TARGET APPLICATIONS
- Automotive infotainment—instrument cluster, head unit, heads-up display (HUD), rear seat entertainment and full digital electronic cockpit (eCockpit)
- Advanced industrial human machine interface (HMI) and control
- Single-board computers
- Home/Building

MULTIPLE SYSTEMS, ONE PROCESSOR
- Easily combine multiple systems into one
  Build multiple platforms with multiple operating systems on a single i.MX 8 processor. The i.MX 8 full-chip hardware-based virtualization, system MMU, resource partitioning and split GPU and display architecture enable faster time-to-market and lower cost than simple hypervisor techniques alone.
- Secure Your System with SECO HSM
  Top-of-the-line security via the SECO (security controller) with an isolated, dedicated Hardware Security Module (HSM) to protect the system and its connections.
- Isolate key systems with on-chip hardware firewalls
  Isolate critical services such as over-the-air (OTA) upgrades by running within 16 separate run-time programmable hardware firewall domains.
- Improve your system reliability with FDSOI
  Built using 28 nm FDSOI, the i.MX 8 applications processor enables improved MTBF and decreases soft error rates due to FDSOI’s inherently high immunity to alpha particle flux.

THE NEW USER INTERACTION PARADIGM
- Create advanced vision-based HMI systems
  High-performance end-to-end vision processing for vision-based assistance, tracking and object detection.
- 360-degree expanded sight
  Utilize multi-camera input, digital stitching and VX vision extensions and provide a view from any angle.
- Multi-domain voice recognition
  Utilize the Arm® Cortex®-A72, Cortex A53 and Cortex-M4F cores as well as the HiFi 4 DSP* for advanced echo cancellation, key word detection and speech recognition for hands-off interaction.

MULTI-DISPLAY & MULTI-DOMAIN FUNCTIONALITY
- Four screens of independent content
  Develop innovative, multi-screen platforms through the ability to drive up to four 1080p screens with independent content, or a single 4K screen.
- Ensure your display stays up and correct
  SafeAssure® ASIL-B ready hardware protects critical visual information with fail-over-capable quality of service to any display.
- Offload time-critical tasks
  Utilize dual Cortex-M4F cores for time-critical tasks such as backup camera display, audio control and general system monitoring and wakeup.
THE SCALABLE PLATFORM OF CHOICE

- Comprehensive software support
  Android™, Linux®, QNX, Green Hills®, DornerWorks XEN and FreeRTOS™

- Automotive, industrial, consumer qualified
  Auto (-40 °C to 125 °C Tj), industrial (-40 °C to 105 °C Tj)

PIN AND POWER COMPATIBLE

Highly scalable design options allow a single platform to cover multiple products. Pin- and power-compatible package (in 0.75 pitch) allow a single PCB platform and utilize different i.MX 8 processors as product needs dictate.*

EARLY DEVELOPMENT ACCESS

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

i.MX 8 FAMILY—DIFFERENTIATED FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>i.MX 8QuadMax</th>
<th>i.MX 8QuadPlus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm® Core</td>
<td>2 x Arm Cortex-A72</td>
<td>1 x Cortex-A72</td>
</tr>
<tr>
<td>Arm Core</td>
<td>4 x Cortex-A53</td>
<td>4 x Cortex-A53</td>
</tr>
<tr>
<td>DSP Core</td>
<td>HiFi 4 DSP</td>
<td>HiFi 4 DSP</td>
</tr>
<tr>
<td>GPU</td>
<td>2 x GC7000XSXV</td>
<td>2 x GC7000LITE/XSVX</td>
</tr>
<tr>
<td>PCIe 3.0</td>
<td>1 x PCIe (2-lane)*</td>
<td>1 x PCIe (1-lane)</td>
</tr>
</tbody>
</table>

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

i.MX 8 FAMILY—COMMON FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAM</td>
<td>64-bit LPDDR4</td>
<td>QuadSPI</td>
<td>2 x QuadSPI (1 x OctoSPI)</td>
</tr>
<tr>
<td>VPU</td>
<td>4K h.264 encode, decode</td>
<td>USB with PHY</td>
<td>1 x USB 3.0, 2 x USB 2.0</td>
</tr>
<tr>
<td>Display controller</td>
<td>2 x DCs with WARP and failover</td>
<td>SPDIF Tx/Rx</td>
<td>1 x</td>
</tr>
<tr>
<td>MIPI DSI</td>
<td>2 x 4-lane MIPI DSI</td>
<td>SD and eMMC</td>
<td>3 x SD 3.0/eMMC 5.0</td>
</tr>
<tr>
<td>MIPI CSI</td>
<td>2 x 4-lane MIPI CSI</td>
<td>NAND</td>
<td>1 x – BCH62</td>
</tr>
<tr>
<td>LVDS</td>
<td>2 x LVDS</td>
<td>FPGA Interface</td>
<td>Yes - 4 x data lane, 1 x Clock</td>
</tr>
<tr>
<td>HDMI, eDP, DP Tx</td>
<td>1 x HDMI 2.0a/eDP 1.4/DP 1.3 HDCP 2.2</td>
<td>PC</td>
<td>5 x 1PC (high speed) + 8 x 1PC (low speed)</td>
</tr>
<tr>
<td>HDMI Rx</td>
<td>1 x HDMI 1.4 Rx HDCP 2.2</td>
<td>SPI</td>
<td>4 x SPI</td>
</tr>
<tr>
<td>SATA 3.0</td>
<td>1 x SATA 3.0 (1-lane) or PCIe (1-lane)*</td>
<td>Audio Interfaces</td>
<td>2 x ESI, 5 x PS/SAI</td>
</tr>
<tr>
<td>CAN</td>
<td>3 x CAN FD</td>
<td>MPEG-2 T/S</td>
<td>2 x MPEG-2 T/S</td>
</tr>
<tr>
<td>MLB</td>
<td>1 x MLB 150/MLB25</td>
<td>ADC</td>
<td>2 x 12-bit (16 channels each)</td>
</tr>
</tbody>
</table>
| Ethernet | 2 x Gigabit Ethernet with AVB | UART | 5 x UART 1 x UART per Arm® Cortex-A53/M4F

*The SATA 3.0 controller can be used as PCIe (1-lane). This is in addition to the other PCIe controllers. Note: Accessing muxable controller’s full capabilities is dependent upon board component choices.

www.nxp.com/iMX8

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Available on certain product families  Note: Accessing muxable controller’s full capabilities is dependent upon board component choices.