































































```

/* User Defines */

/* initial values for pll */
/* modify depending on pll filter selection and target clock frequency */
/* PLLCLK = OSCCLK */
#define CLOCK_MULTIPLIER 4
#define CLOCK_DIVIDER 4

/* Function Prototypes */

int      main(void);
void InitPorts(void);
int  SetPll(void);
void Delay(int, int); /* simple software loop delay */
void Transmit_Start_Data (void);
void Transmit_Sync_Data (void);
void Biphase_Encode(int);
void Transmit_Biphase_Data(void);
void KnightRider(void);
void Load_Transmit_Val(unsigned char,unsigned char);
int  Field_Test (void);

/* Interrupt service routine Prototypes */

#pragma CODE_SEG NON_BANKED

void _dummyISR(void);
void _portpISR(void);

#pragma CODE_SEG DEFAULT_ROM

/* User Typedefs */

typedef union /* global system flags byte - individual bits are */
             /* assigned as tokens for tasks */
             {
             tU08 byte;
             struct
             {
                 tU08 pllLockFailed           :1; /*pll error flag
                 tU08 pllRangeError          :1; /*pll error flag
                 tU08                               :6; /*not used
             }bit;
             }tFLAGS;

typedef union /* global variable bit access */
             {
             tU08 byte;
             struct
             {
                 tU08 bit0           :1; /* bit0 of variable */
                 tU08 bit1           :1; /* bit1 of variable */
                 tU08 bit2           :1; /* bit2 of variable */
                 tU08 bit3           :1; /* bit3 of variable */
                 tU08 bit4           :1; /* bit4 of variable */
                 tU08 bit5           :1; /* bit5 of variable */
                 tU08 bit6           :1; /* bit6 of variable */
                 tU08 bit7           :1; /* bit7 of variable */
             }bit;
             }tVARIABLEBITS;

typedef union /* global MI Bus Data Register access */
             {
             tU08 byte;
             struct

```

```

        {
            tU08 data                :5; /* data pattern */
            tU08 adr                 :3; /* address data pattern */
        }bit;
    }tMIBUS_DATA_REG_LOW;

#define data0                0x01; /*bit masks */ /* Bit0 */
#define data1                0x02; /* Bit1 */
#define data2                0x04; /* Bit2 */
#define data3                0x08; /* Bit3 */
#define data4                0x10; /* Bit4 */
#define adr0                 0x20; /* Bit5 */
#define adr1                 0x40; /* Bit6 */
#define adr2                 0x80; /* Bit7 */

typedef union                /* global MI Bus Control Register 2 access */
{
    tU08 byte;
    struct
    {
        tU08 rei                :1; /* receiver interrupt enable */
        tU08 te                 :1; /* transmitter enable */
        tU08 re                 :1; /* receiver enable */
        tU08                    :5; /* not used */
    }bit;
    }tMIBUS_CONTROL_REG_2;

typedef union                /* global MI Bus Status Register 1 access */
{
    tU08 byte;
    struct
    {
        tU08 rdrf               :1; /* Receive data register full */
        tU08 be                 :1; /* Bit Error Flag */
        tU08 nf                 :1; /* Noise Error Flag */
        tU08 complete           :1; /* Noise Error Flag */
        tU08                    :4; /* Not Used */
    }bit;
    }tMIBUS_STATUS_REG_1;

typedef union                /* global MI Bus Status Register 2 access */
{
    tU08 byte;
    struct
    {
        tU08 raf                :1; /* Receiver Active Flag */
        tU08                    :7; /* Not Used */
    }bit;
    }tMIBUS_STATUS_REG_2;

```

**This Page Has Been Intentionally Left Blank**

**This Page Has Been Intentionally Left Blank**

## **How to Reach Us:**

### **Home Page:**

[www.freescale.com](http://www.freescale.com)

### **E-mail:**

[support@freescale.com](mailto:support@freescale.com)

### **USA/Europe or Locations Not Listed:**

Freescale Semiconductor  
Technical Information Center, CH370  
1300 N. Alma School Road  
Chandler, Arizona 85224  
+1-800-521-6274 or +1-480-768-2130  
[support@freescale.com](mailto:support@freescale.com)

### **Europe, Middle East, and Africa:**

Freescale Halbleiter Deutschland GmbH  
Technical Information Center  
Schatzbogen 7  
81829 Muenchen, Germany  
+44 1296 380 456 (English)  
+46 8 52200080 (English)  
+49 89 92103 559 (German)  
+33 1 69 35 48 48 (French)  
[support@freescale.com](mailto:support@freescale.com)

### **Japan:**

Freescale Semiconductor Japan Ltd.  
Headquarters  
ARCO Tower 15F  
1-8-1, Shimo-Meguro, Meguro-ku,  
Tokyo 153-0064  
Japan  
0120 191014 or +81 3 5437 9125  
[support.japan@freescale.com](mailto:support.japan@freescale.com)

### **Asia/Pacific:**

Freescale Semiconductor Hong Kong Ltd.  
Technical Information Center  
2 Dai King Street  
Tai Po Industrial Estate  
Tai Po, N.T., Hong Kong  
+800 2666 8080  
[support.asia@freescale.com](mailto:support.asia@freescale.com)

### **For Literature Requests Only:**

Freescale Semiconductor Literature Distribution Center  
P.O. Box 5405  
Denver, Colorado 80217  
1-800-441-2447 or 303-675-2140  
Fax: 303-675-2150  
[LDCForFreescaleSemiconductor@hibbertgroup.com](mailto:LDCForFreescaleSemiconductor@hibbertgroup.com)

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document. Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

