



SCE400 Single Chip FaxEngine Controller

CX95410

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for broadband communications and the digital home.

Conexant's SCE400 FaxEngine product family features the CX95410 document imaging System-on-Chip (SoC) based on Conexant's Configurable System Solution (CSS) architecture, which allows manufacturers to use a single device across multiple product platforms, providing them with design flexibility and cost-savings. The SCE400 provides manufacturers with the core hardware and software required to develop a complete fax machine. It also includes Conexant's SoftFax technology and innovative SmartDAA® technology, which eliminates the need for costly line transformers, relays, and opto-isolators that are typically used in discrete DAA implementations. These features allow manufacturers to significantly reduce bill-of-material (BOM) costs and simplify product design efforts.

Image Processing DSP

The reference Digital Signal Processing (DSP) code supports the following features:

- Scan Correction – shading, dark level correction, bad pixel correction, linearization
- Various types of Resolution Conversion
- Edge Enhancement/sharpening
- Half-toning – error diffusion, matrix thresholding, dynamic thresholding
- Fax smoothing
- JBIG – compress/decompress image data
- JPEG – compress/decompress image data
- Image and Bit Rotation – rotate image data for inkjet output and for n-up printing

Flexible I/O Processors

The flexible I/O processors enable direct control of various types of peripherals, such as inkjet, laser and thermal transfer printer engines, scanners, memory cards, and color LCD displays. The I/O processors are RISC processors, which can be programmed to support the signal patterns required by the peripherals, with the integrated Serializers, Pulse Width Modulator (PWM) generators and quadrature encoder readers.

Reference Software and Firmware

To round out the complete fax system solution, the SCE400 comes with comprehensive reference firmware that is required for fax machines.

The reference firmware incorporates a user interface (front panel), a central control program, stand-alone copier, scanner, printer, fax and optional voice features such as voice compression for telephone answering machines and full-duplex speakerphone.

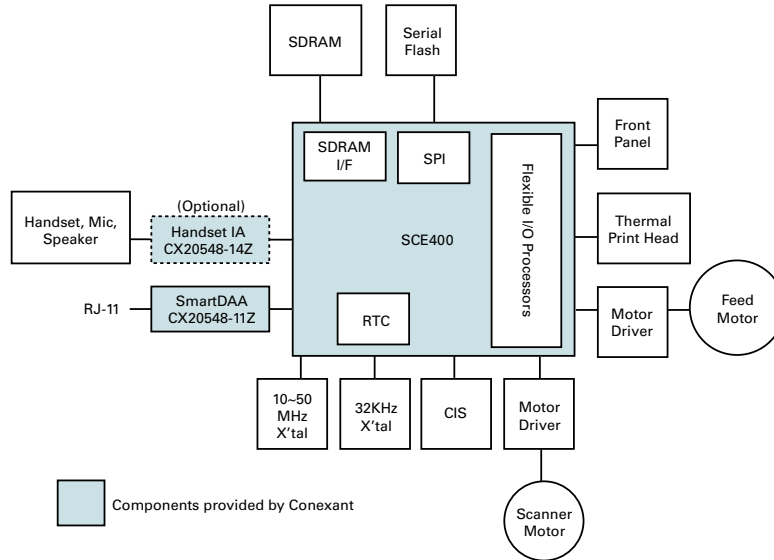


Distinguishing Features

- 32-bit RISC CPU, up to 180MHz
- Image processing DSP with patented 2D Direct Memory Access (DMA)
- Three flexible I/O processors – support for printers, memory cards, scanners, color LCD displays, and many other peripherals
- SoftFax with the 4th generation SmartDAA
- Complete system reference design includes hardware, firmware, software, and commercially proven printer drivers

Part Number CX95410

Description Single Chip FaxEngine SCE400



CX95410 Block Diagram

Product Features

32-bit RISC CPU and BUS interface

- 4K instruction and 4K data caches
- Native support for 16-bit and 32-bit instructions
- 5-channel 2-D DMA controllers

Flexible I/O Processors

- Supports various types of inkjet and thermal printers, scanners, memory card media and color LCD displays
- Up to 72 General Purpose Input/Output (GPIO's) – can be used as FlexIO

PLL's and Clock Controller

- Frequency synthesizer for generating precision clock timing
- Eliminates external clock for laser printer engine

CSS Image Processor

- Advanced Very Long Instruction Word (VLIW) architecture
- Patented 2-D DMA engine
- Easy to customize DSP code – JAVA subset programming

SDRAM Controller

- 16-bit data BUS
- Supports 16, 64, 128 and 256Mbits

Integrated Boot ROM

- Supports serial flash memory

Integrated Fax Solution

- Supports the 4th generation SmartDAA for lower Bill of Materials (BOM) cost and world-wide support with single SKU

SPI Interface

- Supports up to 50MHz

Enables Small Form-Factor PCB

- 176-pin Low Profile Quad Flat Package (LQFP)

Reference Firmware

- Real-time multitasking environment
- Fax (up to V.34) and copy
- Telephony and optional voice features (telephone, Caller ID, Digital Telephone Answering Machine [DTAM], speakerphone)

Conexant Product Portfolio

The company's broad portfolio of semiconductor products also includes client-side DSL and cable modem solutions, home network processors, broadcast video encoders and decoders, digital set-top box components and systems solutions, and dial-up modems. In addition to its IEEE 802.11a/b/g-compliant WLAN chipsets, software, and reference designs, Conexant offers a suite of networking components that includes solutions for applications based on HomePlug® and HomePNA™. Additional products include a complete line of asymmetric and symmetric DSL central office solutions, which are used by service providers worldwide to deliver broadband data, voice, and video over copper telephone lines.

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