TARGET APPLICATIONS

- Building automation
- Wearables
- Point-of-sale
- Enterprise scanners and printers
- E-Readers
- Smart home controls
- Patient monitoring
- IoT solutions

The i.MX 7 series is the first device in the market utilizing both the ARM® Cortex®-A7 and Cortex-M4 cores for general-purpose programmable processing. Its heterogeneous asymmetric architecture provides the ultimate flexibility for customers by enabling a single-chip solution that can run sophisticated operating systems and provide real-time responsiveness. The i.MX 7 series incorporates four independently controlled resource domains for maximum effectiveness and security when partitioning system resources such as memory and peripherals. The i.MX 7 series is supported by NXP’s companion power management ICs (PMICs).

i.MX 7 SERIES FEATURES

The features of the i.MX 7 series processors include:

- **Cortex-A7**—The Cortex-A7 core enhances the capabilities of portable, connected applications by fulfilling the ever-increasing power-efficient MIPS needs of operating systems and applications.

- **Heterogeneous processing architecture**—The dual-core architecture enables the device to run a rich operating system like Linux® on the Cortex-A7 core and an RTOS on the Cortex-M4 core.

- **Multi-level memory system**—The multi-level memory system of the Cortex-A7 processor is based on the L1 instruction and data caches, L2 cache, and internal and external memory. The processors support many types of external memory devices, including DDR3, low-voltage DDR3L, LPDDR2 and LPDDR3, NOR Flash, NAND Flash (MLC and SLC), QSPI and managed NAND including eMMC rev. 5.0.
**Power efficiency**—Power management implemented throughout the IC enables multimedia features and peripherals to consume minimum power in both active and various low-power modes.

**Advanced security**—The processors deliver hardware-enabled security features that enable secure e-commerce, digital rights management (DRM), information encryption and secure boot.

**Multimedia**—The multimedia performance of each processor is enhanced by a multi-level cache system, NEON™ MPE (Media Processor Engine) coprocessor and a programmable smart DMA (SDMA) controller.

**Up to 2 x Gigabit Ethernet with AVB**—2 x 10/100/1000 Mbps Ethernet controllers.

**Electronic paper display controller**—The processor integrates an EPD controller that supports E-INK color and monochrome panels with up to 2048 x 1536 resolution at 106 Hz refresh, 4096 x 4096 resolution at 20 Hz refresh and 5-bit grayscale (32-levels per color channel).

**Human-machine interface**—Each processor provides up to two separate display interfaces (parallel display and 2-lane MIPI DSI) and CMOS sensor interface (MIPI and parallel).

**Interface flexibility**—Each processor supports connections to a variety of interfaces: high-speed USB On-The-Go with PHY, high-speed USB host with PHY, high-speed inter-chip USB, multiple expansion card ports (high-speed MMC/SDIO host and other), 2 Gigabit Ethernet controllers with support for Ethernet AVB, PCIe®-II, four single-ended-input 12-bit ADCs, two CAN ports, i²S audio interface and a variety of other popular interfaces (such as UART, I²C).

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### SOFTWARE AND TOOLS

The i.MX 7 series processor is supported by the SABRE Board for Smart Devices and comes with an SD card pre-installed with the Linux operating system. We also offer the Android™ OS, as well as FreeRTOS for the Cortex-M4 core.

### SOFTWARE AND TOOLS

#### i.MX 7 SERIES Ecosytem

Leveraging the broad ARM community, the i.MX 7 series builds technology alliances to enable better customer solutions and faster time to market. Partner solutions include:

- **Tool chains**
- **Software**
- **Codecs**
- **Middleware/applications**
- **Embedded board solutions**
- **Design services**
- **System integrators**
- **Training**

For development tools and third-party resources, visit [www.nxp/imx7series](http://www.nxp/imx7series)

Join fellow i.MX developers online at [www.imxcommunity.org](http://www.imxcommunity.org)