ADSP-BF525 Low Power Blackfin Processor with Advanced Peripherals

Key Features

- Low power performance extends battery life for portable applications: as low as <0.16 mW/MHz @ 250 MHz
- Application-tuned peripherals provide glueless connectivity to a greater range of external devices for improved flexibility and competitiveness
- Lockbox™ secure technology: hardware-enabled security for code and content protection

Architectural Features

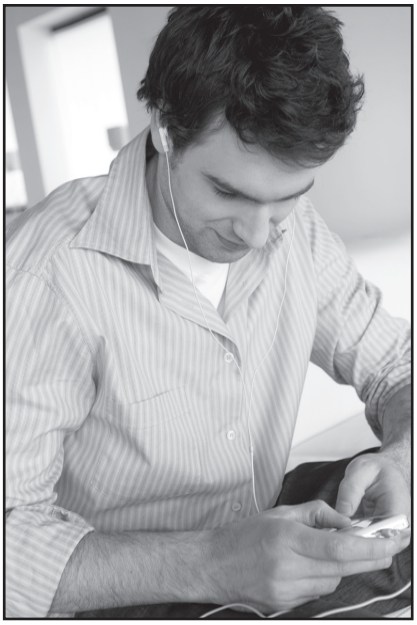
- High performance 16-/32-bit embedded processor core
- Blackfin® Processor core with up to 600 MHz (1200 MMACS) performance

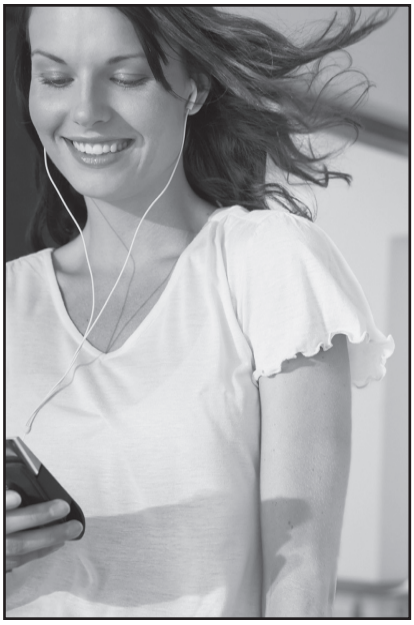
High Level of Integration

- 132 kB of on-chip SRAM
- Parallel peripheral interface (PPI) provides a glueless interface to many image sensors and display drivers
- 2 dual-channel, full-duplex synchronous serial ports supporting 8 stereo I²S channels
- 12 peripheral DMA channels supporting one- and two-dimensional data transfers
- NAND flash controller with 8-bit interface for commands, addresses, and data
- Connectivity: HS USB OTG, host DMA port, UARTs, SPORTs, SPI®, and TWI
- Memory controller providing glueless connection to multiple banks of external SDRAM, SRAM, flash, or ROM
- 289-ball, 12 mm × 12 mm, 0.5 mm pitch mini-BGA (commercial temperature range 0°C to 70°C)

System-in-Package

- For space-constrained audio applications the ADSP-BF525C supports an embedded low power stereo codec





Overview

The ADSP-BF525 Blackfin Processor combines high performance, power efficiency, and system integration to enable highly optimized designs without compromises. With built-in peripheral selectivity, the ADSP-BF525 provides the greatest flexibility for today's most demanding convergent signal processing applications. With power consumption as low as 0.16 mW/MHz and performance up to 600 MHz, applications can now add greater signal processing performance without sacrificing battery life.

Designed for Innovation

The ADSP-BF525 provides peripheral flexibility to complement its high performance processing. The HS USB OTG host direct memory access (HDMA) and NAND flash controller are just a few of the peripheral options on the ADSP-BF525 family—not to mention the availability of up to 48 GPIO signals.

For applications where product differentiation represents a challenge for securing market leadership, the ADSP-BF525 enables developers to provide features to augment their product offerings without compromising cost or power. The scalability of the ADSP-BF525 makes it an ideal candidate for premium audio players where differentiation of features can be realized without sacrificing system cost. Where the diversity of multimedia applications and content security are key attributes, the ADSP-BF525 provides processing flexibility and Lockbox secure technology to enable users to develop freely and without bounds.

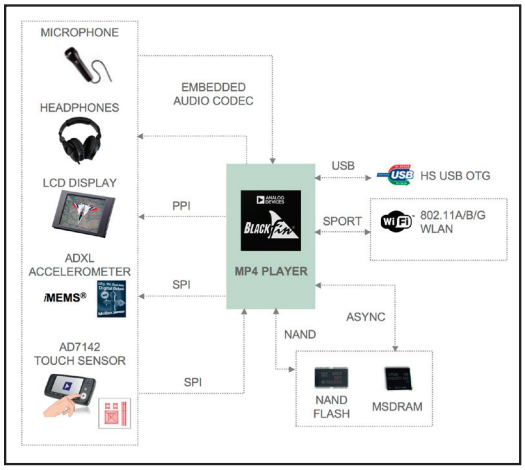
Designed for Security: Lockbox Secure Technology

Lockbox secure technology offers a platform for digital rights management (DRM) content protection that is required for devices such as media players. It provides publicly accessible, user-programmable OTP memory that enables customers to program their own device IDs and helps to ensure that these device IDs remain tamper proof.

ANALOG DEVICES

Lockbox secure technology also features private, secure OTP memory that enables customers to program their own private device assets (for example, private keys) and to ensure that these assets are secure (not accessible, and invisible to unauthorized users) and tamper proof.

The secure mode provides a secure processing environment in which only authorized code is allowed to access sensitive device assets. This enables customers to implement systems in which only authenticated, trusted code can perform DRM operations or critical subsets of it (for example, license handling or rights object handling).



Designed for Performance, Power Efficiency, and Flexibility

The ADSP-BF525 offers up to 600 MHz performance and up to 1200 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.

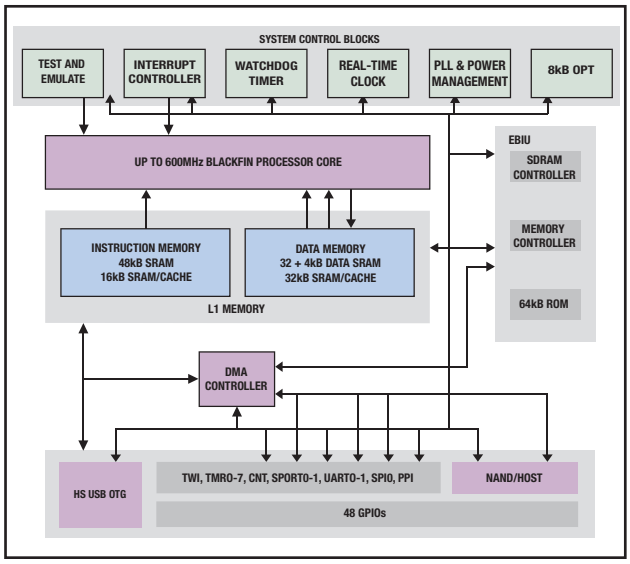
Blackfin Processors also offer enhanced power management capabilities by integrating on-chip core voltage regulation circuitry. This on-chip voltage regulator allows for the core and system clocks to be dynamically modified via a digital divider circuit, providing system designers an additional tool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

With multiple configuration options, designers can choose the feature set, power/MIPS profile, and cost point to meet their system requirements.

Peripheral options include:

- HS USB OTG
- Host DMA port
- NAND flash controller
- Multifunction serial ports supporting I²S audio capability
- UART
- SPI-compatible port
- Parallel port (PPI) with ITU-R BT.656 video support

Hence the ADSP-BF525 can address a wide variety of existing and emerging 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® daughterboards, and USB-based emulators.
- Green Hills® Software's industry-leading MULTI® embedded software development environment and integrated emulators.
- Open-source development tools, GCC tool chain, μClinux™ kernel, board support packages, and associated debugging environment. Visit *www.blackfin.uclinux.org* for more information.

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