NUC240 FreeRTOS Demo

Example Code Introduction for 32-bit NuMicro® Family

Information

Application	FreeRTOS
BSP Version	NUC240_BSP_CMSIS_v3.01.001
Hardware	NuTiny-EVB-NUC240 V2.0

The information described in this document is the exclusive intellectual property of Nuvoton Technology Corporation and shall not be reproduced without permission from Nuvoton.

Nuvoton is providing this document only for reference purposes of NuMicro microcontroller based system design. Nuvoton assumes no responsibility for errors or omissions.

All data and specifications are subject to change without notice.

For additional information or questions, please contact: Nuvoton Technology Corporation.

www.nuvoton.com

1 Function Description

1.1 Introduction

The example code NUC240_FreeRTOS modifies BSP sample code to work under FreeRTOS, which is a real-time operating system. The sample code creates two task to execute process sample code.

1.2 Principle

The demo creates 2 tasks, task0 show “Task0” and task1 show “Task1”

1.3 Demo Result

```
Task1 running ...
Task1
Task0 running ...
Task0
Task1
Task0
Task1
Task0
Task1
Task0
Task1
Task0
Task1
Task0
```

2 Code Description

Function for Task0 to show “Task0”

```
void Task0(void *pvParameters)
{
    printf("Task0 running ...\n");

    for(;;)
    {
        printf("Task0\n");
        vTaskDelay(100);
    }
}
```

Function for Task1 to show “Task1”

```
void Task1(void *pvParameters)
{
    printf("Task1 running ...\n");

    for(;;)
    {
        printf("Task1\n");
        vTaskDelay(100);
    }
}
```

Main function for create Task0 and Task1

```
int main(void)
{
    prvSetupHardware();

    xTaskCreate(Task0, (const char *)"Task0", 100, NULL, 1, NULL);
    xTaskCreate(Task1, (const char *)"Task1", 100, NULL, 2, NULL);
    vTaskStartScheduler();

    while(1);
}
```

3 Software and Hardware Environment

Software Environment

- BSP version
  - NUC240_BSP_CMSIS_v3.01.001
- IDE version
  - Keil uVersion 5.22

Hardware Environment

- Circuit components
  - NuTiny-EVB-NUC240 V2.0

4 Directory Information

EC_NUC240_FreeRTOS_V1.00	
Library	Sample code header and source files
CMSIS	Cortex® Microcontroller Software Interface Standard (CMSIS) by Arm® Corp.
Device	CMSIS compliant device header file
StdDriver	All peripheral driver header and source files
SampleCode	
ExampleCode	Source file of example code
FreeRTOSv10.0.1	A real time operating system available for free download. Its official website is: http://www.freertos.org/

5 How to Execute Example Code

1. Browsing into sample code folder by Directory Information (section 4) and double click FreeRTOS.uvproj.
2. Enter Keil compile mode
   a. Build
   b. Download
   c. Start/Stop debug session
3. Enter debug mode
   a. Run

6 Revision History

Date	Revision	Description
Oct. 1, 2019	1.00	1. Initially issued.

Important Notice

Nuvoton Products are neither intended nor warranted for usage in systems or equipment, any malfunction or failure of which may cause loss of human life, bodily injury or severe property damage. Such applications are deemed, "Insecure Usage".

Insecure usage includes, but is not limited to: equipment for surgical implementation, atomic energy control instruments, airplane or spaceship instruments, the control or operation of dynamic, brake or safety systems designed for vehicular use, traffic signal instruments, all types of safety devices, and other applications intended to support or sustain life.

All Insecure Usage shall be made at customer's risk, and in the event that third parties lay claims to Nuvoton as a result of customer's Insecure Usage, customer shall indemnify the damages and liabilities thus incurred by Nuvoton.

Please note that all data and specifications are subject to change without notice.
All the trademarks of products and companies mentioned in this datasheet belong to their respective owners.