i.MX35 Multimedia Applications Processors
Consumer and industrial portfolio

Overview

Freescale's ARM11® based i.MX35 multimedia applications processors family provides the perfect balance of performance, power consumption, connectivity and media capabilities necessary to drive today's high-end industrial and consumer products that require the best user interface possible. Based on the robust ARM1136JF-S™ and derived from the widely adopted i.MX31 processor, the i.MX35 processors are designed to support industrial markets such as HVAC, factory automation, home control, building automation and other HMI applications.

The i.MX35 processors are optimized to provide exceptional performance per milliwatt (mW), allowing customers to maintain peak energy efficiency goals without compromising performance. The i.MX35 processors are packed with connectivity options, including UARTs, SPIs, Ethernet and two Controller Area Network (CAN) modules. The i.MX35 processors have two USB ports with integrated PHYs, three MMC/SD/SDIO ports and a USB or SDIO port for external wireless modules and support for cost-effective memory options like DDR2 and multi-level cell NAND that reduce system costs and provide the design engineer great flexibility.

Comprehensive board support packages (BSPs) for the Microsoft® Windows® Embedded CE 6.0 and Linux® operating systems are available through Freescale and Freescale partners to enable quick time to market.

Key Features

- CPU
  - ARM1136JF-S runs up to 532 MHz
  - Integrated SRAM and L2 cache for improved system performance
  - Vector floating point coprocessor
- Multimedia and Graphics Processing
  - Display controller optimized for up to 24-bit-per-pixel WVGA (800 x 480) resolution
  - Industry standard OpenVG graphics accelerator capable of up to 133 million pixels per second fill rate
  - Image processing unit (IPU) for image scaling, image blending, rotation and color space conversion
  - CMOS/CCD sensor interface for camera or video input
- Connectivity
  - 10/100 Ethernet MAC
  - 2 x FlexCAN modules
  - High-Speed USB OTG with integrated high-speed PHY
  - High-Speed USB host with integrated full-speed PHY
  - 3 x UART
  - 2 x configurable serial peripheral interfaces (CSPI)
  - 3.3V general purpose I/O

i.MX35 Multimedia Applications Processor

System Control

- JTAG/ICE™
- Bootstrap
- System Reset
- PLL and Power Mgmt

Multimedia and Human Interface

- 8 x 8 Keypad
- ASRC
- OpenVG 1.1 2.5D Accel*

Image Processing Unit

- Inversion and Rotation
- Pre and Post Processing
- Camera I/F
- Blending
- Display Control

CPU Complex

- ARM1136 CPU
- Smart Speed Switch (MAX)
- 16 KB I-cache
- 16 KB D-cache
- 128 KB L2-cache
- 32 KB Boot ROM 2 KB Secure RAM
- 128 KB SRAM
- Vector Floating Point Unit

External Memory

- SDRAM
- mSDRAMC
- mDDR
- DDR2
- NOR
- SLC NAND
- MLC NAND

Standard System I/O

- eDMA
- 3 x Timer
- PWM
- WD Timer
- RTC
- GPIO

Connectivity

- 2 x CSPI
- 2 x SSI/I²S
- ESAI
- 3 x I²C
- 3 x UART
- USB HS Host FS-PHY or ULPI
- USB HS OTG w/ HS-PHY
- S/PDIF/ I/O
- 2 x FlexCAN
- Ethernet
- 1-Wire
- 2 x SDIO/MMC
- SDIO/ Memory Stick
- PATA
- CE-ATA

*Not available on i.MX353

freescale
semiconductor

Benefits

Image Processing Unit

The i.MX35 processors feature an advanced IPU developed by Freescale. The IPU includes the functionality required for image processing and display management, including deblocking, deringing, color space conversion, independent horizontal and vertical resizing and blending of graphics and video planes. The IPU is optimized for WVGA resolution and is equipped with powerful control and synchronization capabilities to perform tasks with minimal to no involvement of the ARM® CPU.

Graphics Processing Unit

Freescale's i.MX35 processors integrate an OpenVG 1.1 hardware accelerator to deliver smooth textural visuals required in today's automotive infotainment systems. The OpenVG core is also capable of native acceleration of Adobe® Flash, with the following benefits:

- Improved Web browsing experience with embedded Adobe Flash animation
- Faster time to market—Adobe animations automatically converted to C-code running on the i.MX35 processors—no hand-coding required

Level 2 Cache Controller

Freescale was the lead partner in formulating the definition of the ARM11 L2 cache controller architecture and was the first ARM partner to license it. Freescale's level 2 cache controller, containing an ARML210™ core, and the accompanying 128 KB of embedded memory, combined with the ARM1136JF-S processor, can increase CPU performance and reduce system-level power consumption. By bringing more data on chip and closer to the CPU, the ARML210 level 2 cache controller helps remove the performance-limiting bandwidth constraints associated with off-chip memory.

Product Development Kit

The i.MX35 product development kit (PDK), is a completely integrated hardware and software solution that simplifies product development so developers can focus on critical differentiation needed for market success. Freescale offers comprehensive board support packages for both Linux and Windows Embedded CE operating systems with the PDK as well as optimized middleware such as audio and video codecs and digital rights management libraries.

Multimedia Alliances Network

Combining resources from Freescale and industry leaders, the Freescale Multimedia Alliances Network offers advanced preintegrated platforms and solutions designed to work out-of-the-box, accelerating your business and giving you a competitive advantage. The Multimedia Alliances Network includes hardware, software, tools, system integration and services partners. With early access to improved tools, Multimedia Alliances Network members are better equipped to deliver mobile and multimedia solutions to a global audience in less time, with less effort and at a lower cost. For more information about the Multimedia Alliances Network, visit **www.freescale.com/man**.

The i.MX Family

Freescale's i.MX family of applications processors serves a broad range of automotive, consumer, industrial and general purpose embedded applications. To learn more, visit **www.freescale.com/imx**.

Family Comparison

Feature	i.MX353	i.MX357
Target Markets	Consumer and Industrial	Consumer and Industrial
Example Applications	HMI: • Factory Automation • Building Control • Home Displays • Medical	PND HMI: • Factory Automation • Building Control • Home Displays • Medical
Core	ARM11™	ARM11™
CPU Speed	532 MHz	532 MHz
L1 I/D Cache	16K I/D	16K I/D
L2 Cache	128 KB	128 KB
OpenVG 1.1	-	Y
LCD Interface	Y	Y
Ethernet	1-10/100	1-10/100
CAN	2	2
USB + PHY	HS OTG HS Host	HS OTG HS Host
I²C	3	3
MLB	-	-
SSI/I²S	2	2
SD/SDIO/MMC	2	2
SPI	2	2
UART	3	3
PATA/CE-ATA	Y/Y	Y/Y
Package, Speed, Temperature	17 x 17 BGA 0.8 mm 400 ball, 532 MHz @ -20°C+70°C 532 MHz @ -40°C+85°C	

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

freescale™
semiconductor