FreeRTOS Getting Started

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FreeRTOS release 6.0.5 for Freescale HCS08 and ColdFire V1 (CN, QE and JM)

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Introduction

This document describes the first steps to install and use the FreeRTOS (www.freertos.org) operating system using CodeWarrior and Processor Expert. Processor Expert provides the advantage of configuring software in a graphical rapid application way without impacting performance. Additionally with the availability of Processor Expert for many Freescale processors, it is much easier to port and move a project between different derivatives.
This document describes the first steps in order to use the FreeRTOS using the Freescale S08 and ColdFire V1 cores. As software CodeWarrior for MCU V10.0 (eclipse based) is used, but it is applicable as well for CodeWarrior for MCU6.3 with Processor Expert 3.08 installed.

Features

- Support for all S08 cores and ColdFire V1 (JM, CN and QE family)
- contains FreeRTOS sources
- graphical configuration (RTOS, timer, events, task switch interrupt)
- wrapper to RTOS API
- help text and documentation using doxygen

Future Extensions

Nothing is perfect, so here is a list of things for the future
- complete wrappers for all RTOS API calls and types
- supporting more cores (S12, additional V1 cores, ColdFire V2)

Doxygen

The project is using doxygen. You can download the Eclox doxygen plugin using the eclipse updater (menu Help > Install new software) from
http://download.gna.org/eclox/update

Installation

You should have received everything in a .zip file. The zip file contains

- Processor Expert Components for FreeRTOS and LED, including GenericBitIO; provided as Processor Expert update package (*.PEupd) and TAR file (*.tar)
- HCS08 (MC13213/GB60/GT60) project (CodeWarrior for MCU10.0)
- ColdFire V1 (DEMOQE board with MCF51QE128) project (CodeWarrior for MCU10.0)

The demo projects can be easily changed for any other S08 or ColdFire V1 architecture. It is assumed that you have CodeWarrior for MCU10.0 installed, with the 30 day professional edition license.

1. Unzip the zip package to your hard disk
2. Launch CodeWarrior for MCU10.0
3. Import the Processor Expert Components using the menu Processor Expert > Component Wizard. Then select the Component Wizard menu File > Import > Import Components from Package (Note: at this time you will need a CodeWarrior professional edition license to import components that way. Otherwise you need to install the files from the .tar file manually).
   Browse to the .PEupd file you unpacked in step 1 and import it
4. Close Component Wizard and CodeWarrior for MCU10 and restart CodeWarrior for MCU10
5. Import the example projects into your workspace, using menu File > Import… > General > Existing Project into Workspace. Import one or both demo projects
6. Do a project cleanup (menu Project > Clean)
7. Generate Code: have the Project Panel view open (Window > Show View > Processor Expert > Project Panel), clock on the ProcessorExpert.pe file and select the context menu ‘Generate Processor Expert Code’
8. Build and debug your project