/\*

u8g\_dev\_st7920\_128x64.c

Universal 8bit Graphics Library

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\*/

#include "u8g.h"

#define WIDTH 128

#define HEIGHT 64

#define PAGE\_HEIGHT 8

/\* init sequence from https://github.com/adafruit/ST7565-LCD/blob/master/ST7565/ST7565.cpp \*/

static const uint8\_t u8g\_dev\_st7920\_128x64\_init\_seq[] PROGMEM = {

U8G\_ESC\_CS(0), /\* disable chip \*/

U8G\_ESC\_ADR(0), /\* instruction mode \*/

U8G\_ESC\_RST(15), /\* do reset low pulse with (15\*16)+2 milliseconds (=maximum delay)\*/

U8G\_ESC\_DLY(100), /\* 8 Dez 2012: additional delay 100 ms because of reset\*/

U8G\_ESC\_CS(1), /\* enable chip \*/

U8G\_ESC\_DLY(50), /\* delay 50 ms \*/

0x038, /\* 8 Bit interface (DL=1), basic instruction set (RE=0) \*/

0x00c, /\* display on, cursor & blink off; 0x08: all off \*/

0x006, /\* Entry mode: Cursor move to right ,DDRAM address counter (AC) plus 1, no shift \*/

0x002, /\* disable scroll, enable CGRAM adress \*/

0x001, /\* clear RAM, needs 1.6 ms \*/

U8G\_ESC\_DLY(100), /\* delay 100 ms \*/

U8G\_ESC\_CS(0), /\* disable chip \*/

U8G\_ESC\_END /\* end of sequence \*/

};

uint8\_t u8g\_dev\_st7920\_128x64\_fn(u8g\_t \*u8g, u8g\_dev\_t \*dev, uint8\_t msg, void \*arg)

{

switch(msg)

{

case U8G\_DEV\_MSG\_INIT:

u8g\_InitCom(u8g, dev, U8G\_SPI\_CLK\_CYCLE\_400NS);

u8g\_WriteEscSeqP(u8g, dev, u8g\_dev\_st7920\_128x64\_init\_seq);

break;

case U8G\_DEV\_MSG\_STOP:

break;

case U8G\_DEV\_MSG\_PAGE\_NEXT:

{

uint8\_t y, i;

uint8\_t \*ptr;

u8g\_pb\_t \*pb = (u8g\_pb\_t \*)(dev->dev\_mem);

u8g\_SetAddress(u8g, dev, 0); /\* cmd mode \*/

u8g\_SetChipSelect(u8g, dev, 1);

y = pb->p.page\_y0;

ptr = pb->buf;

for( i = 0; i < 8; i ++ )

{

u8g\_SetAddress(u8g, dev, 0); /\* cmd mode \*/

u8g\_WriteByte(u8g, dev, 0x03e ); /\* enable extended mode \*/

if ( y < 32 )

{

u8g\_WriteByte(u8g, dev, 0x080 | y ); /\* y pos \*/

u8g\_WriteByte(u8g, dev, 0x080 ); /\* set x pos to 0\*/

}

else

{

u8g\_WriteByte(u8g, dev, 0x080 | (y-32) ); /\* y pos \*/

u8g\_WriteByte(u8g, dev, 0x080 | 8); /\* set x pos to 64\*/

}

u8g\_SetAddress(u8g, dev, 1); /\* data mode \*/

u8g\_WriteSequence(u8g, dev, WIDTH/8, ptr);

ptr += WIDTH/8;

y++;

}

u8g\_SetChipSelect(u8g, dev, 0);

}

break;

}

return u8g\_dev\_pb8h1\_base\_fn(u8g, dev, msg, arg);

}

uint8\_t u8g\_dev\_st7920\_128x64\_4x\_fn(u8g\_t \*u8g, u8g\_dev\_t \*dev, uint8\_t msg, void \*arg)

{

switch(msg)

{

case U8G\_DEV\_MSG\_INIT:

u8g\_InitCom(u8g, dev, U8G\_SPI\_CLK\_CYCLE\_400NS);

u8g\_WriteEscSeqP(u8g, dev, u8g\_dev\_st7920\_128x64\_init\_seq);

break;

case U8G\_DEV\_MSG\_STOP:

break;

case U8G\_DEV\_MSG\_PAGE\_NEXT:

{

uint8\_t y, i;

uint8\_t \*ptr;

u8g\_pb\_t \*pb = (u8g\_pb\_t \*)(dev->dev\_mem);

u8g\_SetAddress(u8g, dev, 0); /\* cmd mode \*/

u8g\_SetChipSelect(u8g, dev, 1);

y = pb->p.page\_y0;

ptr = pb->buf;

for( i = 0; i < 32; i ++ )

{

u8g\_SetAddress(u8g, dev, 0); /\* cmd mode \*/

u8g\_WriteByte(u8g, dev, 0x03e ); /\* enable extended mode \*/

if ( y < 32 )

{

u8g\_WriteByte(u8g, dev, 0x080 | y ); /\* y pos \*/

u8g\_WriteByte(u8g, dev, 0x080 ); /\* set x pos to 0\*/

}

else

{

u8g\_WriteByte(u8g, dev, 0x080 | (y-32) ); /\* y pos \*/

u8g\_WriteByte(u8g, dev, 0x080 | 8); /\* set x pos to 64\*/

}

u8g\_SetAddress(u8g, dev, 1); /\* data mode \*/

u8g\_WriteSequence(u8g, dev, WIDTH/8, ptr);

ptr += WIDTH/8;

y++;

}

u8g\_SetChipSelect(u8g, dev, 0);

}

break;

}

return u8g\_dev\_pb32h1\_base\_fn(u8g, dev, msg, arg);

}

U8G\_PB\_DEV(u8g\_dev\_st7920\_128x64\_sw\_spi, WIDTH, HEIGHT, PAGE\_HEIGHT, u8g\_dev\_st7920\_128x64\_fn, U8G\_COM\_ST7920\_SW\_SPI);

U8G\_PB\_DEV(u8g\_dev\_st7920\_128x64\_hw\_spi, WIDTH, HEIGHT, PAGE\_HEIGHT, u8g\_dev\_st7920\_128x64\_fn, U8G\_COM\_ST7920\_HW\_SPI);

U8G\_PB\_DEV(u8g\_dev\_st7920\_128x64\_8bit, WIDTH, HEIGHT, PAGE\_HEIGHT, u8g\_dev\_st7920\_128x64\_fn, U8G\_COM\_FAST\_PARALLEL);

U8G\_PB\_DEV(u8g\_dev\_st7920\_128x64\_custom, WIDTH, HEIGHT, PAGE\_HEIGHT, u8g\_dev\_st7920\_128x64\_fn, u8g\_com\_arduino\_st7920\_custom\_fn);

#define QWIDTH (WIDTH\*4)

uint8\_t u8g\_dev\_st7920\_128x64\_4x\_buf[QWIDTH] U8G\_NOCOMMON ;

u8g\_pb\_t u8g\_dev\_st7920\_128x64\_4x\_pb = { {32, HEIGHT, 0, 0, 0}, WIDTH, u8g\_dev\_st7920\_128x64\_4x\_buf};

u8g\_dev\_t u8g\_dev\_st7920\_128x64\_4x\_sw\_spi = { u8g\_dev\_st7920\_128x64\_4x\_fn, &u8g\_dev\_st7920\_128x64\_4x\_pb, U8G\_COM\_ST7920\_SW\_SPI };

u8g\_dev\_t u8g\_dev\_st7920\_128x64\_4x\_hw\_spi = { u8g\_dev\_st7920\_128x64\_4x\_fn, &u8g\_dev\_st7920\_128x64\_4x\_pb, U8G\_COM\_ST7920\_HW\_SPI };

u8g\_dev\_t u8g\_dev\_st7920\_128x64\_4x\_8bit = { u8g\_dev\_st7920\_128x64\_4x\_fn, &u8g\_dev\_st7920\_128x64\_4x\_pb, U8G\_COM\_FAST\_PARALLEL };

u8g\_dev\_t u8g\_dev\_st7920\_128x64\_4x\_custom = { u8g\_dev\_st7920\_128x64\_4x\_fn, &u8g\_dev\_st7920\_128x64\_4x\_pb, u8g\_com\_arduino\_st7920\_custom\_fn };