



Transforming
interactions in
ways you've
never imagined

i.MX 8M Family of Applications Processors

Built with **industry-leading audio, voice and video processing**, the i.MX 8M applications processor family is ideal for applications scaling from consumer home audio to industrial building automation and mobile computers.

TARGET APPLICATIONS

- ▶ Streaming video devices – over-the-top (OTT) set top boxes, digital media adapters, digital signage, machine visual inspection
- ▶ Streaming audio devices – surround sound, wireless or networked speakers, sound bars, audio/video (AV) receivers, public address systems
- ▶ Voice control and voice assistants, with reference designs for homes or noisy industrial environments
- ▶ General purpose human machine interface (HMI) solutions – touch, voice, graphics, video, image analytics, vision, sensor

INDUSTRY-LEADING VIDEO AND AUDIO

▶ Video quality with full 4K UltraHD resolution and High Dynamic Range (HDR)

Delivers 10-bit video with 50% more colors and up to 40 times more brightness than current TV displays with Dolby Vision, HDR10, and HLG resolution. HDR can display the finest details for medical imaging, detailed inspection and magnifying the tiniest objects.

▶ Highest levels of pro audio fidelity

Up to 20 audio channels enabled on a price-competitive mobile applications processor. It brings DSD512 audio and a game-changing selection of advanced audio streaming interfaces into the next generation of connected speakers, sound bars and AV receivers.

PERFORMANCE AND VERSATILITY

▶ Up to four 1.5 GHz ARM Cortex-A53 processors

Optimized for fanless operation, low thermal system cost and long battery life. The ARM® Cortex®-A cores can be powered off while the Cortex-M4 subsystem performs low power, real time system monitoring.

▶ Flexible memory options

Offers LPDDR4 memory interface for the highest performance and lowest standby power, or DDR4 and DDR3(L) interfaces for lowest system cost. The LPDDR4 can be mounted with package on package (PoP) technology.

▶ The newest high-speed interfaces for flexible connectivity

- Two USB 3.0 interfaces with PHY and Type-C support
- Two PCIe interfaces (1-lane each) with L1 substates for fast wakeup and low power
- HDMI 2.0a and MIPI-DSI (4-lane) display interfaces
- Up to two MIPI-CSI2 (4-lane) camera interfaces
- Gigabit Ethernet MAC with Audio Video Bridging (AVB) and IEEE capability



ADVANCED HMI SOLUTIONS

► Industrial and consumer HMI

Designs can leverage the latest audio, video and voice control capabilities. Software solutions support reliable voice control in noisy environment without a DSP.

► Dual displays

Up to 4Kp60 resolution on the HDMI 2.0a output and 1080p60 resolution on the MIPI-DSI (4-lanes) interface.

► Enriched user experience

Provides a 4-shader graphics core supporting the latest OpenGL ES 3.1, OpenCL 1.2, OpenGL 3.0, OpenVG and Vulkan standards.

► Video processing unit

Playback all the latest video standards up to 4K resolution using h.264, h.265 and VP9 (for YouTube 4K) codecs with HDR.

THE SCALABLE PLATFORM OF CHOICE

► Comprehensive software support

Android™, Linux®, FreeRTOS™ and partner commercial operating systems

► Industrial and consumer qualified

Industrial (-40 °C to 105 °C Tj), consumer (0 °C to 95 °C Tj)

PIN AND POWER COMPATIBLE

Highly scalable design options allow a single platform to cover multiple products. Pin- and power-compatible packages (all 0.65 pitch) allow a single PCB platform and utilize different i.MX 8M processors as product needs dictate.

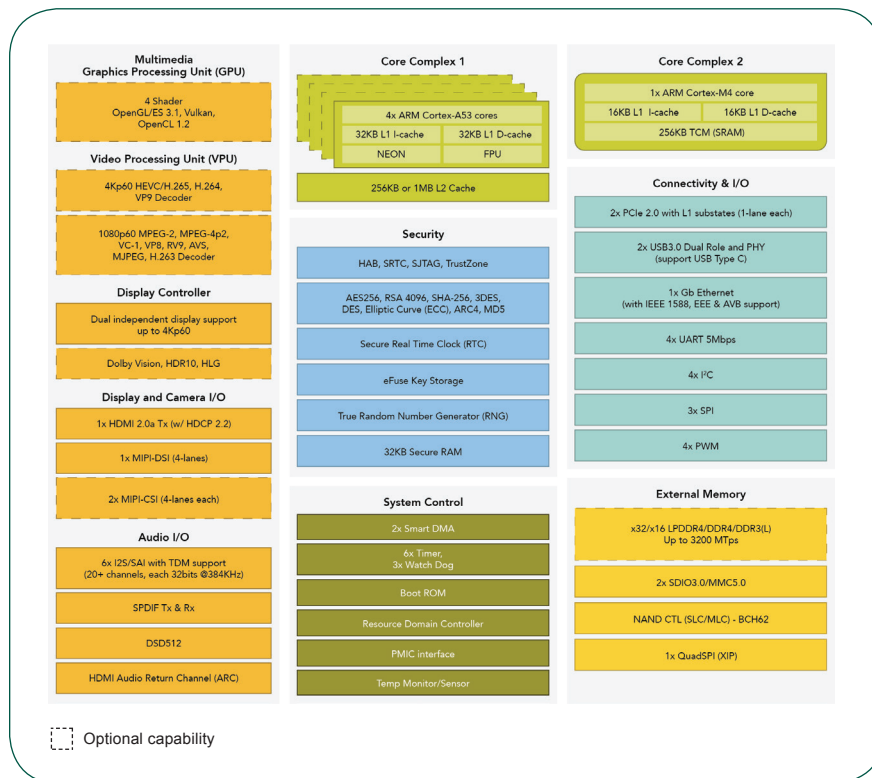
EARLY DEVELOPMENT ACCESS

The i.MX 8 multi-sensory evaluation kit (MEK) is available now to prototype i.MX 8M systems. Contact your NXP sales representative for details.

i.MX 8M FAMILY-DIFFERENTIATED FEATURES

Feature	i.MX 8M Dual / i.MX 8M Quad	i.MX 8M QuadLite	i.MX 8M Solo
ARM Core	2 or 4 x Cortex-A53	4 x Cortex-A53	1 x Cortex-A53
ARM Core	1 x Cortex-M4F	1 x Cortex-M4F	1 x Cortex-M4F
Audio	20 channels in/out; 32-bit up to 384 KHz, with DSD512 support		
GPU	GC7000Lite	GC7000Lite	GC7000nanoULTRA
Video Acceleration	4Kp60, h.265 and VP9		
Camera	2 x MIPI-CSI	2 x MIPI-CSI	

i.MX 8M FAMILY BLOCK DIAGRAM



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Document Number: IMX8MFAMFS REV 0