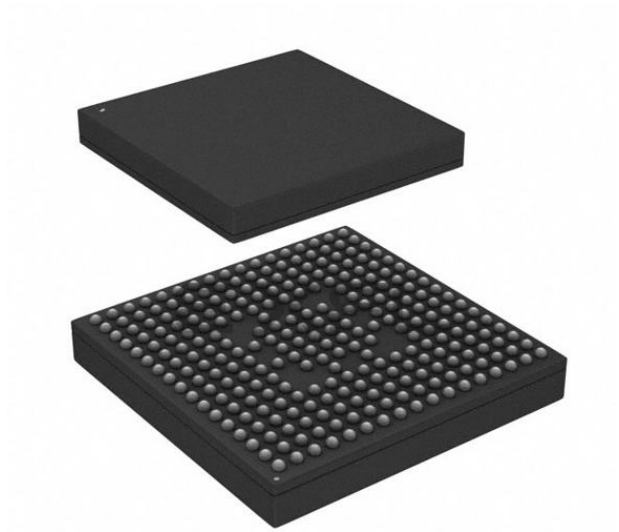


Welcome to E-XFL.COM

Understanding Embedded - Microprocessors

Embedded microprocessors are specialized computing chips designed to perform specific tasks within an embedded system. Unlike general-purpose microprocessors found in personal computers, embedded microprocessors are tailored for dedicated functions within larger systems, offering optimized performance, efficiency, and reliability. These microprocessors are integral to the operation of countless electronic devices, providing the computational power necessary for controlling processes, handling data, and managing communications.

Applications of Embedded - Microprocessors

Embedded microprocessors are utilized across a broad spectrum of applications, making them indispensable in

Details	
Product Status	Active
Core Processor	ARM® Cortex®-A7
Number of Cores/Bus Width	1 Core, 32-Bit
Speed	528MHz
Co-Processors/DSP	Multimedia; NEON™ SIMD
RAM Controllers	LPDDR2, DDR3, DDR3L
Graphics Acceleration	No
Display & Interface Controllers	LCD, LVDS
Ethernet	10/100Mbps (2)
SATA	-
USB	USB 2.0 + PHY (2)
Voltage - I/O	1.2V, 1.35V, 1.5V, 1.8V, 2.5V, 2.8V, 3.3V
Operating Temperature	-40°C ~ 105°C (TJ)
Security Features	ARM TZ, A-HAB, CAAM, CSU, SJC, SNVS
Package / Case	272-LFBGA
Supplier Device Package	272-MAPBGA (9x9)
Purchase URL	https://www.e-xfl.com/product-detail/nxp-semiconductors/mcimx6g3cvk05ab

Power-efficient and secure solutions

i.MX 6UltraLite Applications Processors

The i.MX 6UltraLite processor is a high-performance, ultra-efficient processor family featuring an advanced implementation of a single ARM® Cortex®-A7 core, which operates at speeds up to 696 MHz.

TARGET APPLICATIONS

- Automotive telematics
- Human-machine interface (HMI)
- IoT gateways
- Home energy management systems
- Smart energy concentrators
- Intelligent industrial control systems
- Portable medical
- Electronics point-of-sale devices
- Printers and 2D scanners
- Smart appliances
- Financial payment systems

The i.MX 6UltraLite applications processor includes an integrated power management module that reduces the complexity of external power supply and simplifies power sequencing. Each processor in this family provides various memory interfaces, including 16-bit LPDDR2, DDR3, DDR3L, raw and managed NAND flash, NOR flash, eMMC, Quad SPI NOR, SD and a wide range of other interfaces for connecting peripherals such as WLAN, Bluetooth®, GPS, displays and camera sensors. The i.MX 6UltraLite is supported by discrete component power circuitry.

i.MX 6UltraLite FEATURES

- Single ARM Cortex-A7 core can provide a more cost-effective and more power-efficient solution
- Flexible boot options, including support for Quad SPI NOR, raw NAND, eMMC and SD and a memory controller that interfaces to both DDR3/DDR3L and low-power mobile DDR2 memory
- Processor delivers hardware-enabled security features that enable secure e-commerce, digital rights management (DRM), information encryption, "on-the-fly" DRAM encryption, secure boot and secure software downloads
- Processor supports connections to a variety of interfaces: two high-speed USB on-the-go connections with PHY, multiple expansion card ports (high-speed eMMC/SDIO host and other), two 12-bit ADC modules with up to 10 total input channels, two CAN ports, two smart card interfaces compatible with EMV Standard v4.3 and a variety of other popular interfaces (such as UART, I^2C, and I^2S serial audio)

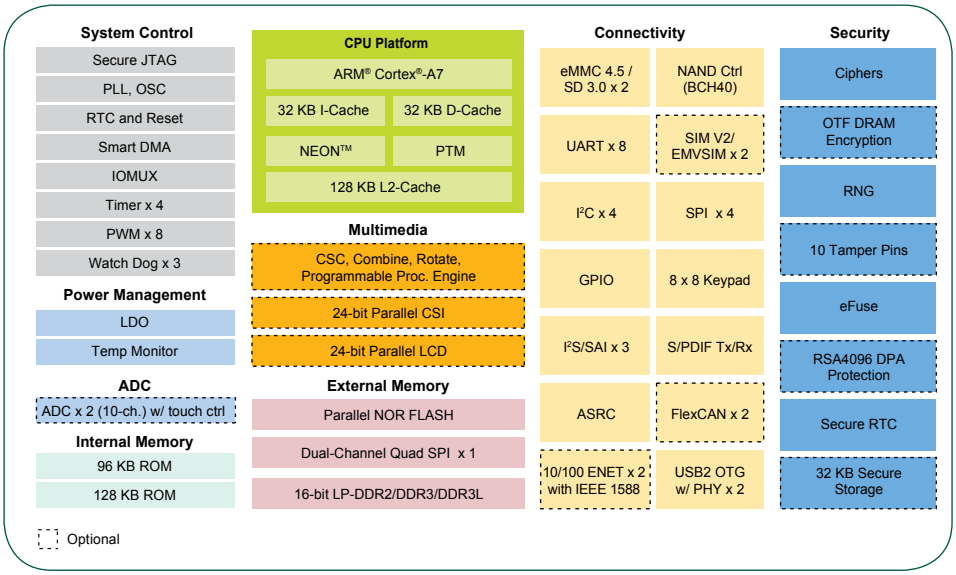
PACKAGE TECHNOLOGY

The i.MX 6UltraLite processor provides multiple compatible and scalable package options. The 14 x 14 289 MAPBGA with 0.8 mm pitch brings out all features and GPIOs. It is ideal for simple and low-cost PCB design. The 9 x 9 272 MAPBGA with 0.5 mm pitch provides smaller form factors than ever before for space-constrained applications.

SOFTWARE AND TOOLS

The i.MX 6UltraLite processor is supported by the i.MX 6UltraLite evaluation kit that includes a CPU module and a base board.

i.MX 6UltraLite APPLICATIONS PROCESSOR BLOCK DIAGRAM



i.MX 6UltraLite DEVICE OPTIONS

- Red indicates change from column to the left

Feature	MCIMX6G0	MCIMX6G1	MCIMX6G2	MCIMX6G3
Speed	528 MHz	528 MHz, 696 MHz	528 MHz, 696 MHz	528 MHz
Cache	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2
OCRAM	128 KB	128 KB	128 KB	128 KB
DRAM	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR3L
eFuse for Customer	512-bit	1024-bit	1536-bit	2048-bit
NAND (BCH40)	Yes	Yes	Yes	Yes
Parallel NOR/EBI	Yes	Yes	Yes	Yes
Ethernet	10/100-Mbit/s x 1	10/100-Mbit/s x 1	10/100-Mbit/s x 2	10/100-Mbit/s x 2
USB with PHY	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	0	1	2	2
Security	Basic	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES with DPA/TDES/SHA/RSA), Secure Boot, tamper monitor, PCI4.0 pre-certification, OTF DRAM encryption
Graphic	None	None	PxP	PxP
CSI	None	None	24-bit Parallel CSI	24-bit Parallel CSI
LCD	None	None	24-bit Parallel LCD	24-bit Parallel LCD
Quad SPI	1	1	1	1
SDIO	2	2	2	2
UART	4	8	8	8
I²C	2	4	4	4
SPI	2	4	4	4
I²S/SAI	1	3	3	3
S/PDIF	1	1	1	1
Timer/PWM	Timer x 2, PWM x 4	Timer x 4, PWM x 8	Timer x 4, PWM x 8	Timer x 4, PWM x 8
12-bit ADC	1 x 10-ch.	1 x 10-ch.	2 x 10-ch.	2 x 10-ch.

www.nxp.com/iMX6UltraLite
www.imxcommunity.org

Document Number:
IMX6ULTRALITEFS REV 4

Product Longevity

Energy Efficient Solutions by Freescale