

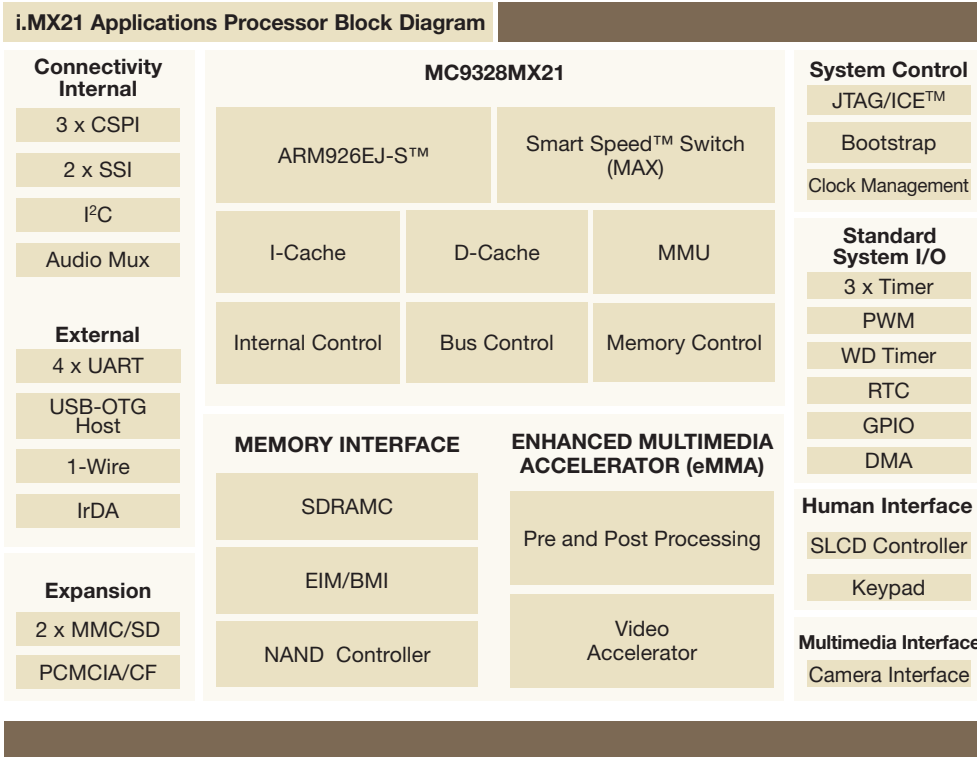
i.MX21 Processor

Overview

To meet the performance needs of mobile entertainment devices, the i.MX21 processor is your key to robust multimedia applications, with higher levels of video and graphics capabilities, plug-and-play connectivity and added power management features.

Based on ARM® core technology and designed for use in smartphones, wireless PDAs, mobile entertainment and many other mobile wireless applications, the i.MX21 multimedia applications processor is architected with Smart Speed™ technology, an intelligent integrative approach that uses hardware accelerators to offload the CPU, and a crossbar switch to bring parallelism to the system. For example, the i.MX21 processor can drive CIF 30 fps video encode/decode, or videoconference at 15 fps while sending an e-mail and still achieve a 35–65 percent reduction in power consumption.*

The i.MX21 multimedia applications processor provides an exceptional video experience via special video encode/decode features and the ultimate 2-D/3-D experience, thanks to a bus master interface (BMI) to external graphics chips. USB On-The-Go (USB-OTG) offers plug-and-play connectivity. Additionally, i.MX21 provides minimized battery drain, thanks to smart power management features.



The i.MX family supports a range of platforms such as those based on Microsoft® Windows® CE, Linux® OS and a number of leading RTOSs.

The i.MX family of applications processors offers a broad range of performance capabilities and price points enabling designers and OEMs to base entire product lines on a common

platform. Freescale provides comprehensive hardware and software solutions, along with third-party tools and application engineering support, to accelerate your design time and get products to market faster.

*Improvement over i.MX1 applications processor

Features

CPU Complex

- ARM926EJ-S™ core (16 KB I-cache, 16 KB D-cache)
- ARM Jazelle™ technology for Java™ acceleration
- Smart Speed Switch

Human Interface

- 16/18-bit color LCD controller up to SVGA
- Smart panels support (SLCDC)

Connectivity

- 4 x UARTs, IrDA (MIR and FIR)
- USB On-The-Go (two-host port)

Expansion

- Dual slot MMC and SD/SDIO card interface
- PCMCIA support

Multimedia

- MPEG-4 and H.263 encode/decode acceleration up to CIF 30 fps
- High-speed CMOS sensor I/F and I²C
- External bus master I/F

Special Functions

- NAND Flash controller
- 16-channel DMA
- 16/32-bit SDRAM controller

Performance

- CPU complex: starting at 266 MHz
- System: 133 MHz @ 1.8V

Technology

- 289 ball, 0.65 mm pitch MAPBGA
- 0.13 μm

Benefits

Enhanced Video Capabilities

The i.MX21 is the first applications processor with a built-in, low-power eMMA hardware block, which consists of an MPEG-4 and H.263 encoder/decoder and image pre-processing and post-processing stages. These features provide exceptional image and video quality. Devices with the i.MX21 are capable of long video playback time with exceptional video quality (high frame rates and large screen resolution support). The i.MX21 provides flexibility for software implementation for other video encoders, such as PacketVideo®, RealNetworks® and Windows Media™. Hardware code addresses the I/O bottleneck and helps to reduce power consumption, enabling greater device mobility.

Exceptional Graphics

You can offer users a great experience watching video and running graphics-intensive applications such as 3-D gaming. The i.MX21 elevates overall system performance through a bus master interface that reduces the overhead to external multimedia coprocessors such as those from AMD. Advanced graphics software standard APIs such as Mobile Java™ 3D and OpenGL®-ES as well as 3-D software engines such as Superscape®, HI Corp® and Fathammer™ are also supported.

Power Management

All the robust features in the world don't do you much good if your device can't go the distance. The i.MX21 enables power-aware and power-optimized multimedia applications through effective system clock distribution, low current leakage control and frequency change on the fly.

Smart Speed Switch

Our Smart Speed Switch allows you to achieve true parallelism resulting in more effective data per CPU cycle. The switch allows up to four simultaneous transactions, which can provide the effective throughput of a 532 MHz bus. This allows enriched multimedia experiences, such as V2IP, with exceptional quality that exceeds the performance of higher MHz processors.

USB On-The-Go (USB-OTG)

The i.MX21 is at the forefront in the applications processors market in providing a dedicated OTG port for an external OTG transceiver. It has two USB hosts to work with other PC peripherals without PC involvement, providing ease of connectivity to smart handheld devices while consumers are on the go. It's a less expensive solution than an external module.

Freescale Wireless Developer Network

Combining resources from Freescale and industry leaders, the Freescale Wireless Developer Network offers advanced pre-integrated platforms and solutions designed to work out-of-the-box, accelerating your business and giving you a competitive advantage. The Freescale Wireless Developer Network is a global program created to bring comprehensive platforms to market that include hardware and software solutions, tools, systems integration, consulting and other services. With early access to improved tools, Freescale Wireless Developer Network members are better equipped to deliver mobile and wireless solutions to a global audience in less time, with less effort and at a lower cost.

For more information about the Freescale Wireless Developer Network, visit www.freescale.com/fwdn

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For current information about Freescale products and documentation, please visit www.freescale.com.