**Community Translations – Knowledge Base Articles**

**ORIGINAL KBA**

# Cortex® -M0 Versus Cortex-M0+ - KBA211306

**Question:**

What are the differences between Cortex-M0 and Cortex-M0+?

**Answer:**

The Cortex-M0+ processor builds on the Cortex-M0 processor, retaining the full instruction set and tool compatibility, while reducing energy consumption and increasing performance.

The following table lists the differences in the features of the two processors.

|  |  |  |  |
| --- | --- | --- | --- |
| **Features** | **M0** | **M0+** | **Advantages of M0+ over M0** |
| Pipeline | Three-stage | Two-stage | Improved response time,improved efficiency |
| Performance Efficiency | 2.33 CoreMark/MHz | 2.46 CoreMark/MHz | Lower power and higher performance |
| Memory Protection | Not available | Has optional Memory protection Unit | Makes system more secure by: Separating processes – Preventing tasks from corrupting stack or data memory used by other tasks Preventing unprivileged tasks from accessing peripherals that can be critical to the system security |
| Relocatable vector-table | Does not support | Supports | Allows relocating the interrupt vector table anywhere in the memory - enables different applications to use their own vector table. |
| Unprivileged/privileged mode execution | Does not support | Supports | Allows a task, such as the system calling in an operating system, to execute with more privileges than the user task or an application. |

The PSoC 4-S Series family of devices has a Cortex-M0+ CPU, whereas the previous [PSoC 4](https://community.cypress.com/external-link.jspa?url=http%3A%2F%2Fwww.cypress.com%2Fpsoc4" \t "_blank) families have a Cortex-M0 CPU. Dual-CPU [PSoC 6 MCU](https://community.cypress.com/external-link.jspa?url=http%3A%2F%2Fwww.cypress.com%2Fpsoc6ce" \t "_blank) parts have an integrated Cortex-M0+ CPU that can offload the main Cortex-M4F CPU from application tasks such as communication and security.

For more information on the Cortex M0 and M0+ processor architecture, visit [http://www.arm.com/products/processors/cortex-m/index.php](https://community.cypress.com/external-link.jspa?url=http%3A%2F%2Fwww.arm.com%2Fproducts%2Fprocessors%2Fcortex-m%2Findex.php)

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