



i.MX 8M FAMILY OF APPLICATIONS PROCESSORS



Built with **exceptional audio, voice and video processing**, the i.MX 8M applications processor family is optimized 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

ADVANCED VIDEO AND AUDIO

- **Video quality with full 4K UltraHD resolution and high dynamic range (HDR)**
Delivers 10-bit video, HDR10, and HLG resolution. HDR can display the fine details for medical imaging, detailed inspection and magnifying the tiniest objects.

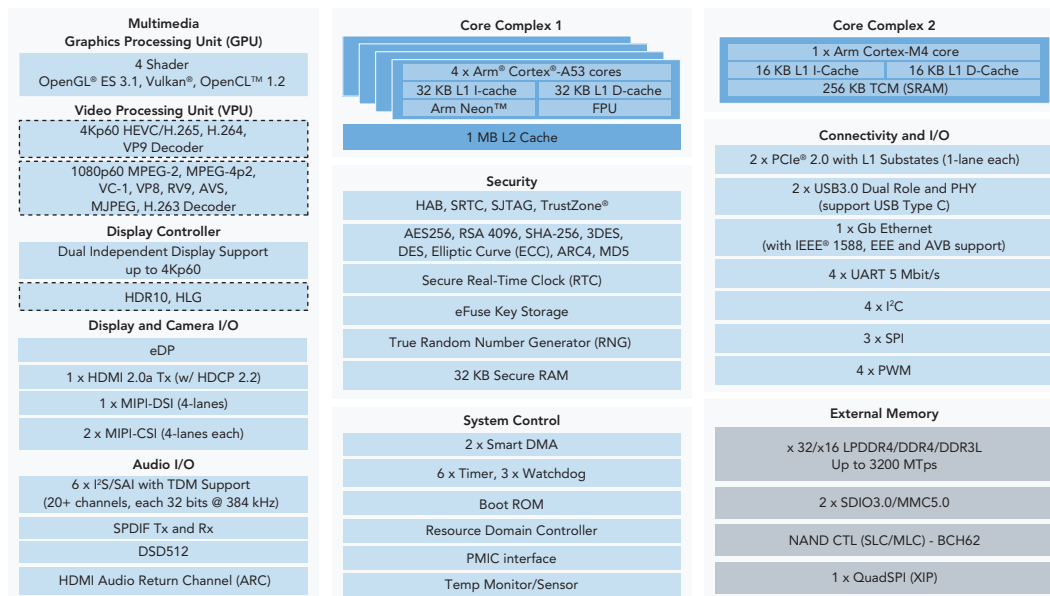
- **High levels of pro audio fidelity**

Up to 20 audio channels enabled on a price-competitive mobile applications processor. It brings DSD512 audio and a 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**
NXP optimized the i.MX 8M processor family 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**
These processors support several external memory interfaces including LPDDR4 for high performance and low standby power, and DDR4 and DDR3L interfaces for low system cost.

i.MX 8M FAMILY BLOCK DIAGRAM



Optional Capability

High-speed interfaces 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, MIPI-DSI (4-lane) and eDP display interfaces
- Up to two MIPI-CSI2 (4-lane) camera interfaces
- Gigabit Ethernet MAC with audio-video bridging (AVB) and EEE 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® ES3.1, OpenCL™ 1.2, OpenGL® 3.0, OpenVG™ and Vulkan® standards.

Video processing unit

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

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 8M evaluation kit (EVK) 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
Arm® Core	2 or 4 x Cortex®-A53	4 x Cortex-A53
Arm Core	1 x Cortex-M4F	1 x Cortex-M4F
Audio	20 channels in/out; 32-bit up to 384 kHz, with DSD512 support	
GPU	GC7000Lite	
Video Acceleration	4Kp60, h.265 and VP9	
Camera	2 x MIPI-CSI	

*2-lane PCIe can act as 2 x 1-lane PCIe

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