Forum: 32-bit SAM(ARM core)
Topic: ATSAME54P20A--Hardwware FPU use?
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2020年01月15日 10:02:57

想請問ATSAME54P20A關於FPU的問題。
在『MPLAB XC32 C/C++ Compiler User’s Guide for PIC32C/SAM MCUs』
這份文件裡有段敘述：
//==
For the Cortex-M based devices, such as the MEC17, CEC17, and SAM families, XC32 defaults to using the hardware Floating-Point Unit (FPU) where available. For cases where want a specific FPU calling convention, you can specify the following command-line options to the xc32-gcc compilation driver at both compile and link time:
• -mfloat-abi=soft -- Specifying 'soft' causes XC32 to generate output containing library calls for floating-point operations. This setting is the default for devices that do not feature a hardware FPU.
• -mfloat-abi=softfp -- Specifying 'softfp' allows the generation of code using hardware floating-point instructions, but still uses the soft-float calling conventions
• -mfloat-abi=hard -- Specifying 'hard' allows generation of floating-point instructions and uses FPU-specific calling conventions. This setting is the default for devices that feature a hardware FPU.
//==
由這段內容得知ATSAME54P20A已有hardwware FPU，所以是否就不需要經由設定『XC32-gcc』的『General』，就可以進行單精度福點數運算？

請問使用以下方式是否就可以確定已正在使用ATSAME54P20A的hardwware FPU進行浮點數運算，或者有其他更好的方式可以證明？

```
float a = 0;
float b = 3;
double x = 0;
double y = 3;

int main(void)
{
    x = 125 / y;
    a = 125 / b;
    printf("double value X = %10frn",x);
    printf("rn");
    printf("floating value a = %10frn",a);
    printf("rn");
}
```
結果：

```
double value X =  41.666667
```

floating value a = 41.666668

另外, 是否需要include 『float.h』 ?

以上, 非常感謝 !