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MSP430FR5969: Timer Delay 30 seconds

sadasivam arumu... Intellectual 940 points
Community Member

Part Number: MSP430FR5969

Hi,

How to get 30 seconds delay using timer in MSP430FR5969

ACLK source = VLOCLK;

Max. Prescalar factor = 32;

Max. Timer division factor = 8;

over 5 years ago

Bruce McKenney over 5 years ago Guru 93350 points

Try using ID_3 (/8), TA0EX0=7 (/8). Supposing VLOCLK=10kHz, set CCR0=10k/8/8*30=4687.

That said, VLOCLK is unlikely to be 10kHz (range 6-14kHz [Ref data sheet (SLAS704F) Table 5-7]), so you may have to play with that value a little.

[Edit: Fixed datasheet reference]

sadasivam arumugam over 5 years ago in reply to Bruce McKenney Intellectual 940 points

Yes. Its working.

So, from timer settings, I have verified that the System Clock is clock divided by Input Divider for 2 circuits(TA0CTL0 |= ID_3; along with TA0EX0 |= 0x07;)

Is there any change in Clock System input Divider?

sadasivam arumugam over 5 years ago in reply to Bruce McKenney Intellectual 940 points

```
TA0CCR0 = 4100; //VLO = 8.7KHz; (8700/8/8)*30;
TA0EX0 = 0x07;
TA0CCTL0 = CCIE; // Timer interrupts enable
TA0CTL = TASSEL_1 + ID_3 + MC_1 + TACLR; // Timer0_A
```

This is my code. I found that, 30 accuracy is obtained for 8.7KHz w.r.t calculation mentioned above. But in datasheet, typical VLO frequency is 9.4 KHz. How to get accurate results with typical frequency.

Bruce McKenney *over 5 years ago in reply to sadasivam arumugam* — Guru 93350 points

The VLO is notoriously inaccurate (but it's cheap!).

One thing you can do is measure its speed based on a known reference, e.g. SMCLK or crystal (LFXT) and use that to compute the delay constant.

There are Application Notes about this for the F2 and FR2 series -- one uses SMCLK and the other the RTC. Code is available via a link in the PDF.

https://www.ti.com/lit/an/slaa340a/slaa340a.pdf

https://www.ti.com/lit/an/slaa693a/slaa693a.pdf

Keep in mind the temperature drift in Table 5-7. Also, on some devices it changes when you go into LPM3 [I've forgotten where I saw this] so measure it in the mode you'll be using.

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