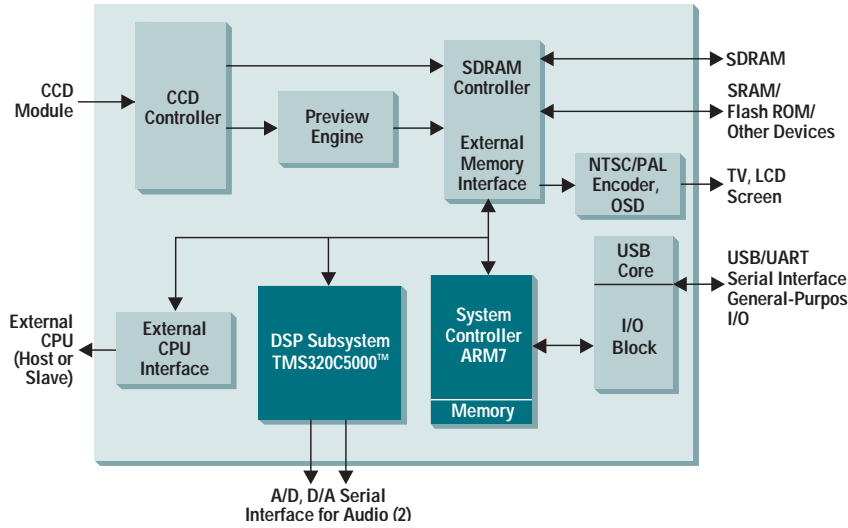


Product Bulletin

TMS320DSC25

High-Performance/Low-Power Digital Imaging Solution

TMS320DSC25 Functional Block Diagram



Flexibility and Performance

Offering features that provide greater design flexibility and speed, the TMS320DSC25 processor solution from Texas Instruments (TI) achieves video performance increases of up to 100 percent and reduces power consumption by 25 percent over its previous generation. Providing system designers with a means to improve and differentiate their digital audio, imaging and video products, the DSC25 programmable solution extends the performance and functionality of TI's successful DSC21 platform.

The DSC25 is a single-chip audio/visual image-processing engine containing all functions

required for communication with external devices, including an on-chip CCD controller; USB; seamless interface to popular storage media like CompactFlash™, Secure Digital™, MultiMediaCard (MMC), SmartMedia™ and Memory Stick™; an integrated NTSC/PAL video encoder; and a real-time preview engine for live viewing. Combining the power-efficient TMS320C5000™ DSP with an ARM7TDMI® RISC processor provides programming flexibility for inclusion of unique features in new digital imaging and multimedia systems. The DSC25 also permits product upgradeability as standards evolve and hardware platform reuse to secure a time-to-market advantage.

Key Features

- Supports multiple applications and file formats, including MPEG-4, MPEG-1, JPEG, M-JPEG, H.263, MP3 and AAC
- Highly integrated system-on-a-chip (SoC) design with a power-efficient DSP core reduces overall system cost
- Specifically designed for a low-cost, high-performance digital camera solution but has the headroom to run all your portable multimedia applications

This new device supports the capture of still images at up to 3 megapixels in less than a 1-second shot-to-shot delay. Though targeted at the digital still camera market, the DSC25 is much more than just a digital camera chip—it is a multimedia system-on-a-chip (SoC) solution. In addition to supporting basic camera functions such as JPEG capture, the DSC25 fully supports other highly valued multimedia compression standards including M-JPEG, MPEG-1, MPEG-4, H.263, MP3 and AAC. The DSC25 supports CIF resolution (352 × 288) MPEG-4 I+P frame video encode and decode of 20 frames per second (fps). The DSC25 is a fully programmable, highly flexible solution ideally suited for imaging applications including digital cameras, dual-purpose PC cameras and other multimedia consumer applications.

ARM System Controller

ARM7TDMI, a 32-bit RISC processor, is built into the DSC25 as the system controller. The ARM7TDMI CPU performs general system

Technical Details

- TMS320C5000™ DSP and ARM7TDMI® RISC processor
- 500-MIPS DSP subsystem
- Support for 32-bit and 16-bit SDRAM interface at 80 MHz
- 30 fps, full NTSC/PAL preview (real-time)

- Support for NTSC/PAL composite, analog RGB, S-video and 8-bit digital LCD outputs
- Supports CMOS and CCD imagers
- Efficient support of real-time operating systems such as Nucleus™, VxWorks®, Linux™ and MicroITRON™

- Fully compatible with SmartMedia™, Secure Digital™, CompactFlash™, MMC and Memory Stick™
- 32 user-programmable, general-purpose serial I/Os for peripheral control
- 288 GHK MicroStar BGA™ package (16 × 16 × 0.8 mm)

control such as system initialization, configuration, graphical user interface (GUI) and user command implementation.

DSP Subsystem

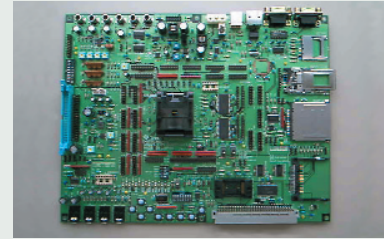
The DSP subsystem provides the equivalent of 500 MIPS of processing power. This subsystem consists of the industry-proven TMS320C5000 DSP and performance-enhancing, programmable hardware accelerators. The DSP subsystem handles the computation-intensive tasks involved with video and image compression and decompression.

Getting Started

The DSC25 evaluation module (EVM) is a fully functioning camera that gives designers the opportunity to immediately begin developing application software on the DSC25, thus enabling faster design cycles and shortening time to market. The DSC25 EVM leverages TI's world-class development tools, making it easier to evaluate, develop and debug code for embedded multimedia applications.

TMS320DSC25 EVM Features

- TMS320DSC25
- USB and Ethernet ports
- Slots for CompactFlash™, SmartMedia™, Secure Digital™, MMC and Memory Stick™ storage media
- 2-MB Flash/2-MB SRAM
- 16-MB SDRAM
- Video output: analog RGB, NTSC/PAL composite, S-video and 8-bit digital LCD
- JTAG connection



- Two audio I/O connections
- Two RS-232 communication ports
- CCD/CMOS imager interface, data control and power

Development Tools

Code Composer Studio™ is a fully integrated development environment (IDE) supporting TI's DSC25 imaging processor. Code Composer Studio is one of the key components of eXpressDSP™ Software and Development Tools that slashes development and integration time for DSP software. Its complete and easy-to-use set of development tools and features addresses each phase of the code development cycle, including editing, building, debugging, code profiling and project management.

DSP/BIOS™ Kernel II

This scalable, extensible, real-time kernel for the DSC25 subsystem provides a standard software foundation to significantly reduce cost, risk and development time.

For More Information

To obtain more information on how the DSC25 can enhance your imaging system, please contact your local TI field sales office or TI Product Information Center, or visit the TI Digital Still Camera Web site at:

www.ti.com/dm025

TI Worldwide Technical Support

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support.ti.com

TI Semiconductor KnowledgeBase Home Page
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