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.

- Securely change hardware partitions at run time
  Applications can ‘sand-box’ operations by moving hardware IP such as GPU, display or peripherals to multiple firewalled domains at run time.

- Secure your system with advanced programmable security
  Top-of-the-line security from first boot to securing with the latest cryptography standards (AES, flashless SHE, elliptical curve cryptography, key storage).

- 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 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), consumer (-20 °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 packages (in 0.75 and 0.65 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 and i.MX 8X 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>
<th>i.MX 8Quad</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM® Core</td>
<td>2 x ARM Cortex®-A72</td>
<td>1 x Cortex-A72</td>
<td>–</td>
</tr>
<tr>
<td>ARM Core</td>
<td>4 x Cortex-A53</td>
<td>4 x Cortex-A53</td>
<td>4 x Cortex-A53</td>
</tr>
<tr>
<td>ARM Core</td>
<td>2 x Cortex-M4F</td>
<td>2 x Cortex-M4F</td>
<td>2 x Cortex-M4F</td>
</tr>
<tr>
<td>DSP Core</td>
<td>HiFi 4 DSP</td>
<td>HiFi 4 DSP</td>
<td>HiFi 4 DSP</td>
</tr>
<tr>
<td>GPU</td>
<td>2 x GC7000XSX</td>
<td>2 x GC7000Lite/DSX</td>
<td>2 x GC7000Lite/DSX</td>
</tr>
<tr>
<td>PCIe 3.0</td>
<td>1 x PCIe (2-lane)*</td>
<td>1 x PCIe (1-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 BLOCK DIAGRAM

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

www.nxp.com/iMX8

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