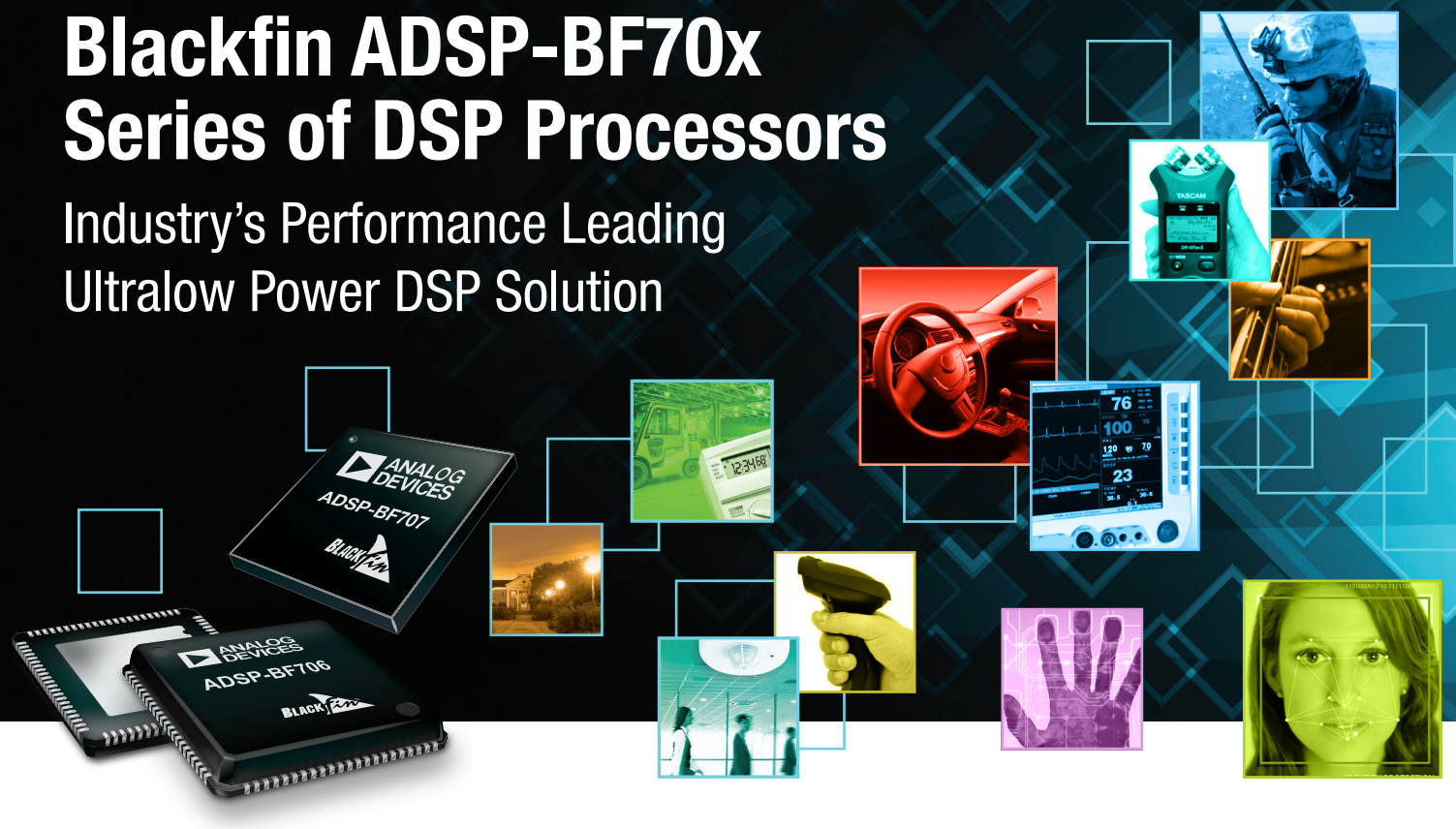
Blackfin ADSP-BF70x Series of DSP Processors

Industry's Performance Leading Ultralow Power DSP Solution

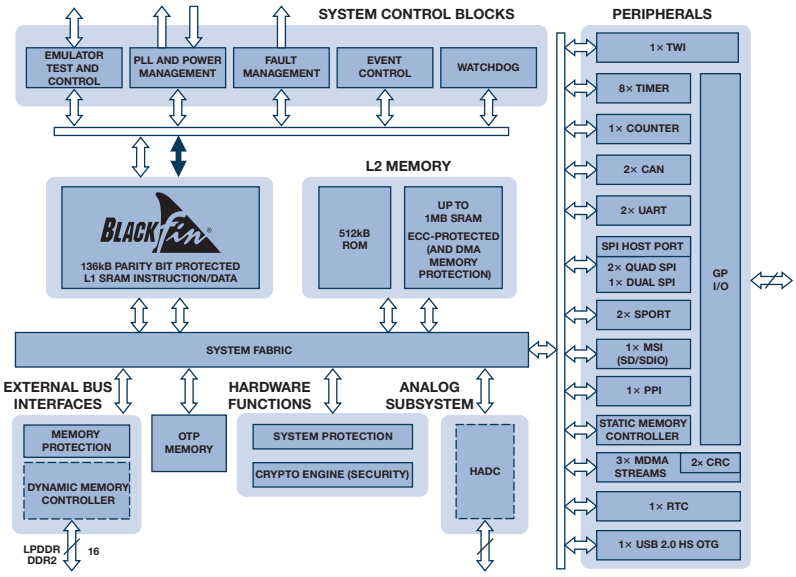


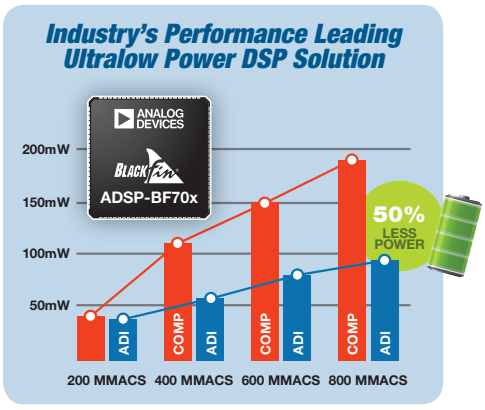
Overview

The new ADSP-BF70x Blackfin® processor series is a high performance DSP that delivers a class leading 800 MMACS of processing power at less than 100 mW. The cost-effective eight member series includes up to 1 MB of internal L2 SRAM, eliminating external memory in many applications, while a second configuration features an optional DDR2/LPDDR memory interface. Using the enhanced Blackfin+ core, the combination of performance, power efficiency, memory integration, security, and value allows designers to incorporate advanced 16- and 32-bit fixed-point processing into a range of new use cases, including industrial imaging and building controls as well as portable and automotive audio. The ADSP-BF70x series offers designers unparalleled flexibility and functionality through an array of advanced connectivity options (including USB, SDIO, CAN, ePPI, SPORT, QuadSPI) while enabling bus-powered applications and extending the life of battery-powered devices.

Target Applications Include

- Intelligent lighting and occupancy detection
- Industrial imaging and biometrics
- Portable audio, DJ equipment, and effects
- Automotive audio
- Communications
- Military and aerospace
- Portable healthcare





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ANALOG DEVICES

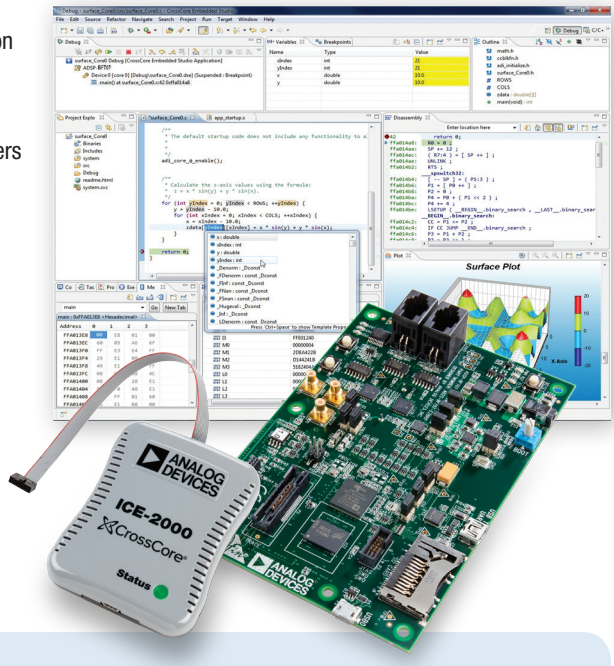
Generic Device	ADSP-BF700	ADSP-BF702	ADSP-BF704	ADSP-BF706	ADSP-BF701	ADSP-BF703	ADSP-BF705	ADSP-BF707
Package	12 mm × 12 mm, 88-lead LFCSP				12 mm × 12 mm, 0.8p, 184-ball CSP_BGA			
Max Speed Grades	100 MHz 200 MHz	300 MHz 400 MHz			100 MHz 200 MHz	300 MHz 400 MHz		
L1 Cache/SRAM (with Parity)	136 kB				136 kB			
L2 SRAM (with ECC)	128 kB	256 kB	512 kB	1024 kB	128 kB	256 kB	512 kB	1024 kB
L2 ROM	512 kB				512 kB			
DDR2/LPDDR	No				16 bit			
USB 2.0 HS (MAC/PHY)	1× OTG/device				1× OTG/device			
SD/SDIO/MMC/eMMC	4-bit				8-bit			
4-Channel 12-Bit ADC	No				Yes			
GPIOs	43				47			
Key Common Peripherals	ePPI for video I/O, SPORT with I²S (2), quad/dual SPI (2/1) including host mode, I²C, UART (2), CAN 2.0B (2)							
Other Features	Security cryptographic accelerators, OTP, WDT, RTC, timer (8), counter							

Features and Benefits

Scalable DSP Performance	Up to 400 MHz Blackfin+ core with single cycle MAC (2 × 16-bit, 32-bit, or complex); many efficiency improvements and Blackfin family code compatibility; benchmark example for 1024 pt cFFT: 23 µs (16-bit), 94 µs (32-bit)
Best-in-Class Power Efficiency	118 µW/MMAC @ 400 MHz delivering 95 mW at 800 MMACs (40 nm LP)
Lowest BOM Cost	Large SRAM (up to 1 MB L2), multiple glueless connectivity options, 4-channel, 12-bit ADC and DDR2/LPDDR option, and cost optimized packaging
Advanced Security	IP protection and run-time security including AES128/256 and SHA-2 (224/256); fast secure boot (<55 ms for 512 kB boot image)
Other New Features to Blackfin	Increased L1 cache bandwidth: Up to 3× from L2 SRAM and DDR2/LPDDR; high speed memory mapped quad-SPI with HOST and execute in place modes
Memory Protection	SRAM parity and ECC for safety providing best-in-class SER-FIT performance
Industry Standard Connectivity	USB2.0HS, SDIO/eMMC, CAN 2.0, and more
Fast Time to Market	Efficient C compiler, optimized libraries, and hardware reference designs

CrossCore Embedded Studio

- CrossCore® Embedded Studio™ is ADI's New Eclipse™-based tool chain
  - IDE and debugger
  - Compilers, assemblers, linker, loader
  - Algorithms and DSP libraries
- Add-ins enable graphical configuration and code generation
- Seamless integration with middleware
  - Micrium µC/OS-III,™ µC/OS-II™ real time kernels
  - Micrium µC/USB™ device, host stacks and class drivers
  - Micrium µC/FS™ file system
- Low cost ADSP-BF70x development board
  - ADZS-BF707-EZLITE
  - Optional EZ-Extenders for increased features
- USB-based JTAG Emulators
  - Low cost ICE-1000 (ADZS-ICE-1000)
  - High performance ICE-2000 (ADZS-ICE-2000)
  - USB powered and JTAG/SWD up to 46 MHz
  - ARM® CoreSight™-based trace for program and system debug



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