

I2C

20140106

Reference:UM10204.pdf

On PropForth5.5 _eewrite is assembler word.

¥_eewrite (c1 -- t/f) write c1 to the eeprom, true if there was an error

¥

¥

:asm

jmp #__x0C

__x02sda

h20000000

__x03scl

h10000000

__x04delay/2

hD

¥ this delay makes for a 400kHz clock on an 80 Mhz prop

¥

__x0Edelay/2

mov \$C_treg6 , __x04delay/2 <-- 4ticks

__x0D

djnz \$C_treg6 , # __x0D <-- 4ticks

__x0Fdelayret

ret <-- 4ticks

¥

__x0C

mov \$C_treg3 , # h8

¥

__x0B

test \$C_stTOS , # h80 wz

muxnz outa , __x02sda

¥

jmpret __x0Fdelayret , # __x0Edelay/2

¥

or outa , __x03scl

¥

jmpret __x0Fdelayret , # __x0Edelay/2

jmpret __x0Fdelayret , # __x0Edelay/2

¥

andn outa , __x03scl

shl \$C_stTOS , # 1

¥

jmpret __x0Fdelayret , # __x0Edelay/2

¥

djnz \$C_treg3 , # __x0B

¥

```

        andn  dira , __x02sda
        test  __x02sda , ina wz
        muxnz $C_stTOS , $C_fLongMask
¥
        jmpret __x0Fdelayret , # __x0Edelay/2
¥
        or     outa , __x03scl
¥
        jmpret __x0Fdelayret , # __x0Edelay/2
        jmpret __x0Fdelayret , # __x0Edelay/2
¥
        andn  outa , __x03scl
¥
        jmpret __x0Fdelayret , # __x0Edelay/2
        andn  outa , __x02sda
        or     dira , __x02sda
¥
¥
        jexit
¥
;asm _eewrite

```

$_x0Edelay/2$ is $60\text{ticks}[4 + (4 \times 13) + 4]$.

1-clock pulse is $240\text{ticks}(60 \times 4)$

In case of 80MHz(5MHz Xtal), 3usec. Clock frequency is 333.3kHz.

In case of 96MHz(6MHz Xtal), 3usec. Clock frequency is 400kHz.

And acknowledge is incorrect on `_eewrite` of PF5.5.

When clock-pulse is High, it should get SDA.

Refer section 3.1.6 on UM10204.pdf.

But I have never get acknowledge-error by using current `_eewrite`.

Maybe this will be fix on next version.

Checking ADT7410, I find out i2c's WORD cannot write register-value.

I think original i2c's `WORD(_eestart, _eewrite, _eestop)` sometimes don't work on several i2c-devices.

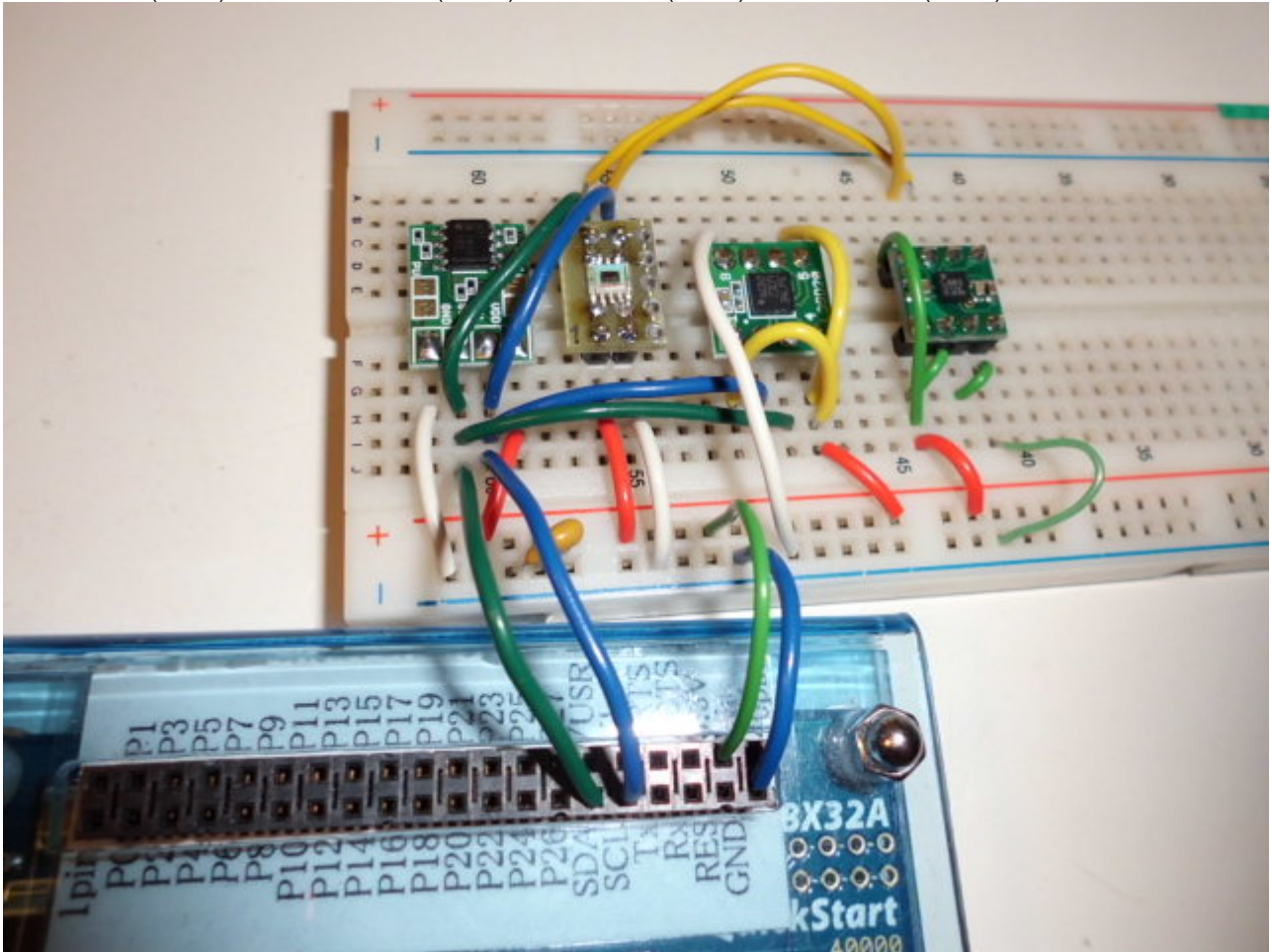
Maybe I suppose Hi for sda/scl is going by outport.

So I re-define `WORDS(_eestart, Sr, _eestop, _eewrite, _eeread, i2c_rd_multi, i2c_wr_multi, i2c_detect)`.

Refer `i2c_utility_0.1.f`'s code about details.

From left ;

ADT7410(h48) ColorSensor(h2A) L3GD20(h6B) HM5883L(h1E)



Prop0 Cog6 ok

i2c_detect

0 1 2 3 4 5 6 7 8 9 A B C D E F

00: 00 -----

10: ----- 1E --

20: ----- 2A -----

30: -----

40: ----- 48 -----

50: 50 -----

60: ----- 6B -----

70: -----

i2c_device:5

Eeprom on QuickStartBoard is h50.

ADT7410 also reply to h00.