



Single-Chip FaxEngine Controller (SCE600)

CX9543x

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for communications and consumer applications.

The CX9543x Single-Chip FaxEngine family of devices are the most highly integrated fax semiconductor solutions available today. The system-on-chips (SoCs) contain advanced voice communications and are targeted at fax machines with inkjet, laser and thermal printing capabilities. The CX9543x features an embedded softmodem function using integrated on-chip cross-point-switch (CPS), scanner analog front end (AFE), ADC, and an optional external CX20548 SmartDAA[®] for interfacing to the telephone line for worldwide (WW) homologation. The devices include all the core hardware and software required to develop a complete fax machine.

The imaging solutions are powered by an integrated 180MHz 32-RISC processor, a 120MHz digital signal processor (DSP), and three 288 MHz flexible I/O processors to perform various control/monitoring and compression/decompression functions, as well as scan and print image processing for facsimile applications. The CX9543x SoCs interface to fax machine components such as a scanner, printer, memory card, LCD, motors, and operator control panel through an I/O pin multiplexer. The SoCs also include direct printer control and USB interfaces.

The CX9543x devices use Conexant's field-proven V.17 SoftFax technology to enable the transmission of documents. The embedded softmodem function also supports V.29 facsimile transmission and reception, in addition to all basic HDLC functions and T.30 requirements either using the integrated CPS or an external SmartDAA. The CX9543x SoCs feature dual voice ADCs and DACs. Optional features such as voice compression/decompression for digital telephone answering machine (DTAM) and full-duplex speakerphone are also available.

The CX9543x SoCs have been designed with many cost-effective features. The devices are based on Conexant's Configurable System Solution (CSS) architecture, which allows manufacturers to use a single device for multiple platforms and geographies, and reduce development costs. Conexant's SmartDAA[®] technology, available as an option, eliminates the need for costly components required for discrete data access arrangement (DAA) implementations, which significantly reduce bill of material (BOM) costs.

Different feature combinations are available within the SoC family. The options include SmartDAA, USB, V.29, V.17, V.34, DTAM, Speakerphone and Russian CID.



Distinguishing Features

- Integrated voice components
 - Integrated speaker amplifier
 - Integrated two-channel fax/voice ADC and DAC
 - Integrated analog cross point switch
- 32-bit RISC CPU up to 180MHz
- 120MHz VLIW DSP for image processing
- Three flexible I/O processors up to 288MHz
- Integrated fax modem, DTAM and speakerphone
- Integrated scanner AFE/ADC and monitor ADC
- Uses fourth generation silicon DAA: CX20548 SmartDAA (optional)
 - Lower BOM cost, worldwide support with single SKU
- USB 2.0 full speed device/host port (optional)

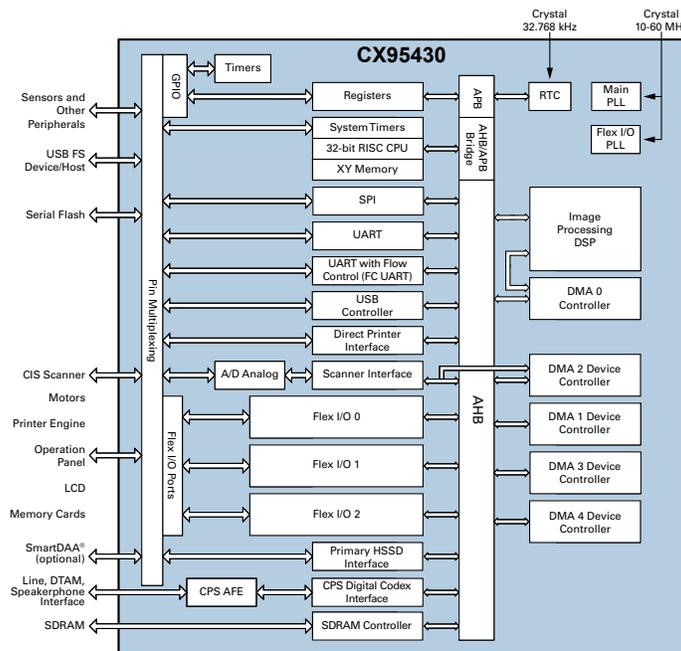
Part Number CX95430, CX95431, CX95432, CX95433

Description Single-Chip FaxEngine Controller (SCE600)



Features

- Integrated CPS AFE
 - Speaker amplifier
 - Handset speaker driver
 - Line-out/RF-out/doorphone-out drivers
 - Microphone and handset microphone inputs with PGA
 - Line-in/RF-in/doorphone-in with PGA
 - Cross point switch with total four inputs, four outputs, two ADC and two DAC channels
 - Power down mode
- 32-bit RISC CPU – up to 180MHz
- Embedded image processing VLIW DSP – up to 120MHz
 - Bad pixel correction
 - Dark level and shading correction
 - Linearization
 - Resolution conversion
 - Sharpening
 - Error diffusion
 - Background removal
 - JBIG compression/decompression
- Three flexible I/O processors up to 288MHz – support a variety of system configurations
 - Scanner control
 - Direct thermal, thermal transfer, inkjet and laser print engine direct control
 - Stepper and DC motor control
 - Memory card interface
 - Graphic LCD control
- SDRAM 16-bit, 16/64/128/256Mbits – up to 120MHz
- Integrated scanner AFE/ADC and monitor ADC
 - 1.5MHz 11-bit Scanner ADC
 - 16-bit monitor ADC with a four-channel inputs
- Integrated fax modem (SoftFax)
- Sleep mode to reduce power consumption
- Real time clock with battery backup
- High-speed UART with hardware flow control and IrDA support
- High-speed SPI interface for serial flash memory
- Optional USB 2.0 full speed device/host port
- Optional fourth generation silicon DAA: CX20548 SmartDAA
 - Lower BOM cost, worldwide support with single SKU
- Optional voice compression/decompression for digital telephone answering machine (DTAM) application
- Optional full-duplex speakerphone function
- 3.3V single power supply or 3.3V/1.25V dual supply operation
- Compact lead-free (Pb-free) package
 - CX9543X FaxEngine Controller: 176-pin epTQFP
 - Optional CX20548 SmartDAA: 16-pin QFN



CX95430 Block Diagram

Conexant Product Portfolio

Conexant’s comprehensive product portfolio includes solutions for imaging, audio, and video applications, and analog modems that enable cost-effective Internet access. The company’s broadband access products include end-to-end solutions for xDSL networks, and PON solutions for fiber optic applications.

© 2008 Conexant Systems, Inc. All Rights Reserved. Conexant and the Conexant logo are registered trademarks of Conexant Systems, Inc. All other trademarks are owned by their respective owners. Although Conexant strives for accuracy in all its publications, this material may contain errors or omissions and is subject to change without notice. **THIS MATERIAL IS PROVIDED AS IS AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.** Conexant shall not be liable for any special, indirect, incidental or consequential damages as a result of its use.

www.conexant.com
General Information:
 U.S. and Canada: (888) 855-4562
 International: 1+ (949) 483-3000
Headquarters
 4000 MacArthur Blvd.
 Newport Beach, CA 92660
 Doc# PBR-201756

