PIC32MX220F032B + Nokia 5110 Graphic LCD (MPLAB Harmony Configurator)

PIC32MX220F032B□Nokia 5110 Graphic LCD□□□□□□□□
MPLAB Harmony Configurator□□□□□□□□□□□□
□□□□Harmony□□□□□□□□□□□□□□□□□□□□□□□□Harmony□□□□□□□□□□□□□□□□□SPI□□□□□□Harmony□□□□□□□□□□
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Harmony□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□SPI□□□

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Clock Confifurator(□□□□Clock Diagram)□□□□□□□□□□□□□

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SPI□□□□□□□□□□□□□□□□□□□□□□SPI□□□□□1MHz□□□□□□□□1MHz□□□□□□□□□□□□□□□□□□□

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MHC□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
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□□□□□□□□□PIC24FJ64GA002 + Nokia 5110 Graphic LCD (PCD8544) – □□□□□□□ –□□□□□□□□□□□□□□□□□
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PIC32MM0064GPL028 – MPLAB Code Configurator□□□□MCCP□□□□□□L□□□□□□ –

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「PIC32MM0064GPL028 – MPLAB Code Configurator□□□□Timer1□□□□□□L□□□□□□ –」
「PIC32MM0064GPL028 – MPLAB Code Configurator□□□□UART1□□□□□□□□□□□□□ –」
Timer□□□□□□□□□□□□□□Capture/Compare/PWM/Timer (CCP) modules □□□□□□□□□□□□Timer□□□□□□□□□□□□□□
□□□□□□□Single output modules (SCCPs) □□□□□□ Multiple output modules (MCCPs) □□□□□□□□□
SCCP □ □□□ PWM □□□□□□MCCP □□□□□□□□□□□□□□□□□□□□□□□□□
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□□□□□□□□□□□1MHz□□□□□□□MCCP□□□□□□□□□□□□
□□□□1MHz□□□□□□PLL□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□16□□□□□□Pimary Timer Period = 0x5DC(1500)□Secondary Timer Period = 0x7D0(2000)□Prescaler = 1:64 □□□□

□□□Generate□□□□mccp1_tmr.c□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□L□□□□□□□□□□□□□□□□□(□)□

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CCT1 –> LATB7(16pin) –> Logic Analyzer 1ch(Brown)
CCP1 –> LATB15(26pin) –> Logic Analyzer 0ch(Black)
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□□□
CCT1 —> LATB7(16pin) —> Logic Analyzer 1ch(Brown) —> 96ms
CCP1 —> LATB15(26pin) —> Logic Analyzer 0ch(Black) —> 128ms
□□□□□
1000000 / 64 / 1500 = 10.42Hz(96ms)
1000000 / 64 / 2000 = 7.81Hz(128ms)

MCC□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Reference Manual□□□□□□□□□□□□□□□

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□□□□□□Timer□□□□□□□16□□□□□7□□□□□□□□□175□□□□□□□□□

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□PIC32MM0064GPL028 + MCC □PWM□□□□□□□□

PIC32MM0064GPL028□□□□□□

(□)□□(2019/02/05)
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IDE v5.10
XC32 v2.15
MCC v3.66
MCC□□□□□□□□□
MCCP1_TMR_PrimaryTimerCallBack();
MCCP1_TMR_SecondaryTimerCallBack();
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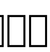
mccp1_tmr.c□□□□□□□□□□□□□□□□□□L□□□□□□□



□□□RB6□RB7□□□□□□□□□□□

PIC32MM0064GPL028 – MPLAB Code Configurator□□□□UART1□□□□□□□□□□□□□ –

□PIC32MM0064GPL028 – MPLAB Code Configurator□□□□Timer1□□□□□□L□□□□□□ –□□□□□

System Module □□□□□□□□□□

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□□□□□□□U1RX(26□□)□USB□□□□□□□□□□□□TX□□U1TX(25□□)□USB□□□□□□□□□□□□RX□□□□□□
TX – RX □□□□□□□□□□□□□□□

Generate□□□

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□□□□□□□ uart1.c □□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□Reference Manual□□□□□□□

UxSTAbits.UTXBF: Transmit Buffer Full Status bit (read-only)
1 = Transmit buffer is full
0 = Transmit buffer is not full, at least one more character can be written

UxTXREG: UARTx Transmit Register
This register provides the data to be transmitted.

[illegible]
[illegible]
Timer1 [illegible] TMR1_CallBack(); [illegible]

[illegible]L[illegible]
[illegible]SAHARA[illegible]CR[illegible]LF[illegible]UART1[illegible]
[illegible]USB[illegible]PC[illegible]

[illegible]SAHARA[illegible]
[illegible]
[illegible]

[illegible]

[illegible] main.c [illegible] main()
[illegible]while[illegible]

```
UART1_Write(UART1_Read()+1);
```

[illegible]

[illegible]MCC[illegible]460800bps[illegible]

PIC32MM0064GPL028[illegible]

[illegible]
[illegible]MCC[illegible]
v3.65[illegible]

PIC32MM0064GPL028 - MPLAB Code Configurator□□□□Timer1□□□□□□L□□□□□□ -

□PIC32MM0064GPL028 – L□□□□□□□□□ –□□□□□□PIC32MM0064GPL028 – L□□□□□□□□□(DIP□) –□□□□□
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PIC32□□□□□Harmony□□□□□□□□□□□□□□□□□□□□□□□□□□□
MPLAB Code Configurator□□□□□□□□□□□
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[crayon-671749aded397390663950/]
□□□□□□□□□□MCC□□□□□□

□□System□□□□□□□□□

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LED□□□□□□□□□

Analog□□□□□□□□□□□□□□□□□□□
□□□□□□RA0□RB15□□□□□□□□□□□□□□□□□

Timer1□□□□

500ms□□□□□□□

Generate

tmr1.c□□TMR1_Start(void)□□□□□□□□□

main.c□int main(void){□SYSTEM_Initialize();□□□□□□□□□□□void□□□□
□□□□□□□□□□

tmr1.c□□□□□TMR1_ISR()□

[crayon-671749aded39d412420745/]

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2, 16, 26□□□□□□□□□□LED□GND □□□□LED□□□□□□□□□□□□□□□

PICkit3□□□□□□□GND□□□□□□□MCLR(1□□)□□□PGD1(4□□)□□□PGC1(5□□)□□□
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(□)

TMR1_ISR(){□□□TMR1_CallBack(void){□□□□□□□□□□□□□□□□□□□□□

□□□□□callback□□□□□□□□□□□□□□□□□□□□□□□

□□(2021/09/18)

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LPRC□32kHz□□□□□□□□PBCLK□8MHz□□□□□□□□SOSC□□□□□□□□□□□□

T1CK□18□□□□□□□□□□□

[illegible]PBCLK[illegible]

[illegible]PIC32MM0064GPL028 – MPLAB Code Configurator[illegible]UART1[illegible] –[illegible]

PIC32MM0064GPL028[illegible]

PIC32MM0064GPL028 - L[illegible] -

[illegible]
[illegible]DIP[illegible]PIC32MM0064GPL028 – L[illegible](DIP[illegible]) –[illegible]
[illegible]
[illegible]MPLAB X IDE 5.45 [illegible]

PIC32MM0064GPL028[illegible]SOIC[illegible]MPLAB Code Configurator(MCC)[illegible]Timer1[illegible]L[illegible]
[illegible]
[illegible]
[illegible]

[illegible]

[illegible]
[illegible]

[illegible]Arduino Nano[illegible]

[illegible]
[illegible]

PIC32MX□□□□□□□□□□□□□□□□□□□□

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PIC32MM0064GPL028□□□□□□

PIC32MX120F032B – Harmony□PWM□LED□□□□□□□□ –

□PIC32MX120F032B – Harmony□PWM□□□□□□ –□□□LED□PWN□□□□□□□□□□□□□□
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delay□□□□□□□□□□□□□□□□□□□□□□□□Interrupt Flag□□□□□1ms□□□□□□□□□□

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OC□Timer2□□□□□□□□□□□□□Timer1□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
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□□□Timer1□Timer2□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

PIC32MX120F032B — Harmony□PWM □□□□□□ —

□PIC32MX120F032B — PWM□□□□□□ —□□□□□PWM□□□□□Harmony□□□□□□□□□□
Clock□□□

Clock Diagram

□□□□PBCLK□40MHz□□□□□□□
16kHz□□□□PWM□□□□□□40000000 / 16000 = 2500
Timer2□PR2□2500□□□□□□

□□□□□□□□10%□□□□□□OC□Pulse Wodth□250□□□□

□□□15□□□RB6□□□□□□Pin Diagram□□□□□□□□□□□□□□□

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RPB7Rbits.RPB7R = 0x0005;
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□□
□□system_config¥default¥framework¥driver¥tmr¥src¥drv_tmr_static.c
□□
DRV_TMR0_Start();
□□□□
system_config¥default¥framework¥driver¥oc¥src¥drv_oc_static.c
□□
DRV_OC0_Start();
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PIC32MX120F032B - PWM[illegible] -

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PIC32MX120F32B[illegible]

16[illegible]LED[illegible]

LED[illegible]PIC32MX250F128B MPLABX XC32 Harmony [illegible]- [illegible] —[illegible]

[illegible]LED[illegible]PWM[illegible]

[illegible]2kHz[illegible]16kHz[illegible]

[illegible]

[illegible]

[illegible]

PIC32MX[illegible]Pripheral Bus Clock(PBCLK)[illegible]

[illegible](SYSCLK)[illegible]PBDIV[illegible]Prescalor[illegible]PBCLK[illegible]

PBDIV[illegible]1:8[illegible]

[illegible]SYSCLK[illegible]40MHz[illegible]PBDIV[illegible]PBCLK[illegible]5MHz[illegible]

[illegible]16kHz[illegible]2kHz[illegible]

[illegible]Output Compare(OC)[illegible]Timer[illegible]PWM[illegible]

[illegible]

[illegible]Timer2[illegible]PR2[illegible]

[illegible]OC[illegible]OCxRS[illegible]

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OC1□Timer2□□□□□□
(1)TMR2□□□□□□□□□□□□□□□□□□□□□□□□OC1RS□□OC1R□□□□□□□□
(2)PBCLK□□□□□□□□□TMR2□□□OC1R□□□□□□OC1□□□□□□□Low□□□□
(3)PBCLK□□□□□□□□□□□□TMR2□PR2□□□□□□□□□□□□□□□□□□□□□□OC1RS□□OC1R□□□□□□□□
OC1□□□□High□□□□
(4)(1)□□

MPLAB Code Configurator – PIC32MX120F032B □Timer1 □Interrupt□L□□□□□ –



□□□□□□□□□□□□□□□□□□□□MPLAB Code Configulator(□□MCC)□□□□□□

□□□System Module□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□Pin Modul□Pin Manager□□□□□□□□□□
RB15□□□□□□□□□□□□□□□□

Analog□□□□□□□□□□□□□□□□□□□□□□□□

Device Resources□□Timer□TMR1□□□□

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[Generate]□□□□□□□□□□□□□□□□□□□□
tmr1.c□□TMR1_Start();□□□□□□□□□main()□□□□□□□□


tmr1.c[illegible]TMR1_CallBack()[illegible]L[illegible]

[illegible]

[illegible]PORTAbits.[illegible]^=1;[illegible]

[illegible]Harmony[illegible]

MCC[illegible]

Harmony[illegible]MCC[illegible]

[illegible]

Harmony[illegible]32BIT[illegible]

[illegible](2017/09/25)

[illegible]

[illegible]

[illegible]MCLR[illegible]

PIC32MX250F128B MPLABX XC32 Harmony [illegible]([illegible])

[illegible]PIC32MX250F128B MPLABX XC32 Harmony [illegible]

[illegible]

[illegible]

[illegible]TMR_ID_2[illegible]

Timer1[illegible]

Harmony[illegible]Help[illegible]TMR_ID_2[illegible]Timer2[illegible]

[illegible]T1CON = 0x8030 [illegible]Harmony[illegible]Prescaler [illegible]

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□PIC32MX250F128B MPLABX XC32 Harmony □□□□□□□□□□

□PIC32MX250F128B MPLABX XC32 Harmony □□□□□□□□□- Interrupt –□

□PIC32MX250F128B MPLABX XC32 Harmony □□□□□□□□□- Timer□□□ –□