STM32MP1 Series
Microprocessors

Multicore STM32MP1 architecture accelerates the development of open-source Linux-based applications with real-time and power-constrained subsystems

The STM32MP1 series embeds a dual Arm® Cortex®-A7, a Cortex®-M4 and a 3D GPU. Its flexible architecture allows high processing and real-time tasks in a single chip. Moreover, a large package offering is available to achieve lowest PCB cost structure and smallest footprint. The STM32MP1 comes with a dedicated Power Management companion IC: STPMIC1

The STM32MP1 series drastically reduces development time thanks to ST’s mainlined, open-source OpenSTLinux Distribution and our STM32Cube toolset specially upgraded for Cortex®-A7 Linux MPU development. All STM32MP1 peripherals can be seamlessly allocated to either the Cortex®-A7 (Linux) or Cortex®-M4 core (real time).

TARGETED APPLICATIONS
- Industrial
- Home
- Consumer
- Health and Wellness

CORE
- Dual Arm® Cortex®-A7 core @ 650 MHz
- 32kB+32kB I/D L1 cache
- 256kB L2 cache
- Arm® Cortex®-M4 core @ 209 MHz

EXTERNAL MEMORIES SUPPORT
- DDR3, DDR3L, LPDDR2, LPDDR3
- SLC NAND, SPI NAND
- eMMC, SD card, Quad-SPI NOR

INTERNAL MEMORIES
- 256kB System RAM
- 384kB MCU System RAM
- 64kB MCU Retention RAM

ANALOG
- 2x 16-bit ADCs
- 2x 12-bit DACs

GRAPHICS
- 3D GPU OpenGL ES 2.0
- LCD-TFT Controller
- MIPI-DSI® controller

SECURITY
- TrustZone
- AES 256, TDES
- SHA-256, MD5, HMAC
- Secure Boot, RAMs & peripherals

OTHER
- 37x Communication peripherals
- 29x timers & 3x watchdogs
- 5x LDOs
- Up to 176 GPIOs
- 125°C supported as maximum junction temperature

https://wiki.st.com/stm32mpu
HARDWARE TOOLS
A full set of evaluation boards enables flexible prototyping as well as full STM32MP1 evaluation.

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<th>Evaluation Boards</th>
<th>Discovery Kits</th>
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<tr>
<td>STM32MP157A-EV1</td>
<td>STM32MP157A-DK1</td>
</tr>
<tr>
<td>STM32MP157C-EV1</td>
<td>STM32MP157C-DK2</td>
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<tr>
<td>STM32MP157A-DK1</td>
<td>2 Evaluation boards</td>
</tr>
<tr>
<td>STM32MP157C-DK2</td>
<td>2 Discovery Kits</td>
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</tbody>
</table>

SOFTWARE TOOLS
The STM32MP1 Series comes with enhanced STM32CubeMX, Multi-Core IDE solutions and STM32CubeProgrammer.

SOFTWARE PACKAGES
To optimize development at each stage of a project, 3 OpenSTLinux Distribution software packages let developers select the supports that best meet their needs:

- **Starter Package** (STM32MP1Starter) to quickly and easily start with any STM32MP1 microprocessor
- **Developer Package** (STM32MP1Dev) to add your own developments on top of the STM32MP1 Embedded Software distribution
- **Distribution Package** (STM32MP1Distrib) to create your own Linux® distribution or your own Starter and your own Developer packages

*available for STM32MP157C only

STM32MP1 PORTFOLIO

<table>
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<tr>
<th>Packages size</th>
<th>Features</th>
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<tr>
<td>TFBGA 257</td>
<td>STM32MP151* Dual Cortex-A7, Cortex-M4</td>
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<tr>
<td>10x10mm, p0.5</td>
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<tr>
<td>TFBGA 361</td>
<td>STM32MP153* Dual Cortex-A7, Cortex-M4, CAN FD</td>
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<td>12x12mm, p0.5</td>
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<tr>
<td>LFBGA 354</td>
<td>STM32MP157* Dual Cortex-A7, Cortex-M4, 3D GPU, DSI, CAN FD</td>
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<td>16x16mm, p0.8</td>
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<tr>
<td>LFBGA 448</td>
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<tr>
<td>18x18mm, p0.8</td>
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Packages can support low-cost PCB down to 4-layers PTH

*With or without HW crypto and secure boot