



CX92745 Interactive Display, Media, and Image Processor

Complete Multimedia Solution on a Single Chip

Conexant's CX92745 System-on-Chip (SoC) is an integrated display, media, and image processor delivering a new level of performance and system integration. The SoC builds on Conexant's strengths in image and mixed-signal processing, and integrates high performance 1080p video and graphics processing hardware. To support robust system design and lower Bill of Material (BOM) costs, the CX92745 also integrates a stereo Class-D amplifier, microphone input, touchscreen controller, and power supply controller.

The hardware video subsystem supports 1080p decode and video post processing for popular video codecs, including H.264, and offloads the CPU from video decode tasks. Along with video decode, the CX92745 supports a BT.656 compatible video-in port for video capture and docking applications.

For advanced GUI operations, the CX92745 supports a hardware graphics processing unit (GPU). This GPU includes a Display List Processor along with Alpha Blend and Clipping Units to support complex, independent UI operations. The CX92745 features a flexible, programmable LCD interface, hardware JPEG codec, and Conexant's advanced Image Processing pipeline. The CX92745 display subsystem further integrates an LVDS transmitter

and high-speed triple video DACs to support a wide range of display applications.

Network connectivity including Bluetooth®, 3G, WiFi®, and integrated Ethernet is supported. The integrated camera card controller supports all popular memory cards, and an advanced NAND Flash Controller supports NAND boot and extended MLC-NAND ECC control.

A high-performance ARM RISC processor supports robust embedded operating system and application design. High-speed USB 2.0 Host and Device ports support PC and peripheral connection. Enhanced multimedia and graphics processing is further supported with the CX92745's ARM Vector Floating Point Unit (VFP), large internal caches, and high speed DDR2 memory.

The CX92745 contains several features which lower cost and operating power while providing unsurpassed image processing and flexibility. Conexant's industry-standard development environment enables manufacturers to quickly design cost-effective interactive display products.

The SoC is packaged in an environmentally-friendly, RoHS/Green-compliant 400-pin fine-pitch ball grid array (fpBGA).



Applications

- Connected Digital Frames
- Interactive Kiosks
- Home Automation/Security
- Digital Signage
- Interactive TV Appliance
- Home Web Terminals

Key Features	Benefits
ARM microprocessor with Vector Floating Point Unit, MMU	Easily handles complex computational, geometry, and system tasks
Hardware 1080p MPEG2 / MPEG4 / H.263 / H.264 Video Decoder & BT.656 Video-in Port	Hardware acceleration to speed up decoding/displaying common video formats and profiles
Hardware graphics processor with Display List Processor and Alpha Blend Unit	Supports advanced independent UI operations and display effects
Flexible high-performance image processing pipeline and JPEG codec	Quickly provides superior photo rendering and multimedia processing
Hardware touchscreen controller for advanced capacitive touchscreens	Low cost touchscreen implementation with proven drivers
Advanced MLC NAND Flash Controller with robust ECC and NAND boot capability	Provides extended internal memory storage
Integrated Class-D stereo DAC, stereo microphone, and on-chip Power Supply Controller	System BOM savings
Flexible LCD Controller with integrated video DACs, LVDS transmitter	Directly interfaces to analog and digital LCD's, LVDS LCD's, analog monitors, and HDMI controllers

Part Number CX92745

Description Interactive Display, Media, and Image Processor



CX92745 Features

Processor

- ARM RISC microprocessor and Memory Management Unit (MMU)
- ARM Vector Floating Point Unit and Java Byte-Code Acceleration
- 600MHz DDR2 Memory Subsystem - up to 1GB support

External Memory Support

- DDR2 Memory Subsystem - up to 1GB support
- Serial Flash
- MLC NAND Flash Controller / NAND boot / extended ECC
- SD card / SDIO expansion port
- Embedded Memory Card Controller (CF, xD, MS, MS-Pro, SD/SDHC, MMC)

Connectivity/Interfaces

- Integrated Ethernet MAC
- USB 2.0 high-speed device and USB hosts (2)
- Additional high-speed and expansion ports for peripheral integration
- SPI, I²C, SSP (Synchronous Serial Port), supporting SDCard, and SDIO
- SPI / UART modem interface to Conexant modem solutions

Video and Image Processor

- Hardware 1080p MPEG2 / H.263 / MPEG4 / H.264 Decoder, including up to Advanced Profile MPEG4, and Main Profile H.264
- Hardware Video Post Processor with Scaling, Rotation, Color Operations
- Hardware JPEG codec, unlimited JPEG size support
- Programmable, Pipelined Image Processor
 - Color Space/Image Filter/Error Diffusion
 - Adjustable Color Tables, Tonal Response Curve (TRC), filters to enable unique display features

Graphics Processing Unit (GPU)

- Programmable Display List Processor
- Linear to X,Y memory addressing
- Multi-operand BLT, Line engine with Transparency and Blending
- Alpha Blending and Region Clipping
- Two-operand BitBLT, Line, Stipple, Fill Operations with Transparency

Display Support

- TFT LCD (Digital RGB) up to 24bits / pixel
- Hardware Overlay support
- High-speed triple 8-bit Video DACs and Analog TCON

- Integrated LVDS transmitter
- Integrated Capacitive Touchscreen Controller
- GPIO support for buttons, LED's, sensors, etc.

Audio and Power Supply Controllers

- 1.2W stereo Class-D amplifier with EQ, noise reduction, stereo microphone input, line-out
- On-chip Power Supply Controller, including buck and boost regulators, and LCD VGH / VGI generation
- I²S interface for audio codec expansion

Timers

- Real-time clock with battery backup

A/D and PWM Control

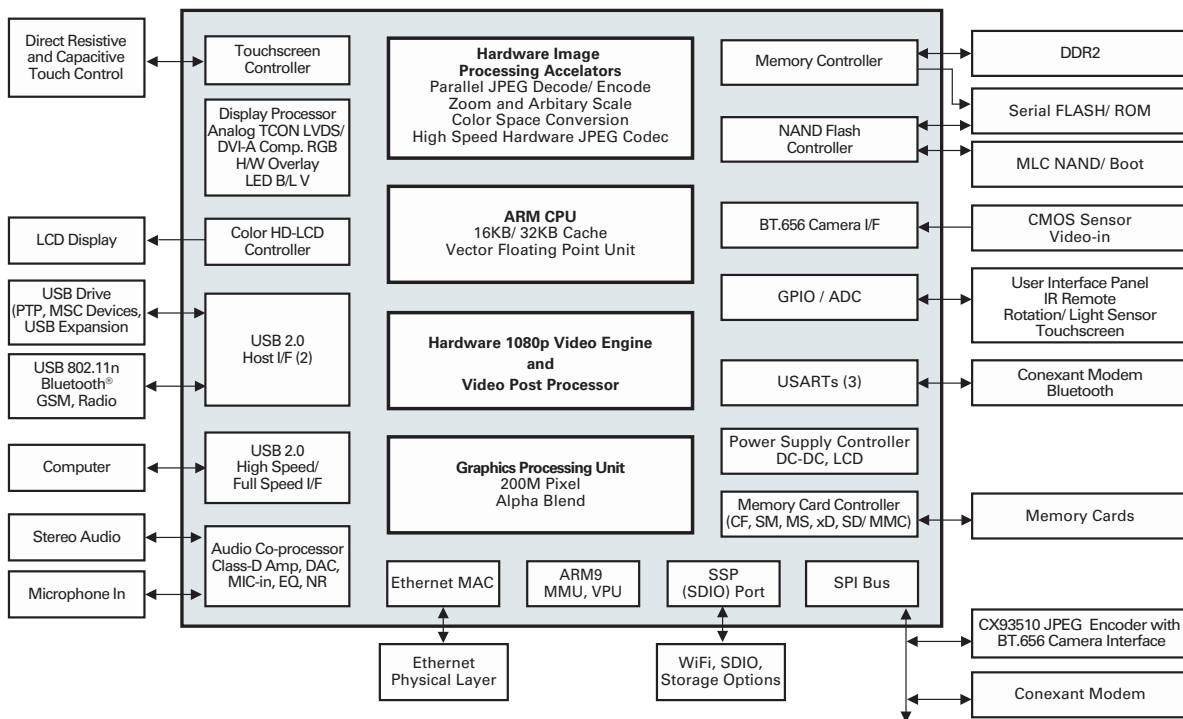
- Multi-channel 10-bit A/D
- Pulse width modulators (PWMs) with firmware control

Package

- 400-pin fpBGA package - RoHS/Green compliant

Development Environment

- Linux BSP Development Environment
- JTAG In-Circuit Emulator
- Conexant EVK and Reference Designs



CX92745 Block Diagram

Conexant Product Portfolio

Conexant's comprehensive product portfolio includes solutions for imaging, audio, video surveillance, and embedded modem applications.

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