**i.MX RT1170 CROSSOVER MCUs**

**Ushering in the GHZ ERA**

i.MX RT1170 crossover MCUs are setting speed records at 1GHz. This ground-breaking family combines superior computing power and multiple media capabilities with ease of use and real-time functionality.

**PRODUCT HIGHLIGHTS**

- **High-performing Arm® Cortex®-M based device**
  - Up to 6468 total CoreMarks® with Cortex-M7 @ 1 GHz + Cortex-M4 @ 400 MHz

- **Real-time, low-latency response**
  - Up to 2 MB SRAM:
    - 512 KB Cortex-M7 TCM + 128 KB ECC
    - 256 KB Cortex-M4 TCM with ECC
    - 1 MB on-chip RAM + 128 KB ECC
  - Fast real-time response with latency as low as 12 ns

- **Low-power operation**
  - Low dynamic power with integrated DC-DC converter
  - Low-power run modes at 24 MHz

- **Highly integrated**
  - Advanced multimedia for GUI and enhanced HMI
    - Multiple display and CMOS sensor interfaces
    - OpenVG™ graphics accelerator running up to 500 MHz
  - Extensive memory interface options
    - Quad/Octal SPI and HyperFlash™/HyperRAM™, SDRAM, NAND/NOR Flash, SD/eMMC, PSRAM, LPSDRAM
  - Security
    - Hardware Elliptic Curve Cryptography
    - Hardware-protected keys for secure boot
    - AES engine for data encryption
    - On-the-fly AES decryption for execute-in-place (NOR) from Quad/Octal SPI/HyperFlash
    - Part of the EdgeLock™ Assurance program, more details available at nxp.com/EdgeLockAssurance

**TARGET APPLICATIONS**

- ML-based edge applications
- Industrial computing designs
- Motor control and power conversion
- Personal health and fitness
- Voice-enabled IoT devices

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**FACT SHEET**

**i.MX RT1170 MCU FAMILY**

Available on certain products within the family.
### i.MX RT1170 MCU FAMILY CONFIGURATIONS

<table>
<thead>
<tr>
<th>Device</th>
<th>i.MX RT1171</th>
<th>i.MX RT1172</th>
<th>i.MX RT1173</th>
<th>i.MX RT1175</th>
<th>i.MX RT1176</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm® Cortex®-M7</td>
<td>1 GHz/800 MHz*</td>
<td>1 GHz/800 MHz*</td>
<td>800 MHz</td>
<td>1 GHz/800 MHz*</td>
<td>1 GHz/800 MHz*</td>
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<tr>
<td>Cortex-M4</td>
<td>–</td>
<td>–</td>
<td>400 MHz</td>
<td>400 MHz</td>
<td>400 MHz</td>
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<tr>
<td>MIPI CSI / DSI</td>
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<td>Y</td>
<td>Y</td>
<td>–</td>
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<tr>
<td>OpenVG™ 1.1</td>
<td>–</td>
<td>Y</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
</tr>
<tr>
<td>CSI / LCDIF / PXP</td>
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<td>Y</td>
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<td>TSN</td>
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<td>–</td>
<td>–</td>
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<tr>
<td>Tamper Protection</td>
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<td>Y</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>HAB/AES/DES</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Packages**
- 289 MAPBGA
- 289 MAPBGA
- 289 MAPBGA
- 289 MAPBGA
- 289 MAPBGA

**Qualification/ Temperature**
- Commercial/0–95 °C
- Industrial/-40 – 105 °C
- Auto/-40 – 125 °C

**Part Numbers**
- MIMXRT1171DVMAA
- MIMXRT1171CVM8A
- MIMXRT1171AVM8A
- MIMXRT1172DVMAA
- MIMXRT1172CVM8A
- MIMXRT1172AVM8A
- MIMXRT1173CVM8A
- MIMXRT1175DVMAA
- MIMXRT1175CVM8A
- MIMXRT1175AVM8A
- MIMXRT1176DVMAA
- MIMXRT1176CVM8A
- MIMXRT1176AVM8A

*First speed listed is speed for commercial-qualified device. Second speed listed is for industrial- and automotive-qualified devices.

### i.MX RT1170 EVK FEATURES

#### Processor
- MIMXRT1176DVMAA

#### Memory
- 512 Mbit SDRAM memory
- 512 Mbit Octal flash
- 128 Mbit QSPI flash
- 2 Gbit Raw NAND flash
- 64 Mbit LPSPi flash
- TF socket for SD card

#### Graphics
- MIPI LCD connector
- MIPI camera sensor connector

#### Audio
- Audio codec
- 4-pole audio headphone jack
- External speaker connection
- Microphone (analog and digital)
- SPDIF connector

#### Connectivity
- 2 x Micro USB OTG connectors
- Ethernet (1/10/100/1000M) connector
- Ethernet (1/100M) connector
- M.2 connector
- CAN transceivers
- Arduino® interface
- FRDM motor control interface
- Sim card slot

#### Debug
- JTAG connector
- Onboard DAP-Link debugger

#### Sensor
- 6-Axis ecompass (3-Axis magnetometer, 3-Axis accelerometer) sensor FXOS8700CQ

#### Ordering Information
- MIMXRT1170-EVK
- RK055HDMI4M (5.5" 720p display)

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**GET STARTED NOW**

The i.MX RT1170 evaluation kit (EVK) helps you take your design to the next level by reducing complexity and accelerating time to market.

**SOFTWARE AND TOOLS**

NXP’s MCUXpresso software and tools offer comprehensive development solutions designed to optimize, ease and accelerate embedded system development of applications based on Cortex-M core devices from NXP, including its general purpose, crossover and Bluetooth-enabled MCUs.