/\*

u8g\_com\_atmega\_st7920\_spi.c

Universal 8bit Graphics Library

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A special SPI interface for ST7920 controller

\*/

#include "u8g.h"

#if defined(\_\_AVR\_\_)

static void u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g\_t \*u8g, uint8\_t val) U8G\_NOINLINE;

static void u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g\_t \*u8g, uint8\_t val)

{

uint8\_t i = 8;

do

{

u8g\_SetPILevel(u8g, U8G\_PI\_MOSI, val & 128 );

val <<= 1;

u8g\_SetPILevel(u8g, U8G\_PI\_SCK, 1 );

u8g\_MicroDelay(); /\* 15 Aug 2012: added for high speed uC \*/

u8g\_SetPILevel(u8g, U8G\_PI\_SCK, 0 );

u8g\_MicroDelay(); /\* 15 Aug 2012: added for high speed uC \*/

i--;

} while( i != 0 );

}

static void u8g\_com\_atmega\_st7920\_write\_byte(u8g\_t \*u8g, uint8\_t rs, uint8\_t val) U8G\_NOINLINE;

static void u8g\_com\_atmega\_st7920\_write\_byte(u8g\_t \*u8g, uint8\_t rs, uint8\_t val)

{

uint8\_t i;

if ( rs == 0 )

{

/\* command \*/

u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g, 0x0f8);

}

else if ( rs == 1 )

{

/\* data \*/

u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g, 0x0fa);

}

u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g, val & 0x0f0);

u8g\_atmega\_st7920\_sw\_spi\_shift\_out(u8g, val << 4);

for( i = 0; i < 4; i++ )

u8g\_10MicroDelay();

}

uint8\_t u8g\_com\_atmega\_st7920\_sw\_spi\_fn(u8g\_t \*u8g, uint8\_t msg, uint8\_t arg\_val, void \*arg\_ptr)

{

switch(msg)

{

case U8G\_COM\_MSG\_INIT:

u8g\_SetPIOutput(u8g, U8G\_PI\_SCK);

u8g\_SetPIOutput(u8g, U8G\_PI\_MOSI);

/\* u8g\_SetPIOutput(u8g, U8G\_PI\_A0); \*/

u8g\_SetPIOutput(u8g, U8G\_PI\_CS);

u8g\_SetPIOutput(u8g, U8G\_PI\_RESET);

u8g\_SetPILevel(u8g, U8G\_PI\_SCK, 0 );

u8g\_SetPILevel(u8g, U8G\_PI\_MOSI, 0 );

u8g\_SetPILevel(u8g, U8G\_PI\_CS, 0 );

/\* u8g\_SetPILevel(u8g, U8G\_PI\_A0, 0); \*/

u8g->pin\_list[U8G\_PI\_A0\_STATE] = 0; /\* inital RS state: command mode \*/

break;

case U8G\_COM\_MSG\_STOP:

break;

case U8G\_COM\_MSG\_RESET:

u8g\_SetPILevel(u8g, U8G\_PI\_RESET, arg\_val);

break;

case U8G\_COM\_MSG\_ADDRESS: /\* define cmd (arg\_val = 0) or data mode (arg\_val = 1) \*/

u8g->pin\_list[U8G\_PI\_A0\_STATE] = arg\_val;

break;

case U8G\_COM\_MSG\_CHIP\_SELECT:

if ( arg\_val == 0 )

{

/\* disable, note: the st7920 has an active high chip select \*/

u8g\_SetPILevel(u8g, U8G\_PI\_CS, 0);

}

else

{

/\* u8g\_SetPILevel(u8g, U8G\_PI\_SCK, 0 ); \*/

/\* enable \*/

u8g\_SetPILevel(u8g, U8G\_PI\_CS, 1); /\* CS = 1 (high active) \*/

}

break;

case U8G\_COM\_MSG\_WRITE\_BYTE:

u8g\_com\_atmega\_st7920\_write\_byte(u8g, u8g->pin\_list[U8G\_PI\_A0\_STATE], arg\_val);

u8g->pin\_list[U8G\_PI\_A0\_STATE] = 2;

break;

case U8G\_COM\_MSG\_WRITE\_SEQ:

{

register uint8\_t \*ptr = arg\_ptr;

while( arg\_val > 0 )

{

u8g\_com\_atmega\_st7920\_write\_byte(u8g, u8g->pin\_list[U8G\_PI\_A0\_STATE], \*ptr++);

u8g->pin\_list[U8G\_PI\_A0\_STATE] = 2;

arg\_val--;

}

}

break;

case U8G\_COM\_MSG\_WRITE\_SEQ\_P:

{

register uint8\_t \*ptr = arg\_ptr;

while( arg\_val > 0 )

{

u8g\_com\_atmega\_st7920\_write\_byte(u8g, u8g->pin\_list[U8G\_PI\_A0\_STATE], u8g\_pgm\_read(ptr));

u8g->pin\_list[U8G\_PI\_A0\_STATE] = 2;

ptr++;

arg\_val--;

}

}

break;

}

return 1;

}

#else

uint8\_t u8g\_com\_atmega\_st7920\_sw\_spi\_fn(u8g\_t \*u8g, uint8\_t msg, uint8\_t arg\_val, void \*arg\_ptr)

{

return 1;

}

#endif