transfers
- Memory controller providing glueless connection to multiple banks of external SDRAM, SRAM, Flash, or ROM
- 160-ball mini-BGA, 169-ball PBGA, and 176-lead LQFP packages
- Industrial temperature ranges (-40° C to 85° C)



Overview

The ADSP-BF531 and ADSP-BF532 provide a low cost, power-efficient processor choice for today's most demanding convergent signal processing applications. With power consumption as low as .23 mW/MHz, and performance of 400 MHz, applications can now add greater signal processing performance without sacrificing battery life.

The high performance 16-/32-bit Blackfin® embedded processor core, the flexible cache architecture, the enhanced DMA subsystem, and the Dynamic Power Management (DPM) functionality allow system designers a flexible platform to address a wide range of applications, including consumer, communications, automotive, and industrial/instrumentation.

Designed for Performance and Power Efficiency

Both the ADSP-BF531 and the ADSP-BF532 offer 400 MHz performance and up to 800 MMACs. This processor core is supported by an advanced DMA controller supporting one- and two-dimensional DMA transfers between on-chip memory, off-chip memory, and system peripherals. The combination of the processor core speed and the DMA controller allows for efficient processing of audio, voice, video, and image data.

Blackfin Processors also offer enhanced power management capabilities by integrating on-chip core voltage regulation circuitry. This on-chip voltage regulator allows for the core and system clocks to be dynamically modified via a digital divider circuit, providing systems designers an additional tool for optimization of power and performance in their end products.

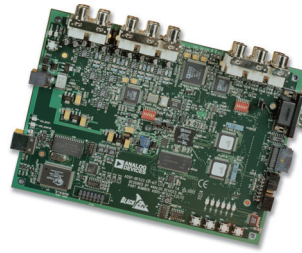
Designed for Flexibility

With multiple package and memory options, many pin for pin compatible, designers can choose the price point and cost point to meet their system requirements. Combined with a number of standard peripherals, including multifunction serial ports supporting I²S audio capability, UART, SPI[®]-compatible port, three multifunction timers, and a programmable parallel port (PPI) with ITU-656 video support, the ADSP-BF531/ADSP-BF532 can address a wide variety of existing and emerging applications.

Designed for Low Cost

Both the ADSP-BF531 and the ADSP-BF532 were designed for cost-sensitive applications. By efficiently processing both control and signal processing code on a single processor, the Blackfin architecture eliminates the additional cost of having a separate digital signal processor in the system. Each product offers LQFP package options to simplify board design, and peripherals like an on-chip real-time clock and voltage regulation to further reduce systems costs.

The Blackfin Processor's combination of performance, flexibility, and low cost is ideally suited for the most demanding convergent processing applications. This processor family, combined with ADI's investment in future Blackfin products, provides a robust



platform for tomorrow's most challenging future convergent applications.

Development Tools

Blackfin Processors are supported by:

- Analog Devices CROSSCORE[®] brand of industry-leading development tools. The CROSSCORE components include the VisualDSP++[®] software development environment, EZ-KIT Lite[®] evaluation systems, EZ-Extender[™] daughter boards, and PCI-based or USB-based emulators.
- Green Hills[®] Software's industry-leading MULTI[®] embedded software development environment and integrated emulators.
- Open source development tools, GCC toolchain, μ CLinux[™] kernel, board support packages, and associated debugging environment. Visit www.blackfin.uclinux.org for more information.

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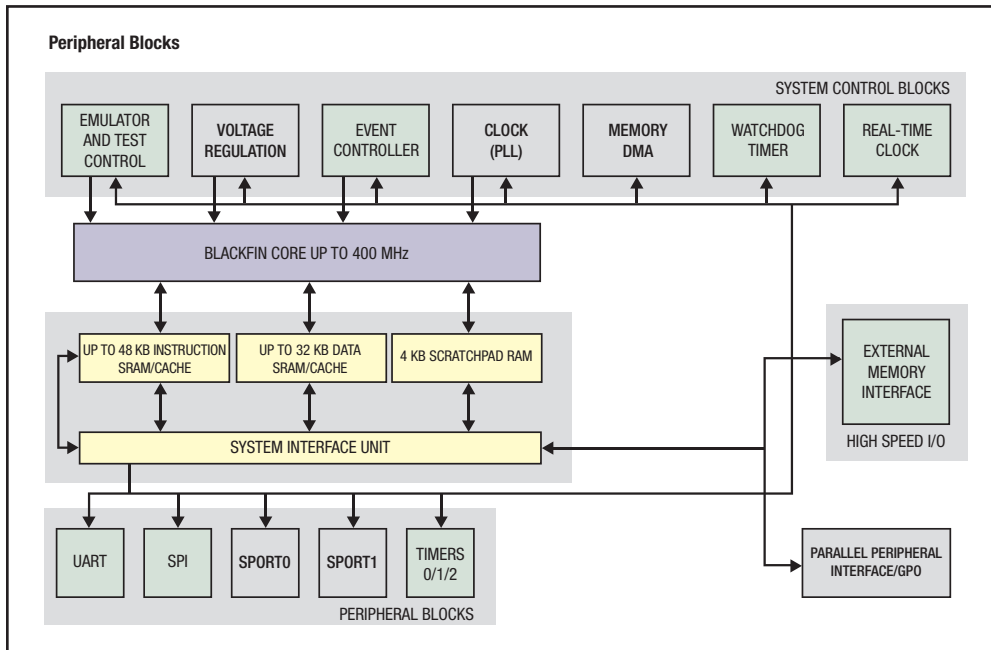
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Blackfin Processors integrate an array of peripherals designed to simplify board development and minimize overall system costs.

