Key Features
- Seamless-interface CompactFlash™, SmartMedia™, Secure Digital™ and Memory Stick™ cards
- MPEG-4 video at VGA resolution up to 30 fps
- On-chip 80-MHz ARM7 32-bit RISC microprocessor with I-cache (8 Kbytes) and on-chip program/data memory (32 Kbytes)
- On-chip 90-MHz Texas Instruments C54x™ digital signal processor (DSP) core with on-chip program/ data memory (128 Kbytes)
- On-chip 180-MHz programmable SIMD image-processing engine (iMX) for programmable image processing
- Preview engine for real-time live view and digital zoom
- Up to 32 general-purpose I/O pins available

Product Bulletin

TMS320DM270 Processor
Digital Still Cameras

New TI Technology for Portable Digital Media Applications
The new TMS320DM270 programmable DSP-based solution from Texas Instruments (TI) is a highly integrated video and imaging engine offering excellent performance, leading-edge process technology, and flexibility for next-generation portable media products.

The DM270 is a highly integrated, programmable platform for the digital still camera and multimedia systems. Designed to offer camera manufacturers the ability to produce affordable, flexible multimedia products with highly differentiated image quality, the DM270 combines programmable image-processing capability

with a highly integrated imaging peripheral set. The chip's programmability comes from a DSP-based imaging coprocessor that enables manufacturers to implement their own proprietary image-processing algorithms in software. The DM270's flexibility is a result of the highly integrated architectural design of the chip. The interface

TMS320DM270 Functional Block Diagram
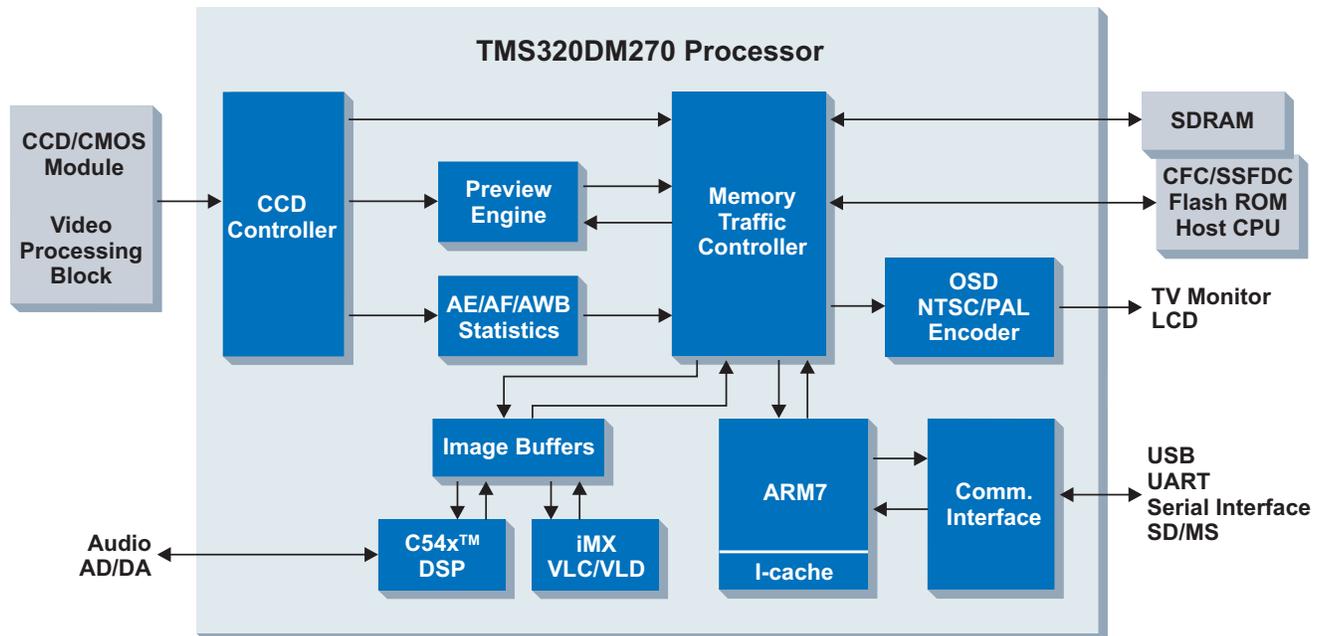
is flexible enough to support various types of CCD and CMOS sensors, signal conditioning circuits, power management, SDRAM, shutter, iris and auto-focus motor controls. The DM270 will allow manufacturers to meet customer demands by fulfilling both image quality, feature richness and low cost expectations required in the rapidly expanding digital multimedia market.

Code Composer Studio™ Development Tools

Code Composer Studio™ is a fully integrated development environment (IDE) supporting TI's DM270 digital media processor. It 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 DM270 DSP subsystem provides a standard software foundation to significantly reduce cost, risk and development time.

Third-Party Network

To facilitate in providing a total system solution, TI is leveraging and expanding its extensive Third-Party Network. These network members have developed DM270 processor solutions for video, imaging and audio algorithm development; system integration; and operating system support. Their proven performance enables customers to significantly reduce the time elapsed from concept to market to revenue.

For More Information

To obtain more information on how the DM270 DSP can enhance your imaging system, please contact your local TI field sales office or TI Product Information Center, or visit the TI imaging Web site at:

**www.ti.com/dm_270**

Technical Details

- 288-pin MicroStar BGA™ 16 x 16 mm (0.8-mm pitch)
- Supports 120-MHz SDRAM up to 64 MB with 32-/16-bit interface
- Supports MPEG-4 video at VGA resolution up to 30 fps
- On-chip 80-MHz ARM7 32-bit RISC microprocessor with I-cache (8 Kbytes) and on-chip program/data memory (32 Kbytes)
- On-chip 90-MHz TI TMS320C54X™ DSP core with on-chip program/data memory (128 Kbytes)
- On-chip image-processing buffers (2x 8 Kbytes)
- On-chip 180-MHz programmable SIMD image-processing engine (iMX) for programmable image processing
- Variable-length coding and decoding (VLC/VLD) coprocessor for image/ video compression and decompression
- Preview engine for real-time live view and digital zoom
- Versatile on-screen display (OSD)
- Digital interface for color LCD

- Seamless-interface CompactFlash™, SmartMedia™, Secure Digital™ and Memory Stick™ cards
- Supports Flash memory up to 16 MB
- Supports 27-MHz, 48-MHz (USB) crystal input to generate all clocks including four timers and one watchdog timer (WDT)
- Two UARTs
- Channel 10-bit DAC for NTSC/PAL composite video output
- Channel serial audio codec interface (McBSP)
- Two sets of SPI serial interface with master/slave mode
- Up to 32 general-purpose I/O pins available
- Limited I^2C bus master capability
- On-chip USB 1.1 function controller
- 2-channel programmable pulse width modulation (PWM) outputs
- Externally downloadable using serial interface (SIF) or host bus interface

- Support for all major audio, video, imaging and voice encoding/ decoding standards:
  - Video: H.263, M-JPEG, MPEG1, MPEG4, Nancy, WMV, DivX
  - Imaging: JPEG
  - Audio: AAC, ATRAC3, MP3, WMA
  - Voice: AMR, G.723.1, G.726, G.711
- Hardware pixel pre-processor for DSC system
- Real-time AF, AWB, AE statistics for DSC system
- Supports 16-bit analog front ends (AFEs) and 8-/16-bit video input/ output (CCIR601/656)
- Single-channel composite analog and 8-/16-bit digital RGB/YUV output
- DSP-based solution using a 0.13- micron process technology (1.5-V core/ 3.3-V I/O)
- Card interface (CFC, MMC, MS, USB, SSFDC, SD, xD, UART, Serial IF, GIO)
- Interface to 100-MHz SDRAM/ mobile SDRAM (up to 128 MB, x32 or x16)
- Host CPU interface

DM270 EVM

There is a DM270 EVM available to start your development with this new platform.

DM270 EVM Features

- TMS320DM270 DSP
- 2-MB Flash/2-MB SRAM
- 32-MB SDRAM
- Single 5-V power supply (adjustable 3.3-V and 1.8-V power supply)
- Power management and built-in Li-Ion battery charger
- JTAG-based ARM® and DSP emulation support
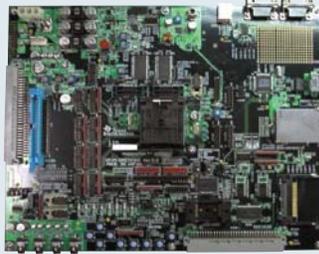
- CCD/CMOS connector and power-supply support
- CompactFlash,™ SmartMedia,™ Secure Digital™ and Memory Stick™ media support

- External expansion connector
- 27-MHz and 48-MHz clock
- USB device and USB host communication support
- UART communication support
- NTSC/PAL composite and S-video and analog RGB outputs
- Digital LCD interface
- Audio codec (TMS320AIC23) with microphone/headphone support
- GIO dip switch, tactical switch and LED
- Network interface and RS232C port
- Logic Analyzer interface

TI Worldwide Technical Support

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support.ti.com

TI Semiconductor KnowledgeBase Home Page
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