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u8g\_pbxh24.c

x lines per page, horizontal, 24 bits per pixel (true color modes)

Universal 8bit Graphics Library

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struct \_u8g\_pb\_t

{

u8g\_page\_t p;

u8g\_uint\_t width;

void \*buf;

};

typedef struct \_u8g\_pb\_t u8g\_pb\_t;

uint8\_t u8g\_index\_color\_xh16\_buf[2\*WIDTH\*PAGE\_HEIGHT] U8G\_NOCOMMON ;

u8g\_pb\_t u8g\_index\_color\_xh16\_pb = { {PAGE\_HEIGHT, HEIGHT, 0, 0, 0}, WIDTH, u8g\_index\_color\_xh16\_buf};

u8g\_dev\_t name = { dev\_fn, &u8g\_index\_color\_xh16\_pb , com\_fn }

\*/

#include "u8g.h"

/\*

#define WIDTH\_BITS 7

#define WIDTH (1<<WIDTH\_BITS)

#define PAGE\_HEIGHT\_BITS 3

#define PAGE\_HEIGHT (1<<PAGE\_HEIGHT\_BITS)

\*/

void u8g\_pbxh24\_Clear(u8g\_pb\_t \*b)

{

uint8\_t \*ptr = (uint8\_t \*)b->buf;

uint8\_t \*end\_ptr = ptr;

uint8\_t cnt = b->p.page\_height;

do

{

end\_ptr += b->width\*3;

cnt--;

} while( cnt > 0 );

do

{

\*ptr++ = 0;

} while( ptr != end\_ptr );

}

void u8g\_pbxh24\_Init(u8g\_pb\_t \*b, void \*buf, u8g\_uint\_t width)

{

b->buf = buf;

b->width = width;

u8g\_pbxh24\_Clear(b);

}

#ifdef OBSOLETE

static void u8g\_pbxh24\_set\_pixel(u8g\_pb\_t \*b, u8g\_uint\_t x, u8g\_uint\_t y, uint8\_t r, uint8\_t g, uint8\_t b)

{

uint16\_t tmp;

uint8\_t \*ptr = b->buf;

y -= b->p.page\_y0;

tmp = y;

tmp \*= b->width;

tmp += x;

tmp \*= 3;

ptr += tmp;

\*ptr = r;

ptr++;

\*ptr = g;

ptr++;

\*ptr = b;

}

#endif

/\*

intensity

0..3 intensity value

4 replace color

\*/

static void u8g\_pbxh24\_set\_tpixel(u8g\_pb\_t \*b, u8g\_uint\_t x, u8g\_uint\_t y, uint8\_t red, uint8\_t green, uint8\_t blue, uint8\_t intensity)

{

uint16\_t tmp;

uint8\_t \*ptr = b->buf;

if ( intensity == 0 )

return;

y -= b->p.page\_y0;

tmp = y;

tmp \*= b->width;

tmp += x;

tmp \*= 3;

ptr += tmp;

if ( intensity == 4 )

{

\*ptr = red;

ptr++;

\*ptr = green;

ptr++;

\*ptr = blue;

return;

}

if ( intensity == 2 )

{

/\*

red = red/4 + red/2;

green = green/4 + green/2;

blue = blue/4 + blue/2;

\*/

red >>= 1;

green >>= 1;

blue >>= 1;

}

else if ( intensity == 1 )

{

red >>= 2;

green >>= 2;

blue >>= 2;

}

if ( \*ptr >= 255-red ) \*ptr = 255;

else \*ptr += red;

ptr++;

if ( \*ptr >= 255-green ) \*ptr = 255;

else \*ptr += green;

ptr++;

if ( \*ptr >= 255-blue ) \*ptr = 255;

else \*ptr += blue;

/\*

if ( \*ptr < red ) \*ptr = red;

ptr++;

if ( \*ptr < green ) \*ptr = green;

ptr++;

if ( \*ptr < blue ) \*ptr = blue;

\*/

}

void u8g\_pbxh24\_SetTPixel(u8g\_pb\_t \*b, const u8g\_dev\_arg\_pixel\_t \* const arg\_pixel, uint8\_t intensity)

{

if ( arg\_pixel->y < b->p.page\_y0 )

return;

if ( arg\_pixel->y > b->p.page\_y1 )

return;

if ( arg\_pixel->x >= b->width )

return;

u8g\_pbxh24\_set\_tpixel(b, arg\_pixel->x, arg\_pixel->y, arg\_pixel->color, arg\_pixel->hi\_color, arg\_pixel->blue, intensity);

}

void u8g\_pbxh24\_Set8Pixel(u8g\_pb\_t \*b, u8g\_dev\_arg\_pixel\_t \*arg\_pixel)

{

register uint8\_t pixel = arg\_pixel->pixel;

u8g\_uint\_t dx = 0;

u8g\_uint\_t dy = 0;

switch( arg\_pixel->dir )

{

case 0: dx++; break;

case 1: dy++; break;

case 2: dx--; break;

case 3: dy--; break;

}

do

{

if ( pixel & 128 )

u8g\_pbxh24\_SetTPixel(b, arg\_pixel, 4);

arg\_pixel->x += dx;

arg\_pixel->y += dy;

pixel <<= 1;

} while( pixel != 0 );

}

void u8g\_pbxh24\_Set4TPixel(u8g\_pb\_t \*b, u8g\_dev\_arg\_pixel\_t \*arg\_pixel)

{

register uint8\_t pixel = arg\_pixel->pixel;

u8g\_uint\_t dx = 0;

u8g\_uint\_t dy = 0;

switch( arg\_pixel->dir )

{

case 0: dx++; break;

case 1: dy++; break;

case 2: dx--; break;

case 3: dy--; break;

}

do

{

u8g\_pbxh24\_SetTPixel(b, arg\_pixel, pixel >> 6);

arg\_pixel->x += dx;

arg\_pixel->y += dy;

pixel <<= 2;

} while( pixel != 0 );

}

uint8\_t u8g\_dev\_pbxh24\_base\_fn(u8g\_t \*u8g, u8g\_dev\_t \*dev, uint8\_t msg, void \*arg)

{

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

switch(msg)

{

case U8G\_DEV\_MSG\_SET\_8PIXEL:

if ( u8g\_pb\_Is8PixelVisible(pb, (u8g\_dev\_arg\_pixel\_t \*)arg) )

u8g\_pbxh24\_Set8Pixel(pb, (u8g\_dev\_arg\_pixel\_t \*)arg);

break;

case U8G\_DEV\_MSG\_SET\_PIXEL:

u8g\_pbxh24\_SetTPixel(pb, (u8g\_dev\_arg\_pixel\_t \*)arg, 4);

break;

case U8G\_DEV\_MSG\_SET\_4TPIXEL:

u8g\_pbxh24\_Set4TPixel(pb, (u8g\_dev\_arg\_pixel\_t \*)arg);

break;

case U8G\_DEV\_MSG\_SET\_TPIXEL:

u8g\_pbxh24\_SetTPixel(pb, (u8g\_dev\_arg\_pixel\_t \*)arg, ((u8g\_dev\_arg\_pixel\_t \*)arg)->pixel&3);

break;

case U8G\_DEV\_MSG\_INIT:

break;

case U8G\_DEV\_MSG\_STOP:

break;

case U8G\_DEV\_MSG\_PAGE\_FIRST:

u8g\_pbxh24\_Clear(pb);

u8g\_page\_First(&(pb->p));

break;

case U8G\_DEV\_MSG\_PAGE\_NEXT:

if ( u8g\_page\_Next(&(pb->p)) == 0 )

return 0;

u8g\_pbxh24\_Clear(pb);

break;

#ifdef U8G\_DEV\_MSG\_IS\_BBX\_INTERSECTION

case U8G\_DEV\_MSG\_IS\_BBX\_INTERSECTION:

return u8g\_pb\_IsIntersection(pb, (u8g\_dev\_arg\_bbx\_t \*)arg);

#endif

case U8G\_DEV\_MSG\_GET\_PAGE\_BOX:

u8g\_pb\_GetPageBox(pb, (u8g\_box\_t \*)arg);

break;

case U8G\_DEV\_MSG\_GET\_WIDTH:

\*((u8g\_uint\_t \*)arg) = pb->width;

break;

case U8G\_DEV\_MSG\_GET\_HEIGHT:

\*((u8g\_uint\_t \*)arg) = pb->p.total\_height;

break;

case U8G\_DEV\_MSG\_SET\_COLOR\_ENTRY:

break;

case U8G\_DEV\_MSG\_SET\_XY\_CB:

break;

case U8G\_DEV\_MSG\_GET\_MODE:

return U8G\_MODE\_TRUECOLOR;

}

return 1;

}