NXP

MXC300-30.1 Reference Design

3.5G smartphone solution for the mass market

- Lowers chip count for cost effectiveness
- Speeds time to market
- Improves multimedia capabilities

The MXC300-30.1 Mobile eXtreme Convergence Reference Design is a comprehensive solution for 3.6 Mbps HSDPA smartphones featuring Symbian OS™ and S60 software.

Key Benefits

- Revolutionary MXC architecture integrates an applications processor while maintaining clean separation from the modem, removing the need for an extra processor and a second memory subsystem, and enabling cost-effective design
- Symbian OS and S60 are integrated and pre-validated, including S60 recommended system tests, to minimize development time and cost and maximize system stability and maturity
- Pre-validated network capabilities (GCF, IOT, field testing) help to shorten time to market
- 3.6 Mbps HSDPA modem for a quality online experience
- ARM11™ processor up to 533 MHz for high-performance multimedia

MXC300-30.1 Hardware

freescale™
semiconductor
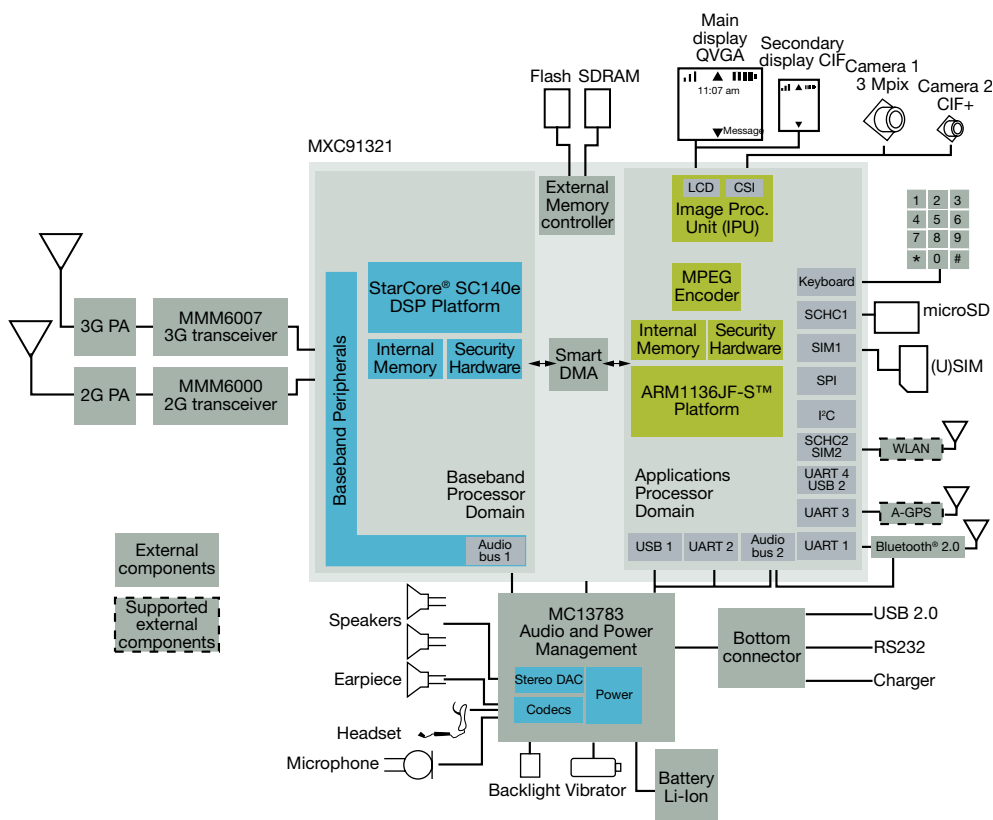
Features

- Network
  - Leading-edge modem technology, 3GPP Release 5-compliant
  - HSDPA 3.6 Mbps
  - GPRS/EDGE Multislot Class 10
  - Dual Transfer Mode Class 11
  - Integrated DARP (SAIC) for improved call quality and network capacity
  - Worldwide coverage with quad-band 2G and 2100 MHz 3G
- Multimedia
  - Main display: QVGA, 262K colors
  - Main camera up to 3 megapixels, with 0.45s shot-to-shot delay
  - Support for video telephony, streaming, recording and playback (QVGA 30 fps with Helix/H.264 decode, CIF 15fps H.263 encode)
  - CD-quality (44.1 kHz) MP3, WMA, Real Audio, enhanced AAC+ playback
  - Hardware security with secure boot, storage and crypto accelerator
- Connectivity
  - Bluetooth® 2.0
  - USB 2.0
  - microSD external card
  - Support for external WLAN, A-GPS, FM radio, DVB-H
- Operating system: Symbian Version 9.3
- UI framework: S60 3rd Edition Feature Pack 2

Specs

The MXC300-30.1 Reference Design comprises:

Hardware
- MXC91321 baseband with integrated MCU and DSP for cost-effective design, reduced PCB area and lower power consumption
  - ARM1136JF-S™ processor at 532 MHz with multimedia accelerators
  - StarCore® SC140e DSP at 312 MHz overdrive
  - CMOS 90 process, 15 x 15 BGA or PoP package
- MMM6000 GSM/EDGE transceiver (11 x 15 LGA package) and MMM6007 WCDMA transceiver (9 x 11 LGA package)
  - RFCMOS 90 process, with fast calibration tool
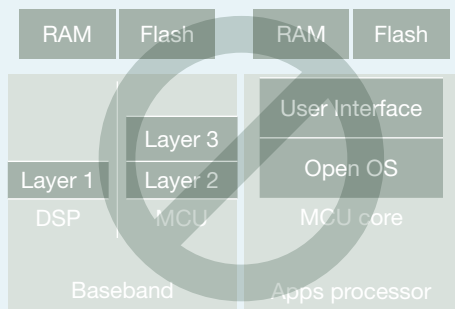- MC13783 audio and power management unit
  - Voice codecs, stereo DAC, USB interface integrated
  - SMARTMOS 10 process, 10 x 10 BGA package

Fully Integrated Software Package
- Single-core modem software
  - Layer 1/SPL, Layer 2 and Layer 3 running on the DSP
  - Freescale Cellular Platform Access (CPA) telephony interface on the application processor
- Multimedia codecs
- Board support package
- Symbian Version 9.3, S60 3rd Edition Feature Pack 2
- Development tools
- Pre-validation testing
  - Comprehensive system tests run end-to-end use cases while achieving key performance indicator targets to ensure quality of service, stability and maturity
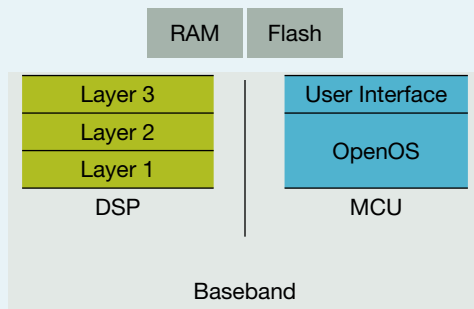 - GCF compliance, IOT and field testing

What is Mobile eXtreme Convergence (MXC)?

Conventional smartphone

RAM | Flash | RAM | Flash

Layer 1 | Layer 2 | Layer 3 | User Interface | Open OS

DSP | MCU | MCU core

Baseband | Apps processor

- Extra processor needed
- Extra memory subsystem
- High cost and size

MXC

RAM | Flash

Layer 3 | Layer 2 | Layer 1 | User Interface | OpenOS

DSP | MCU

Baseband

- Fewer components
- Clean separation of domains
- Reduced power consumption

Price and size matter. Freescale's MXC platforms bring cost-effective, high-performance technology to the mass market. The MXC architecture is elegant, flexible and open, ultimately helping you reduce overall system power and cost.

MXC separates the two main domains of a smartphone: a modem core that communicates with the base station, and an applications core that powers the user experience. On Freescale's single-core modem, the stack (Layer 2 and Layer 3) runs only on the DSP, which frees the MCU for the user applications, operating system and framework. This clean separation reduces complexity, which results in a lower bill-of-materials and speeds time to market.

Learn More: For current information about Freescale products and documentation, please visit **www.freescale.com**.

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