FreeRTOS V6.0.0 includes integrated memory protection (MPU) support for Cortex-M3 MCUs

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FreeRTOS V6.0.0 introduces FreeRTOS-MPU, the first version of FreeRTOS to include integrated Memory Protection Unit (MPU) support for Cortex-M3 microcontrollers whilst maintaining backwards compatibility with FreeRTOS V5.x.x.

Using a Memory Protection Unit can protect applications from a number of potential errors, ranging from undetected programming errors to errors introduced by system or hardware failures.

MPU support built into the kernel provides easy to use protection of the kernel itself from invalid execution by tasks, and protects data from corruption. It can also protect system peripherals from unintended modification by tasks. Other applications include the isolation of un-trusted code and a guarantee of detecting task stack overflows.

FreeRTOS Founder Richard Barry said 'FreeRTOS is commonly used in many applications which will benefit from MPU support. The addition of support for MPU on Cortex-M3 processors will ensure a much more secure and robust environment for application developers.'

Barry added 'Tasks can be created to run in either Privileged mode or User mode. User mode tasks can access their own stack and up to three user definable memory regions (three per task). These regions are defined when a task is created but can be changed at run time for maximum flexibility.'

About FreeRTOS

FreeRTOS^{TM} is a portable, open source, royalty free, mini Real Time Kernel. It is free to download and deploy even in commercial applications. Downloaded more than 77,500 times during 2008, FreeRTOS is the cross platform de-facto standard for embedded microcontrollers.

In existence for more than six years, FreeRTOS uses an open-source model which suits the needs of deeply embedded application developers. It is enthusiastically supported, its license does not limit or expose application code, it is clean and well documented, and it is free from the risk of IP infringement.

Commercially licensed and safety certified versions are available for those that require complete piece of mind. Commercial licensing and support is provided by WITTENSTEIN high integrity systems – a global engineering company.

OpenRTOS^{TM} is a commercially licensed and supported version of FreeRTOS that includes fully featured professional grade USB, file system and TCP/IP components.

SafeRTOS^{TM} is a version that has been independently certified as having been developed in compliance with the processes required for IEC 61508 Safety Integrity Level (SIL) 3 applications.