🏠 **manitou48** / **teensy4**   Public

<> **Code**   ⊙ Issues 1   ⇄ Pull requests   ▷ Actions   ⊞ Projects   ⊘ Security   ⱳ Ir

teensy4 / **gpt2_count.ino** ⎘   ⋯

🐙 **manitou48** GPT2 external clock count   e2217cd · 4 years ago   🕘 History   •••

| Code | Blame   74 lines (61 loc) · 1.55 KB | | Raw ⎘ ⤓ | <> |

```
 1    // GPT2 counter like FreqCount
 2    // external pin is 14 GPIO_AD_B1_02 ALT8  (Frontside – A0) Serial3 Tx
 3    // test with  PWM pin 11 jumpered to 14
 4
 5    // FreqCount API
 6    static inline void counter_init(void)
 7    {
 8      CCM_CCGR0 |= CCM_CCGR0_GPT2_BUS(CCM_CCGR_ON) ;  // enable GPT1 module
 9      //CCM_CCGR0 |= CCM_CCGR0_GPT2_SERIAL(CCM_CCGR_ON) ;
10      GPT2_CR = 0;
11      GPT2_SR = 0x3F; // clear all prior status
12      GPT2_CR =  GPT_CR_CLKSRC(3);// | GPT_CR_FRR ;// 3 external clock
13      //*(portConfigRegister(14)) = 8;  // ALT 1
14      //CORE_PIN14_CONFIG = 8;
15      IOMUXC_SW_MUX_CTL_PAD_GPIO_AD_B1_02 = 8;
16      IOMUXC_GPT2_IPP_IND_CLKIN_SELECT_INPUT = 1;
17    }
18
19    static inline void counter_start(void)
20    {
21      GPT2_CR |= GPT_CR_EN; // enable
22    }
23
24    static inline void counter_shutdown(void)
25    {
26      GPT2_CR = 0;
27    }
28
```

```
29      static inline uint32_t counter_read(void)  // was uint16_t in FreqCount?
30      {
31        return GPT2_CNT;
32      }
33
34      static inline uint8_t counter_overflow(void)
35      {
36        return GPT2_SR & GPT_SR_ROV;
37      }
38
39      static inline void counter_overflow_reset(void)
40      {
41        GPT2_SR |= GPT_SR_ROV;
42      }
43
44      volatile uint32_t count_ready, count_output, count_prev;
45   ∨  void tmr_callback() {
46        uint32_t count = counter_read();
47
48        //track rollover ?
49        count_output = count - count_prev;
50        count_prev = count;
51        count_ready = 1;
52      }
53
54      IntervalTimer it1;
55
56   ∨  void setup() {
57        Serial.begin(9600);
58        while (!Serial);
59        delay(2000);
60        analogWriteFrequency(11, 1234);  // test jumper 11 to 14
61        analogWrite(11, 128);
62
63        counter_init();
64        it1.begin(tmr_callback, 1000000);  // us
65        counter_start();
66
67      }
68
69   ∨  void loop() {
70        if (count_ready) {
71          Serial.println(count_output);
```

```
72            count_ready = 0;
73        }
74    }
```