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How to Enable Hardware Floating Point Math for Cortex M4 with FPU in GCC

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Question

How do I enable hardware support for floating point math in GCC for EFM32WG (Wonder Gecko)?

Answer

How to Enable Hardware Floating Point

1. Add the following compiler symbol:

```
ARM_MATH_CM4=1
```

2. Add the following flags to the GCC assembler, compiler, and linker:

```
-mthumb -mcpu=cortex-m4 -mfloat-abi=hard  
-mfpu=fpv4-sp-d16
```

3. Add the following include to source files using floating point math:

```
#include "arm_math.h"
```

4. Make sure **SystemInit()** turns on the FPU hardware:

```
void SystemInit(void)  
{  
    /* Set floating point coprocessor access  
mode. */  
    SCB->CPACR |= ((3UL << 10*2) | /* set CP10  
Full Access */  
                    (3UL << 11*2) ); /* set CP11  
Full Access */
```

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5. (Optional) Add CMSIS\Lib

```
\GCC\libarm_cortexM4lf_math.a to your project for
```



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