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/*****
/*
/*  FILENAME:    manch.h
/*
/*
/*  ABSTRACT:
/*      Header file for manchester code transmitter functions.
/*
/*
/*  CHANGE LOG:
/*      DATE      AUTHOR      SDR      DESCRIPTION
/*      01-may-11  M.Karas    ---      Original version for EVB1
/*
/*      with SiLabs C8051F344 processor.
/*
/*
*****/

#ifndef _MANCHESTER_H
#define _MANCHESTER_H

/* setup defines and macros for the MANCHESTER transmitter output */
/* P2.6 for EVB1 board */
#define MANCH_BIT 6          /* port bit number for MANCHESTER CODE Pin */
#define MANCH_PORT P2       /* port number for the MANCHESTER CODE Pin */
#define MANCH_OMODE P2MDOUT /* port mode output register 0=open drain 1=push-pull */
#define MANCH_IMODE P2MDIN  /* port mode input register 0=analog 1=digital */

/* setup the max size of manchester transmit tables */
#define MANCH_MAX_BYTES 50  /* max size of the arrays to use */

/*
** manchester code tables and variables
*/

extern unsigned char xdata manch_byte_array[MANCH_MAX_BYTES]; /* array of bytes to send out */
extern unsigned char xdata manch_byte_index;                 /* index to bytes being sent */
extern unsigned char xdata manch_byte_count;                 /* count of bytes to send */
extern unsigned char xdata manch_state;                      /* current state number of the
manchester code machine */
extern unsigned char xdata manch_cnt;                         /* manchester state machine
counter */
extern unsigned char xdata manch_bits;                        /* bits to be shifted out for a
byte */

/* definitions of the manchester state machine states */
#define MANCH_STATE_IDLE 0      /* idle state waiting to start a manchester output */
#define MANCH_LEADIN_H 1       /* leadin 0's stream high state */
#define MANCH_LEADIN_L 2       /* leadin 0's stream low state */
#define MANCH_STATE_SYNC_H 3    /* sync pulse high time */
#define MANCH_STATE_SYNC_L 4    /* sync pulse low time */
#define MANCH_STATE_FAKE0 5     /* fake zero pulse time */
#define MANCH_STATE_NEXT_BYTE 6 /* state to process next binary byte from array */
#define MANCH_STATE_NEXT_BIT 7  /* state to setup the next bit to transmit */
#define MANCH_STATE_ZERO_BIT 8  /* state to process zero bit output */
#define MANCH_STATE_ONE_BIT 9   /* state to process one bit output */

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#define MANCH_LEADOUT_H      10      /* leadout 0's stream high state */
#define MANCH_LEADOUT_L      11      /* leadout 0's stream low state */

/* manchester code element timing states - these are in units of 1 millisecond */
#define MANCH_LEADIN_COUNT   4      /* number of leadin 0-bits to do */
#define MANCH_TIMING_START   3      /* 3T start pulse width */
#define MANCH_LEADOUT_COUNT  3      /* number of leadout 0-bits to do */

/*
** manchester function prototypes
**/

extern void manch_init(void);          /* initialize I/O pin and manchester state variables */
extern void manch_set_bin(unsigned char *bin_array, unsigned char bin_len); /* set transfer of
manchester byte array */
extern void manch_xmit(void);          /* timer state machine to send out the serial
manchester code */
extern void manch_pin(char onoff);     /* support routine to turn the transmitter on or off */

#endif /* end of _MANCHESTER_H */
```