



ADSP-BF534 Blackfin Processor

CAN Connectivity for Automotive/Industrial

Key Features

Blackfin Processors Offer Features Attractive to a Broad Application Base

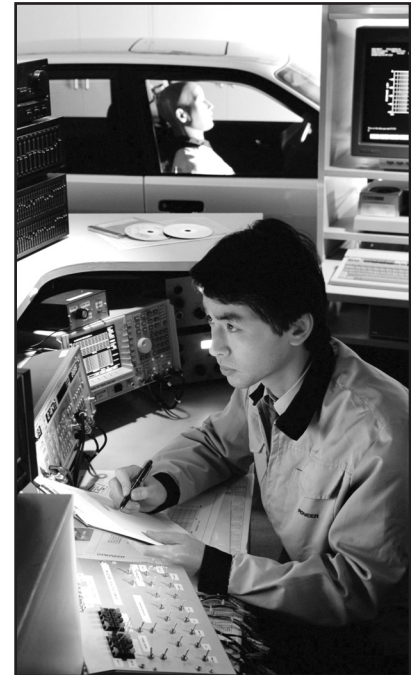
- Powerful and flexible cache architecture suitable for soft real-time control tasks and industry-standard operating systems, plus hard real-time signal processing tasks
- Embedded connectivity with an enhanced DMA system for providing robust throughput with minimal processor core intervention
- Applications-tuned peripherals provide glueless connectivity to general-purpose converters in data acquisition applications

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

Product Integration Features

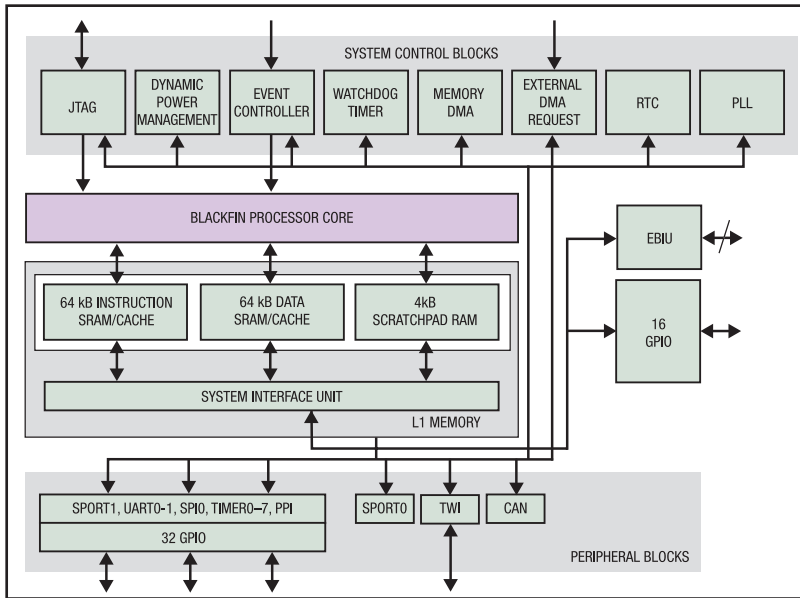
- Controller Area Network (CAN) 2.0B interface
- Enhanced DMA controller, including two external handshake DMA request lines
- 132 kB on-chip full-speed SRAM
- Glueless SDRAM, SRAM, and flash controllers
- Glueless video capture/display port
- Eight timers supporting PWM and pulsewidth/event count modes
- 48 general-purpose I/Os, eight with high source/high sink capabilities
- 182-ball and 208-ball sparse mini-BGA packages
- Lead-free and lead-bearing package options
- Industrial and extended industrial temperature ranges



Embedded Connectivity Comes to the Blackfin Family

The Blackfin® Processor family has been expanded to address the need for embedded Controller Area Network (CAN) connectivity. This connectivity is powerful when utilized in conjunction with the high performance 16-/32-bit Blackfin embedded processor core, the flexible cache architecture, the enhanced DMA subsystem, and the Dynamic Power Management functionality. System designers can take advantage of the combined control and signal processing capabilities of the processor core across a wide range of end applications.

The ADSP-BF534 is a functional extension of the popular ADSP-BF531, ADSP-BF532, and ADSP-BF533 processors and is ideally suited for a variety of CAN networked applications. The ADSP-BF534 offers a high performance series for embedded applications such as automotive safety, automotive body control, automotive driver assistance, automotive entertainment, and industrial factory automation. This processor is ideally suited for a broad range of industrial, instrumentation, and medical applications that allow for scalability and CAN network connectivity that utilize a mix of control, plus signal processing in the end product.



Designed for Endpoint Connectivity

Embedded CAN networked applications require more and more intelligence and analytical capabilities for endpoint decision making. The Blackfin Processor core is ideally suited for handling both control-oriented networking tasks and user interface mechanisms while also offering full signal processing capabilities for analyzing almost any condition. To complement the performance, the Blackfin Processor's memory system offers a powerful and flexible cache architecture that can dynamically balance between the hard real-time tasks desired in SRAM and soft real-time control tasks and an Operating System (OS) requiring cache functionality. Dynamic Power Management (DPM) lowers power consumption for extending battery life or for minimizing power dissipation in enclosed applications. DPM allows for independent dynamic scaling of either voltage or frequency in a self-contained system with the integration of both voltage regulator and PLL that are software programmable.

Designed for Bandwidth

The ADSP-BF534 integrates a fully compliant CAN 2.0B module capable of data rates up to 1 Mbps. This module supports up to 32 mailboxes with individual acceptance masks and data filtering. In addition, the DMA subsystem has been enhanced with greater traffic management abilities to allow for higher data throughput with minimal processor core intervention. The DMA subsystem also includes dual external handshake DMA request lines that when used in conjunction with the External Bus Interface Unit (EBIU) can be used when a high speed interface is required for external FIFOs and high bandwidth communications peripherals such as USB 2.0 devices.

Designed as an Integrated System

In addition to the embedded connectivity CAN module, the ADSP-BF534 includes a variety of general-purpose functions designed to minimize external IC count and offer broad control and communication. Peripherals include an SPI-compatible port, dual UARTs, dual SPORT ports, eight multifunction timers, 48 general-purpose I/Os, Two-Wire Interface for I²C operation, a real-time clock, a watchdog timer, an event controller, and a JTAG/debug interface. The flexible Parallel Peripheral Interface (PPI) offers a direct connection to a variety of video encoders/decoders, display drivers, image sensors, and general-purpose converters.

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 award-winning MULTI[®] Embedded Software Development Environment and associated emulators.
- Open source GCC tool chain, STAMP boards, and associated environment. Go to www.blackfin.uclinux.org for more information.

Embedded Processing Support

www.analog.com/processors

Email (in the U.S.A.):
 embedded.support@analog.com
 Email (in Europe):
 embedded.europe@analog.com
 Fax (in the U.S.A.): 781.461.3010
 Fax (in Europe): 49.89.76903.157

Worldwide Headquarters

Analog Devices, Inc.
 One Technology Way
 P.O. Box 9106
 Norwood, MA 02062-9106
 U.S.A.

Tel: 781.329.4700
 Fax: 781.326.8703
 Toll-free: 800.262.5643 (U.S.A. only)

Analog Devices, Inc. Europe

c/o Analog Devices SA
 17-19, rue Georges Besse
 Parc de Haute
 Technologie d'Antony
 F-92182
 Antony Cedex, France

Tel: 33.1.46.74.45.00
 Fax: 33.1.46.74.45.01

Japan Headquarters

Analog Devices, Inc.
 New Pier Takeshiba
 South Tower Building
 1-16-1 Kaigan,
 Minato-ku, Tokyo
 105-6891, Japan

Tel: 813.5402.8210
 Fax: 813.5402.1063

Southeast Asian Headquarters

Analog Devices, Inc.
 39/F One Pacific Place
 88 Queensway
 Admiralty,
 Hong Kong, PRC

Tel: 852.2506.9336
 Fax: 852.2506.4755