

lab5_SPI_OLED

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Chapter 1

README

In this lab work, a graphic editor is implemented using the OLED display, buttons, a switch on the chipkit WiFire Basic I/O Shield board, and data transfer via the SPI interface. At the beginning of the program, the text is displayed and the initial coordinates for drawing are set. Using the buttons, you can move 1 pixel up, down, right or left. With the switch, the pixel color is set to black or white.

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

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Chapter 3

File Documentation

3.1 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/ChrFont0.c File Reference

```
#include <stdint.h>
#include "OLED.h"
```

Variables

- const `BYTE` `rgbOledFont0` []

3.1.1 Variable Documentation

3.1.1.1 `rgbOledFont0`

```
const BYTE rgbOledFont0 []
```

3.2 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/configuration_bits.c File Reference

3.3 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/FillPat.c File Reference

```
#include <stdint.h>
#include "OLED.h"
```

Variables

- const [BYTE](#) [rgbFillPat](#) []

3.3.1 Variable Documentation

3.3.1.1 [rgbFillPat](#)

```
const BYTE rgbFillPat [ ]
```

Initial value:

```
= {
    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
    0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
    0xAA, 0x55, 0xAA, 0x55, 0xAA, 0x55, 0xAA, 0x55,
    0x11, 0x44, 0x00, 0x11, 0x44, 0x00, 0x11, 0x44,
    0x92, 0x45, 0x24, 0x92, 0x45, 0x24, 0x92, 0x45,
    0x49, 0x92, 0x24, 0x49, 0x92, 0x24, 0x49, 0x92,
    0x22, 0x11, 0x22, 0x00, 0x22, 0x11, 0x22, 0x00,
    0x11, 0x22, 0x11, 0x00, 0x11, 0x22, 0x11, 0x00
}
```

3.4 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/main.c File Reference

```
#include <stdint.h>
#include <stdbool.h>
#include "user.h"
```

Functions

- [int32_t](#) [main](#) (void)

3.4.1 Function Documentation

3.4.1.1 [main\(\)](#)

```
int32_t main (
    void )
```


3.5 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OLED.c File Reference

```
#include "OLED.h"  
#include "user.h"
```

Macros

- #define `cmdOledDisplayOn` 0xAF
- #define `cmdOledDisplayOff` 0xAE
- #define `cmdOledSegRemap` 0xA1
- #define `cmdOledComDir` 0xC8
- #define `cmdOledComConfig` 0xDA

Functions

- void `OledHostInit` ()
- void `OledDsplInit` ()
- void `OledDvrlInit` ()
- void `OledUpdate` ()
- void `OledHostTerm` ()
- void `OledDevTerm` ()

Variables

- `BYTE` `rgbOledFont0` []
- `BYTE` `rgbOledFontUser` []
- `BYTE` `rgbFillPat` []
- `int` `xchOledMax`
- `int` `ychOledMax`
- `int` `xcoOledCur`
- `int` `ycoOledCur`
- `BYTE` * `pbOledCur`
- `int` `bnOledCur`
- `BYTE` `clrOledCur`
- `BYTE` * `pbOledPatCur`
- `int` `fOledCharUpdate`
- `int` `dxcoOledFontCur`
- `int` `dycoOledFontCur`
- `BYTE` * `pbOledFontCur`
- `BYTE` * `pbOledFontUser`

3.5.1 Macro Definition Documentation

3.5.1.1 cmdOledComConfig

```
#define cmdOledComConfig 0xDA
```

3.5.1.2 cmdOledComDir

```
#define cmdOledComDir 0xC8
```

3.5.1.3 cmdOledDisplayOff

```
#define cmdOledDisplayOff 0xAE
```

3.5.1.4 cmdOledDisplayOn

```
#define cmdOledDisplayOn 0xAF
```

3.5.1.5 cmdOledSegRemap

```
#define cmdOledSegRemap 0xA1
```

3.5.2 Function Documentation

3.5.2.1 OledDevTerm()

```
void OledDevTerm ( )
```

3.5.2.2 OledDspInit()

```
void OledDspInit ( )
```

3.5.2.3 OledDvrInit()

```
void OledDvrInit ( )
```

3.5.2.4 OledHostInit()

```
void OledHostInit ( )
```

Function:

Summary:

Description:

Remarks:

3.5.2.5 OledHostTerm()

```
void OledHostTerm ( )
```

3.5.2.6 OledUpdate()

```
void OledUpdate ( )
```

3.5.3 Variable Documentation

3.5.3.1 bnOledCur

```
int bnOledCur
```

3.5.3.2 clrOledCur

```
BYTE clrOledCur
```

3.5.3.3 dxcoOledFontCur

```
int dxcoOledFontCur
```

3.5.3.4 dycoOledFontCur

```
int dycoOledFontCur
```

3.5.3.5 fOledCharUpdate

```
int fOledCharUpdate
```

3.5.3.6 pbOledCur

```
BYTE* pbOledCur
```

3.5.3.7 pbOledFontCur

```
BYTE* pbOledFontCur
```

3.5.3.8 pbOledFontUser

```
BYTE* pbOledFontUser
```

3.5.3.9 pbOledPatCur

```
BYTE* pbOledPatCur
```

3.5.3.10 rgbFillPat

```
BYTE rgbFillPat[ ]
```

3.5.3.11 rgbOledFont0

```
BYTE rgbOledFont0[ ]
```

3.5.3.12 rgbOledFontUser

```
BYTE rgbOledFontUser[ ]
```

3.5.3.13 xchOledMax

```
int xchOledMax
```

3.5.3.14 xcoOledCur

```
int xcoOledCur
```

3.5.3.15 ychOledMax

```
int ychOledMax
```

3.5.3.16 ycoOledCur

```
int ycoOledCur
```

3.6 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OLED.h File Reference

```
#include <xc.h>
#include <stdint.h>
```

Macros

- `#define MASK(x) (1<<(x))`
- `#define prtVddCtrl PORTD`
- `#define bitVddCtrl MASK(12)`
- `#define prtVbatCtrl PORTD`
- `#define bitVbatCtrl MASK(15)`
- `#define prtDataCmd PORTD`
- `#define bitDataCmd MASK(14)`
- `#define prtReset PORTG`
- `#define bitReset MASK(9)`
- `#define cbOledDispMax 512`
- `#define ccolOledMax 128`
- `#define crowOledMax 32`
- `#define cpagOledMax 4`
- `#define cbOledChar 8`
- `#define chOledUserMax 0x20`
- `#define cbOledFontUser (chOledUserMax*cbOledChar)`
- `#define modOledSet 0`
- `#define modOledOr 1`
- `#define modOledAnd 2`
- `#define modOledXor 3`

Typedefs

- `typedef uint8_t BYTE`

Functions

- `void OledInit ()`
- `void OledDvrlInit ()`
- `void OledTerm ()`
- `void OledDisplayOn ()`
- `void OledDisplayOff ()`
- `void OledClear ()`
- `void OledClearBuffer ()`
- `void OledUpdate ()`

Variables

- `BYTE rgbOledBmp [cbOledDispMax]`

3.6.1 Macro Definition Documentation

3.6.1.1 bitDataCmd

```
#define bitDataCmd MASK(14)
```

3.6.1.2 bitReset

```
#define bitReset MASK(9)
```

3.6.1.3 bitVbatCtrl

```
#define bitVbatCtrl MASK(15)
```

3.6.1.4 bitVddCtrl

```
#define bitVddCtrl MASK(12)
```

3.6.1.5 cbOledChar

```
#define cbOledChar 8
```

3.6.1.6 cbOledDispMax

```
#define cbOledDispMax 512
```

3.6.1.7 cbOledFontUser

```
#define cbOledFontUser (chOledUserMax*cbOledChar)
```

3.6.1.8 ccolOledMax

```
#define ccolOledMax 128
```

3.6.1.9 chOledUserMax

```
#define chOledUserMax 0x20
```

3.6.1.10 cpagOledMax

```
#define cpagOledMax 4
```

3.6.1.11 crowOledMax

```
#define crowOledMax 32
```

3.6.1.12 MASK

```
#define MASK(  
    x ) (1<<(x))
```

3.6.1.13 modOledAnd

```
#define modOledAnd 2
```

3.6.1.14 modOledOr

```
#define modOledOr 1
```

3.6.1.15 modOledSet

```
#define modOledSet 0
```

3.6.1.16 modOledXor

```
#define modOledXor 3
```


3.6.1.17 prtDataCmd

```
#define prtDataCmd PORTD
```

3.6.1.18 prtReset

```
#define prtReset PORTG
```

3.6.1.19 prtVbatCtrl

```
#define prtVbatCtrl PORTD
```

3.6.1.20 prtVddCtrl

```
#define prtVddCtrl PORTD
```

3.6.2 Typedef Documentation

3.6.2.1 BYTE

```
typedef uint8_t BYTE
```

3.6.3 Function Documentation

3.6.3.1 OledClear()

```
void OledClear ( )
```

3.6.3.2 OledClearBuffer()

```
void OledClearBuffer ( )
```

3.6.3.3 OledDisplayOff()

```
void OledDisplayOff ( )
```

3.6.3.4 OledDisplayOn()

```
void OledDisplayOn ( )
```

3.6.3.5 OledDvrInit()

```
void OledDvrInit ( )
```

3.6.3.6 OledInit()

```
void OledInit ( )
```

Function prototype:

Summary:

Description:

Precondition:

Parameters:

Returns:

Example:

Remarks:

3.6.3.7 OledTerm()

```
void OledTerm ( )
```

3.6.3.8 OledUpdate()

```
void OledUpdate ( )
```

3.6.4 Variable Documentation

3.6.4.1 rgbOledBmp

```
BYTE rgbOledBmp[cbOledDispMax]
```

3.7 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OledChar.c File Reference

```
#include <inttypes.h>
#include "OLED.h"
#include "OledChar.h"
#include "OledGrph.h"
```

Functions

- void `OledDrawGlyph` (char ch)
- void `OledAdvanceCursor` ()
- void `OledSetCursor` (int xch, int ych)
- void `OledGetCursor` (int *pxch, int *pych)
- int `OledDefUserChar` (char ch, BYTE *pbDef)
- void `OledSetCharUpdate` (int f)
- int `OledGetCharUpdate` ()
- void `OledPutChar` (char ch)
- void `OledPutString` (char *sz)

Variables

- int `xcoOledCur`
- int `ycoOledCur`
- BYTE * `pbOledCur`
- BYTE `mskOledCur`
- int `bnOledCur`
- int `fOledCharUpdate`
- BYTE `rgbOledBmp` []
- int `dxcoOledFontCur`
- int `dycoOledFontCur`
- BYTE * `pbOledFontCur`
- BYTE * `pbOledFontUser`
- int `xchOledCur`
- int `ychOledCur`
- int `xchOledMax`
- int `ychOledMax`
- BYTE * `pbOledFontExt`
- BYTE `rgbOledFontUser` [cbOledFontUser]

3.7.1 Function Documentation

3.7.1.1 OledAdvanceCursor()

```
void OledAdvanceCursor ( )
```

3.7.1.2 OledDefUserChar()

```
int OledDefUserChar (
    char ch,
    BYTE * pbDef )
```

3.7.1.3 OledDrawGlyph()

```
void OledDrawGlyph (
    char ch )
```

3.7.1.4 OledGetCharUpdate()

```
int OledGetCharUpdate ( )
```

3.7.1.5 OledGetCursor()

```
void OledGetCursor (
    int * pxch,
    int * pych )
```

3.7.1.6 OledPutChar()

```
void OledPutChar (
    char ch )
```

3.7.1.7 OledPutString()

```
void OledPutString (
    char * sz )
```

3.7.1.8 OledSetCharUpdate()

```
void OledSetCharUpdate (
    int f )
```

3.7.1.9 OledSetCursor()

```
void OledSetCursor (
    int xch,
    int ych )
```

3.7.2 Variable Documentation

3.7.2.1 bnOledCur

```
int bnOledCur
```

3.7.2.2 dxcoOledFontCur

```
int dxcoOledFontCur
```

3.7.2.3 dycoOledFontCur

```
int dycoOledFontCur
```

3.7.2.4 fOledCharUpdate

```
int fOledCharUpdate
```

3.7.2.5 mskOledCur

`BYTE mskOledCur`

3.7.2.6 pbOledCur

`BYTE* pbOledCur`

3.7.2.7 pbOledFontCur

`BYTE* pbOledFontCur`

3.7.2.8 pbOledFontExt

`BYTE* pbOledFontExt`

3.7.2.9 pbOledFontUser

`BYTE* pbOledFontUser`

3.7.2.10 rgbOledBmp

`BYTE rgbOledBmp[]`

3.7.2.11 rgbOledFontUser

`BYTE rgbOledFontUser[cbOledFontUser]`

3.7.2.12 xchOledCur

`int xchOledCur`

3.7.2.13 xchOledMax

```
int xchOledMax
```

3.7.2.14 xcoOledCur

```
int xcoOledCur
```

3.7.2.15 ychOledCur

```
int ychOledCur
```

3.7.2.16 ychOledMax

```
int ychOledMax
```

3.7.2.17 ycoOledCur

```
int ycoOledCur
```

3.8 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OledChar.h File Reference

Functions

- void [OledSetCursor](#) (int xch, int ych)
- void [OledGetCursor](#) (int *pxcy, int *pych)
- int [OledDefUserChar](#) (char ch, uint8_t *pbDef)
- void [OledSetCharUpdate](#) (int f)
- int [OledGetCharUpdate](#) ()
- void [OledPutChar](#) (char ch)
- void [OledPutString](#) (char *sz)

3.8.1 Function Documentation

3.8.1.1 OledDefUserChar()

```
int OledDefUserChar (
    char ch,
    uint8_t * pbDef )
```

3.8.1.2 OledGetCharUpdate()

```
int OledGetCharUpdate ( )
```

3.8.1.3 OledGetCursor()

```
void OledGetCursor (
    int * pxcy,
    int * pych )
```

3.8.1.4 OledPutChar()

```
void OledPutChar (
    char ch )
```

3.8.1.5 OledPutString()

```
void OledPutString (
    char * sz )
```

3.8.1.6 OledSetCharUpdate()

```
void OledSetCharUpdate (
    int f )
```

3.8.1.7 OledSetCursor()

```
void OledSetCursor (
    int xch,
    int ych )
```


3.9 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OledGrph.c File Reference

```
#include <stdint.h>
#include "OLED.h"
```

Functions

- void [OledMoveDown](#) ()
- void [OledMoveUp](#) ()
- void [OledMoveRight](#) ()
- void [OledMoveLeft](#) ()
- [BYTE](#) [OledRopSet](#) ([BYTE](#) bPix, [BYTE](#) bDsp, [BYTE](#) mskPix)
- [BYTE](#) [OledRopOr](#) ([BYTE](#) bPix, [BYTE](#) bDsp, [BYTE](#) mskPix)
- [BYTE](#) [OledRopAnd](#) ([BYTE](#) bPix, [BYTE](#) bDsp, [BYTE](#) mskPix)
- [BYTE](#) [OledRopXor](#) ([BYTE](#) bPix, [BYTE](#) bDsp, [BYTE](#) mskPix)
- int [OledClampXco](#) (int xco)
- int [OledClampYco](#) (int yco)
- void [OledMoveTo](#) (int xco, int yco)
- void [OledGetPos](#) (int *pxco, int *pyco)
- void [OledSetDrawColor](#) ([BYTE](#) clr)
- [BYTE](#) * [OledGetStdPattern](#) (int ipat)
- void [OledSetFillPattern](#) ([BYTE](#) *pbPat)
- void [OledSetDrawMode](#) (int mod)
- int [OledGetDrawMode](#) ()
- void [OledDrawPixel](#) ()
- [BYTE](#) [OledGetPixel](#) ()
- void [OledLineTo](#) (int xco, int yco)
- void [OledDrawRect](#) (int xco, int yco)
- void [OledFillRect](#) (int xco, int yco)
- void [OledGetBmp](#) (int dxco, int dyco, [BYTE](#) *pbBits)
- void [OledPutBmp](#) (int dxco, int dyco, [BYTE](#) *pbBits)
- void [OledDrawChar](#) (char ch)
- void [OledDrawString](#) (char *sz)

Variables

- int [xcoOledCur](#)
- int [ycoOledCur](#)
- [BYTE](#) * [pbOledCur](#)
- [BYTE](#) [rgbOledBmp](#) []
- [BYTE](#) [rgbFillPat](#) []
- int [bnOledCur](#)
- [BYTE](#) [clrOledCur](#)
- [BYTE](#) * [pbOledPatCur](#)
- [BYTE](#) * [pbOledFontUser](#)
- [BYTE](#) * [pbOledFontCur](#)
- int [dxcoOledFontCur](#)
- int [dycoOledFontCur](#)
- [BYTE](#)(* [pfnDoRop](#))([BYTE](#) bPix, [BYTE](#) bDsp, [BYTE](#) mskPix)
- int [modOledCur](#)

3.9.1 Function Documentation

3.9.1.1 OledClampXco()

```
int OledClampXco (
    int xco )
```

3.9.1.2 OledClampYco()

```
int OledClampYco (
    int yco )
```

3.9.1.3 OledDrawChar()

```
void OledDrawChar (
    char ch )
```

3.9.1.4 OledDrawPixel()

```
void OledDrawPixel ( )
```

3.9.1.5 OledDrawRect()

```
void OledDrawRect (
    int xco,
    int yco )
```

3.9.1.6 OledDrawString()

```
void OledDrawString (
    char * sz )
```

3.9.1.7 OledFillRect()

```
void OledFillRect (
    int xco,
    int yco )
```

3.9.1.8 OledGetBmp()

```
void OledGetBmp (
    int dxco,
    int dyco,
    BYTE * pbBits )
```

3.9.1.9 OledGetDrawMode()

```
int OledGetDrawMode ( )
```

3.9.1.10 OledGetPixel()

```
BYTE OledGetPixel ( )
```

3.9.1.11 OledGetPos()

```
void OledGetPos (
    int * pxco,
    int * pyco )
```

3.9.1.12 OledGetStdPattern()

```
BYTE* OledGetStdPattern (
    int ipat )
```

3.9.1.13 OledLineTo()

```
void OledLineTo (
    int xco,
    int yco )
```

3.9.1.14 OledMoveDown()

```
void OledMoveDown ( )
```

3.9.1.15 OledMoveLeft()

```
void OledMoveLeft ( )
```

3.9.1.16 OledMoveRight()

```
void OledMoveRight ( )
```

3.9.1.17 OledMoveTo()

```
void OledMoveTo (
    int xco,
    int yco )
```

3.9.1.18 OledMoveUp()

```
void OledMoveUp ( )
```

3.9.1.19 OledPutBmp()

```
void OledPutBmp (
    int dxco,
    int dyco,
    BYTE * pbBits )
```

3.9.1.20 OledRopAnd()

```
BYTE OledRopAnd (
    BYTE bPix,
    BYTE bDsp,
    BYTE msbPix )
```

3.9.1.21 OledRopOr()

```
BYTE OledRopOr (
    BYTE bPix,
    BYTE bDsp,
    BYTE msbPix )
```

3.9.1.22 OledRopSet()

```
BYTE OledRopSet (
    BYTE bPix,
    BYTE bDsp,
    BYTE msbPix )
```

3.9.1.23 OledRopXor()

```
BYTE OledRopXor (
    BYTE bPix,
    BYTE bDsp,
    BYTE msbPix )
```

3.9.1.24 OledSetDrawColor()

```
void OledSetDrawColor (
    BYTE clr )
```

3.9.1.25 OledSetDrawMode()

```
void OledSetDrawMode (
    int mod )
```

3.9.1.26 OledSetFillPattern()

```
void OledSetFillPattern (
    BYTE * pbPat )
```

3.9.2 Variable Documentation

3.9.2.1 bnOledCur

```
int bnOledCur
```

3.9.2.2 clrOledCur

```
BYTE clrOledCur
```

3.9.2.3 dxcoOledFontCur

```
int dxcoOledFontCur
```

3.9.2.4 dycoOledFontCur

```
int dycoOledFontCur
```

3.9.2.5 modOledCur

```
int modOledCur
```

3.9.2.6 pbOledCur

```
BYTE* pbOledCur
```

3.9.2.7 pbOledFontCur

`BYTE* pbOledFontCur`

3.9.2.8 pbOledFontUser

`BYTE* pbOledFontUser`

3.9.2.9 pbOledPatCur

`BYTE* pbOledPatCur`

3.9.2.10 pfnDoRop

`BYTE(* pfnDoRop) (BYTE bPix, BYTE bDsp, BYTE mskPix)`

3.9.2.11 rgbFillPat

`BYTE rgbFillPat[]`

3.9.2.12 rgbOledBmp

`BYTE rgbOledBmp[]`

3.9.2.13 xcoOledCur

`int xcoOledCur`

3.9.2.14 ycoOledCur

`int ycoOledCur`

3.10 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/OledGrph.h File Reference

Functions

- void [OledSetDrawColor](#) (uint8_t clr)
- void [OledSetDrawMode](#) (int mod)
- int [OledGetDrawMode](#) ()
- uint8_t * [OledGetStdPattern](#) (int ipat)
- void [OledSetFillPattern](#) (uint8_t *pbPat)
- void [OledMoveTo](#) (int xco, int yco)
- void [OledGetPos](#) (int *pxco, int *pyco)
- void [OledDrawPixel](#) ()
- uint8_t [OledGetPixel](#) ()
- void [OledLineTo](#) (int xco, int yco)
- void [OledDrawRect](#) (int xco, int yco)
- void [OledFillRect](#) (int xco, int yco)
- void [OledGetBmp](#) (int dxco, int dyco, uint8_t *pbBmp)
- void [OledPutBmp](#) (int dxco, int dyco, uint8_t *pbBmp)
- void [OledDrawChar](#) (char ch)
- void [OledDrawString](#) (char *sz)

3.10.1 Function Documentation

3.10.1.1 [OledDrawChar\(\)](#)

```
void OledDrawChar (  
    char ch )
```

3.10.1.2 [OledDrawPixel\(\)](#)

```
void OledDrawPixel ( )
```

3.10.1.3 [OledDrawRect\(\)](#)

```
void OledDrawRect (  
    int xco,  
    int yco )
```


3.10.1.4 OledDrawString()

```
void OledDrawString (
    char * sz )
```

3.10.1.5 OledFillRect()

```
void OledFillRect (
    int xco,
    int yco )
```

3.10.1.6 OledGetBmp()

```
void OledGetBmp (
    int dxco,
    int dyco,
    uint8_t * pbBmp )
```

3.10.1.7 OledGetDrawMode()

```
int OledGetDrawMode ( )
```

3.10.1.8 OledGetPixel()

```
uint8_t OledGetPixel ( )
```

3.10.1.9 OledGetPos()

```
void OledGetPos (
    int * pxco,
    int * pyco )
```

3.10.1.10 OledGetStdPattern()

```
uint8_t* OledGetStdPattern (
    int ipat )
```

3.10.1.11 OledLineTo()

```
void OledLineTo (
    int xco,
    int yco )
```

3.10.1.12 OledMoveTo()

```
void OledMoveTo (
    int xco,
    int yco )
```

3.10.1.13 OledPutBmp()

```
void OledPutBmp (
    int dxco,
    int dyco,
    uint8_t * pbBmp )
```

3.10.1.14 OledSetDrawColor()

```
void OledSetDrawColor (
    uint8_t clr )
```

3.10.1.15 OledSetDrawMode()

```
void OledSetDrawMode (
    int mod )
```

3.10.1.16 OledSetFillPattern()

```
void OledSetFillPattern (
    uint8_t * pbPat )
```

3.11 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/README.md File Reference

3.12 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/SPI.c File Reference

```
#include <stdint.h>
#include "OLED.h"
```

Functions

- void `OledPutBuffer` (int cb, `BYTE` *rgbTx)
- `BYTE` `Spi2PutByte` (`BYTE` bVal)

3.12.1 Function Documentation

3.12.1.1 `OledPutBuffer()`

```
void OledPutBuffer (
    int cb,
    BYTE * rgbTx )
```

Function:

Summary:

Description:

Remarks:

3.12.1.2 `Spi2PutByte()`

```
BYTE Spi2PutByte (
    BYTE bVal )
```

3.13 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/user.c File Reference

```
#include <stdint.h>
#include <stdbool.h>
#include "user.h"
#include <sys/attrs.h>
```

Functions

- void [DelayMs](#) (int t)
- void [InitTimer2](#) (void)
- void [__ISR](#) (_TIMER_2_VECTOR, IPL3SOFT)
- void [InitGPIO](#) (void)
- void [InitApp](#) (void)

3.13.1 Function Documentation

3.13.1.1 [__ISR\(\)](#)

```
void __ISR (
    _TIMER_2_VECTOR ,
    IPL3SOFT )
```

3.13.1.2 [DelayMs\(\)](#)

```
void DelayMs (
    int t )
```

3.13.1.3 [InitApp\(\)](#)

```
void InitApp (
    void )
```

3.13.1.4 [InitGPIO\(\)](#)

```
void InitGPIO (
    void )
```

3.13.1.5 [InitTimer2\(\)](#)

```
void InitTimer2 (
    void )
```

3.14 D:/GIT/TheConnectedMCU_Labs/bkarachok/lab5_SPI_OLED/user.h File Reference

```
#include <stdint.h>
```

Macros

- `#define LD1_PORT_BIT` LATGbits.LATG6
- `#define LD2_PORT_BIT` LATDbits.LATD4
- `#define LD3_PORT_BIT` LATBbits.LATB11
- `#define LD4_PORT_BIT` LATGbits.LATG15
- `#define SW1` PORTEbits.RE8
- `#define BTN1` PORTCbits.RC3
- `#define BTN2` PORTDbits.RD5
- `#define BTN3` PORTFbits.RF1
- `#define BTN4` PORTAbits.RA2

Functions

- void `InitApp` (void)
- void `DelayMs` (int t)

3.14.1 Macro Definition Documentation

3.14.1.1 BTN1

```
#define BTN1 PORTCbits.RC3
```

3.14.1.2 BTN2

```
#define BTN2 PORTDbits.RD5
```

3.14.1.3 BTN3

```
#define BTN3 PORTFbits.RF1
```

3.14.1.4 BTN4

```
#define BTN4 PORTAbits.RA2
```

3.14.1.5 LD1_PORT_BIT

```
#define LD1_PORT_BIT LATGbits.LATG6
```

3.14.1.6 LD2_PORT_BIT

```
#define LD2_PORT_BIT LATDbits.LATD4
```

3.14.1.7 LD3_PORT_BIT

```
#define LD3_PORT_BIT LATBbits.LATB11
```

3.14.1.8 LD4_PORT_BIT

```
#define LD4_PORT_BIT LATGbits.LATG15
```

3.14.1.9 SW1

```
#define SW1 PORTEbits.RE8
```

3.14.2 Function Documentation

3.14.2.1 DelayMs()

```
void DelayMs (  
    int t )
```

3.14.2.2 InitApp()

```
void InitApp (  
    void )
```

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