实验1记录

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表 1-1 系统时钟频率的设定方式对 PF0 信号频率的影响

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 外部时钟 | 振荡器源 | | 系统时钟源 | | PLL VCO频率 | | 希望设定的系统时钟频率（MHz） | DEBUG 观测到的时钟频率数值(MHz) | USR\_SW1-PJ0 为释放状态下，示波器观测的PF0 信号频率(Hz) |
| SYSCTL\_XTAL\_25MHZ | MOSC(25M)  SYSCTL\_OSC\_MAIN | PIOSC(16M)  SYSCTL\_OSC\_INT | SYSCTL\_USE\_PLL | SYSCTL\_USE\_OSC | SYSCTL\_CFG\_VCO\_320 | SYSCTL\_CFG\_VCO\_480 |
| 1 |  |  | √ |  | √ |  |  | 16 | 16 |  |
| 2 |  |  | √ |  | √ |  |  | 12 | 16 |  |
| 3 |  |  | √ |  | √ |  |  | 8 | 8 |  |
| 4 | √ | √ |  |  | √ |  |  | 25 | 25 |  |
| 5 | √ | √ |  |  | √ |  |  | 12 | 12.5 |  |
| 6 | √ | √ |  |  | √ |  |  | 1 | 1 |  |
| 7 | √ | √ |  | √ |  |  | √ | 25 | 24 |  |
| 8 | √ | √ |  | √ |  |  | √ | 20 | 20 |  |
| 9 | √ | √ |  | √ |  |  | √ | 8 | 8 |  |
| 10 |  |  | √ | √ |  |  | √ | 20 | 20 |  |
| 11 |  |  | √ | √ |  |  | √ | 8 | 8 |  |
| 12 |  |  | √ | √ |  |  | √ | 1 | 15 |  |
| 13\* |  |  | √ |  | √ |  |  | 4 | 4 |  |
| 14\* |  |  | √ |  | √ |  |  | 3 | 3.2 |  |
| 15\* |  |  | √ |  | √ |  |  | 2 | 2 |  |
| 16\* |  |  | √ |  | √ |  |  | 1.1 | 1.142 857 |  |
| 17\* |  |  | √ |  | √ |  |  | 1.000 001 | 1.066 666 |  |
| 18\* |  |  | √ | √ |  |  | √ | 2 | 10 |  |
| 19\* |  |  | √ | √ |  |  | √ | 4 | 8.571 428 |  |

**参考资料：**

[1] “*TivaWare™ Peripheral Driver Library USER’S GUIDE*” ( SW-TM4C-DRL-UG-2.1.4.178 )

第26.1节 *Introduction*：关于系统时钟源选为PLL时，频率的限制：When using the PLL, the input clock frequency is constrained to specific frequencies that are specified in the device data sheet.

第26.2节 *API Functions*：API函数 SysCtlClockFreqSet() 的用法。

[2] “*Tiva™ TM4C1294NCPDT Microcontroller DATA SHEET*” ( DS-TM4C1294NCPDT-15863.2743 SPMS433B )

第5.2.5节 *Clock Control*：

[3] “*Tiva™ C Series TM4C1294 Connected LaunchPad Evaluation Kit EK-TM4C1294XL User's Guide*” ( SPMU365B )

第2.1.6节 *BoosterPacks and Headers*：Table 2-4. X11 Breadboard Adapter Even-Numbered Pad GPIO and Signal Muxing (continued)，可见X11 Breadboard Adapter的Pin-Port对应关系包含：Pin#66对应Port#PF0，Pin#96对应GND。

第5章 *Schematic*：Sheet#1指明按键USR\_SW1同端口PJ0连接，Sheet#4指明LED灯D4同端口PF0连接。

[4] 课程视频.

[工程实践与科技创新II-A\_1.5常用调试方法 (sjtu.edu.cn)](https://vshare.sjtu.edu.cn/play/b9c32627cc259b7309177662d3e6f0ce) 给出常用调试方法，包括使用示波器：

