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,
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

www.analog.com/BF70x
### Features and Benefits

<table>
<thead>
<tr>
<th>Scalable DSP Performance</th>
<th>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)</th>
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<tr>
<td>Best-in-Class Power Efficiency</td>
<td>118 μW/MMAC @ 400 MHz delivering 95 mW at 800 MMACs (40 nm LP)</td>
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<td>Lowest BOM Cost</td>
<td>Large SRAM (up to 1 MB L2), multiple glueless connectivity options, 4-channel, 12-bit ADC and DDR2/LPDDR option, and cost optimized packaging</td>
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<td>Advanced Security</td>
<td>IP protection and run-time security including AES128/256 and SHA-2 (224/256); fast secure boot (&lt;55 ms for 512 kB boot image)</td>
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<td>Other New Features to Blackfin</td>
<td>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</td>
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<td>Memory Protection</td>
<td>SRAM parity and ECC for safety providing best-in-class SER-FIT performance</td>
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<td>Industry Standard Connectivity</td>
<td>USB2.0 HS, SDIO/eMMC, CAN 2.0, and more</td>
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<td>Fast Time to Market</td>
<td>Efficient C compiler, optimized libraries, and hardware reference designs</td>
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### 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)
  - USB powered and JTAG/SWD up to 46 MHz
- ARM® CoreSight™-based trace for program and system debug

ADI's EngineerZone™ Support Community helps engineers get answers to technical questions about Analog Devices products and connect with their fellow engineers and experts around the globe.

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