

example_mpu.c

Step 1:

Create a new project.

Navigate: -> File -> New -> Project (click)

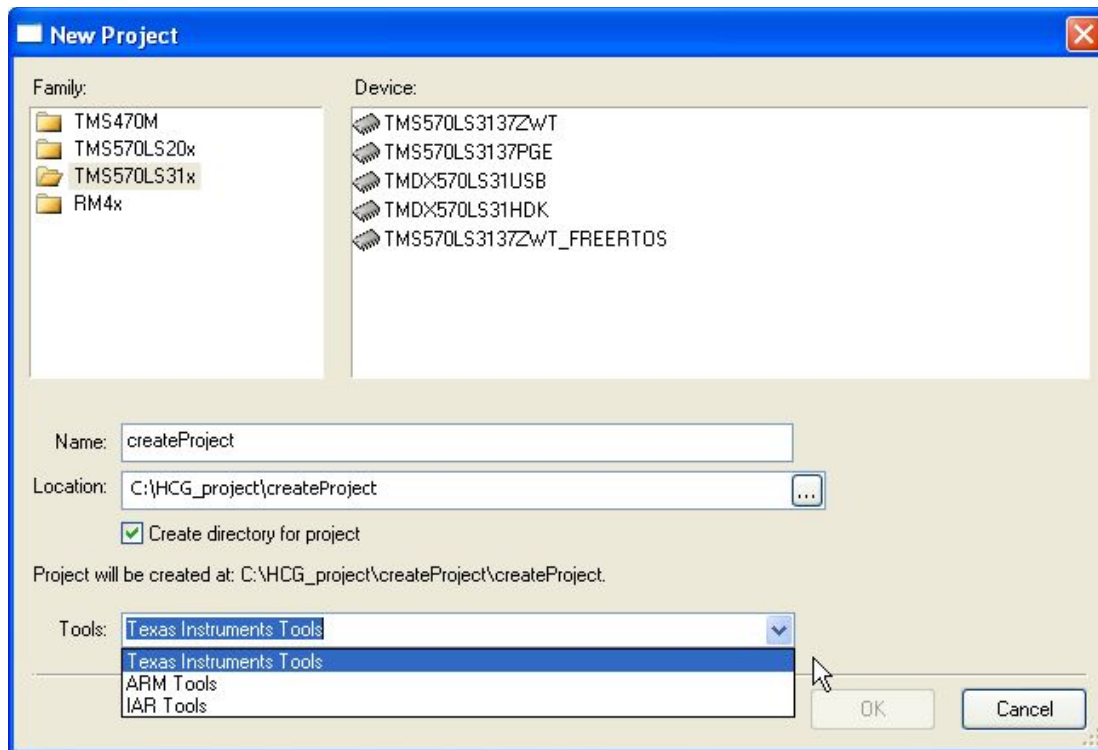


Figure: Create a new Project

Step 2:

Navigate: -> TMS570LSxx /RM4 -> MPU

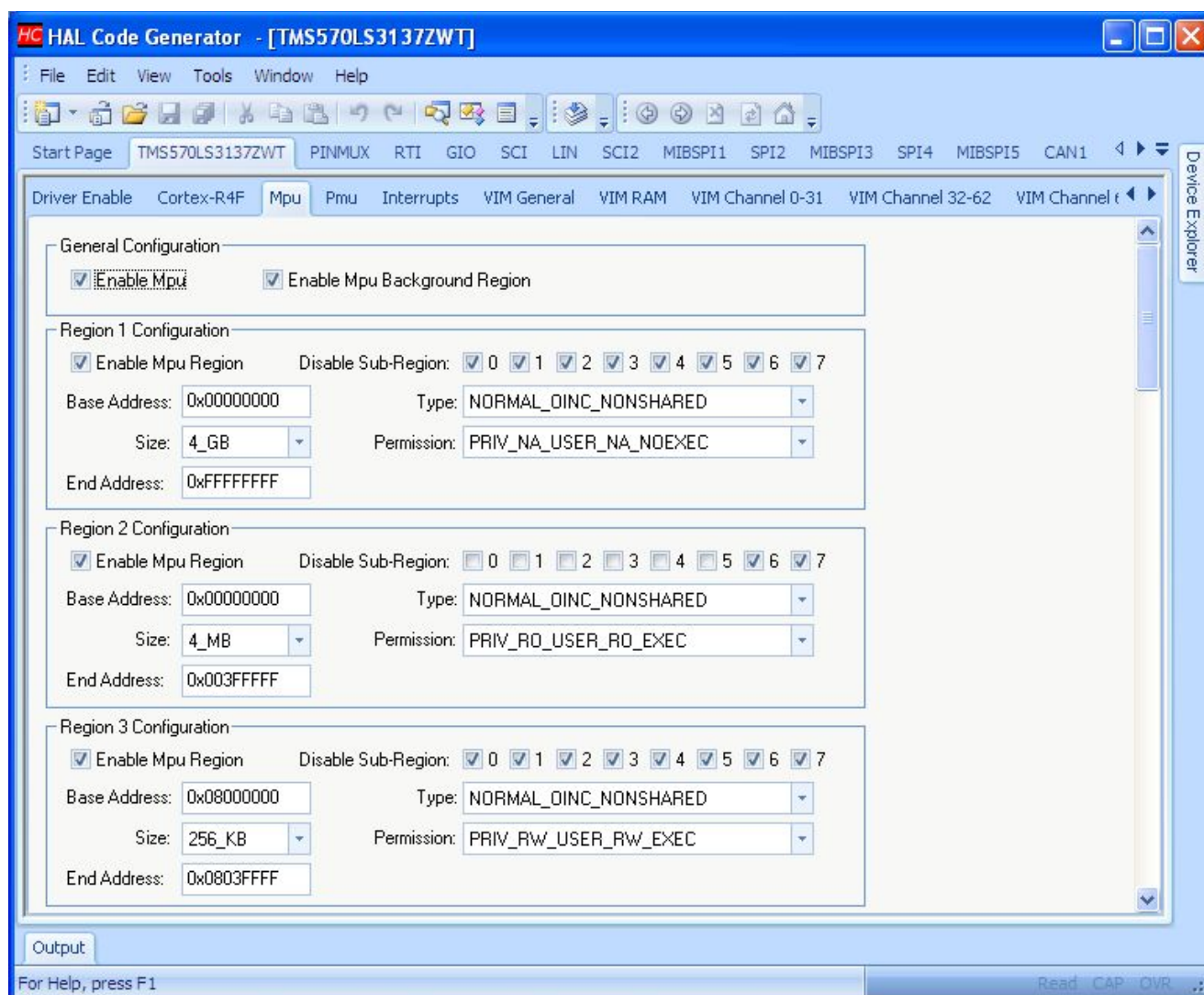


Figure: Configure MPU

Step 3:

Copy the source code below into your `sys_main.c` (or) replace `sys_main.c` with this file.

The example file can also be found in the examples folder: `../HALCoGen/examples`

Note

HALCoGen generates an empty main function in `sys_main.c`,

```

/*
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 */

```

```

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*/

/* USER CODE BEGIN (0) */
/* USER CODE END */

/* Include Files */

#include "sys_common.h"
#include "system.h"

/* USER CODE BEGIN (1) */
#include "sys_mpu.h"
/* USER CODE END */

/* USER CODE BEGIN (2) */
/* USER CODE END */

void main(void)
{
/* USER CODE BEGIN (3) */
    uint32 No_Of_MPU_Region = 0;
    uint32 error = 0;

    /* Initialize memory protection unit.
     * Region configurations are selected using MPU Tab in HALCoGen.
     * MPU is enabled in mpuInit function if "Enable MPU" in GUI is selected */
    _mpuInit();

    /* This function disables memory protection unit.
     * Added just to show how to disable MPU */
    _mpuDisable();

    /* This function Enables memory protection unit.
     * Added just to show how to enable MPU, mpuInit function
     * will enable MPU if "Enable MPU" in GUI selected */
    _mpuEnable();

    /* This function returns the number of implemented mpu regions. */
    No_Of_MPU_Region = _mpuGetNumberOfRegions();

    /* Check that device supports 12 Region. */
    if(No_Of_MPU_Region != 12)
    {
        /* Check the device */
        asm("    nop");
        error |= 0x00000001;
    }
    /* Select MPU Region 1 */
    _mpuSetRegion_(mpuREGION1);

    /* Check whether MPU Region 1 is selected */
    if(_mpuGetRegion_() != mpuREGION1)
    {
        /*Region 1 was Not selected */
        asm("    nop");
        error |= 0x00000002;
    }
    /* Check the Base address configured for MPU Region 1 */
    else if(_mpuGetRegionBaseAddress_() != 0x00000000)
    {
        /*Region 1 Base address wrong */
        asm("    nop");
        error |= 0x00000004;
    }
    /* Check the Type configured for MPU Region 1 */

```

```

else if(_mpuGetRegionType_() != MPU_NORMAL_OINC_NONSHARED)
{
    /*Region 1 Type configured wrong */
    asm("    nop");
    error |= 0x00000008;
}
/* Check the Permission configured for MPU Region 1 */
else if(_mpuGetRegionPermission_() != MPU_PRIV_NA_USER_NA_NOEXEC)
{
    /*Region 1 Permission configured wrong */
    asm("    nop");
    error |= 0x00000010;
}
else
{
    /* Region 1 Configurations are checked,
     * Matches MPU configuration through HALCoGen GUI */
    asm("    nop");
}

/* This function disables memory protection unit.
 * Added just to show how to disable MPU */
_mpuDisable_();

if(error != 0)
{
    /* Test Failed */
    asm("    nop");
}
else
{
    /* Test Passed */
    asm("    nop");
}

/* USER CODE END */
}

/* USER CODE BEGIN (4) */
/* USER CODE END */

```