四、实验步骤

**实验一：产生固定频率PWM波**

1. 主函数部分：

**void** **main**(**void**)

{

InitSysCtrl(); //初始化系统函数

DINT;

IER = 0x0000; //禁止CPU中断

IFR = 0x0000; //清除CPU中断标志

InitPieCtrl(); //初始化PIE控制寄存器

InitPieVectTable(); //初始化PIE中断向量表

InitGpio(); //初始化Gpio口

InitEv(); //初始化EV

EvaRegs.T1CON.bit.TENABLE=1; //使能定时器T1计数操作

EvaRegs.T2CON.bit.TENABLE=1; //使能定时器T2计数操作

EvbRegs.T3CON.bit.TENABLE=1; //使能定时器T3计数操作

EvbRegs.T4CON.bit.TENABLE=1; //使能定时器T4计数操作

**while**(1)

{

}

}

1. EV事件管理器初始化部分：

**void** **InitEv**(**void**)

{

//EVA模块

EvaRegs.T1CON.bit.TMODE=2; //连续增模式

EvaRegs.T1CON.bit.TPS=1; //T1CLK=HSPCLK/2=37.5M

EvaRegs.T1CON.bit.TENABLE=0; //暂时禁止T1计数

EvaRegs.T1CON.bit.TCLKS10=0; //使用内部时钟，T1CLK

EvaRegs.T1CON.bit.TECMPR=1; //使能定时器比较操作

EvaRegs.T2CON.bit.TMODE=2; //连续增模式

EvaRegs.T2CON.bit.TPS=1; //T2CLK=HSPCLK/2=37.5M

EvaRegs.T2CON.bit.TENABLE=0; //暂时禁止T2计数

EvaRegs.T2CON.bit.TCLKS10=0; //使用内部时钟，T2CLK

EvaRegs.T2CON.bit.TECMPR=1; //使能定时器比较操作

EvaRegs.GPTCONA.bit.TCMPOE=1; //定时器比较输出T1PWM\_T1CMPR和T2PWM\_T2CMPR由各自的定时器比较逻辑驱动

EvaRegs.GPTCONA.bit.T1PIN=1; //低电平有效

EvaRegs.GPTCONA.bit.T2PIN=2; //高电平有效

EvaRegs.T1PR=0x927B; //1KHz的PWM，周期为1ms

EvaRegs.T1CMPR=0x3A98; //占空比为40%，低电平有效

EvaRegs.T1CNT=0;

EvaRegs.T2PR=0x927B; //1KHz的PWM，周期为1ms

EvaRegs.T2CMPR=0x57E4; //占空比为40%，高电平有效

EvaRegs.T2CNT=0;

EvaRegs.COMCONA.bit.CENABLE=1; //使能比较单元的比较操作

EvaRegs.COMCONA.bit.FCOMPOE=1; //全比较输出，PWM1-6引脚均由相应的比较逻辑驱动

EvaRegs.COMCONA.bit.CLD=2;

//死区时间为：4.27us

EvaRegs.DBTCONA.bit.DBT=10; //死区定时器周期，m=10

EvaRegs.DBTCONA.bit.EDBT1=1; //死区定时器1使能位

EvaRegs.DBTCONA.bit.EDBT2=1; //死区定时器2使能位

EvaRegs.DBTCONA.bit.EDBT3=1; //死区定时器3使能位

EvaRegs.DBTCONA.bit.DBTPS=4, //死区定时器预定标因子 Tdb=37.5M/16=2.34M

EvaRegs.ACTRA.all=0x0999; //设定引脚PWM1-PWM6的动作属性

EvaRegs.CMPR1=0x3A98; //PWM1占空比为40%

EvaRegs.CMPR2=0x3A98; //PWM3占空比为40%

EvaRegs.CMPR3=0x3A98; //PWM5占空比为40%

//EVB模块

EvbRegs.T3CON.bit.TMODE=1; //连续增/减模式

EvbRegs.T3CON.bit.TPS=1; //T3CLK=HSPCLK/2=37.5M

EvbRegs.T3CON.bit.TENABLE=0; //暂时禁止T3计数

EvbRegs.T3CON.bit.TCLKS10=0; //使用内部时钟，T3CLK

EvbRegs.T3CON.bit.TECMPR=1; //使能定时器比较操作

EvbRegs.T4CON.bit.TMODE=1; //连续增/减模式

EvbRegs.T4CON.bit.TPS=1; //T4CLK=HSPCLK/2=37.5M

EvbRegs.T4CON.bit.TENABLE=0; //暂时禁止T4计数

EvbRegs.T4CON.bit.TCLKS10=0; //使用内部时钟，T4CLK

EvbRegs.T4CON.bit.TECMPR=1; //使能定时器比较操作

EvbRegs.GPTCONB.bit.TCMPOE=1; //定时器比较输出T3PWM\_T3CMPR和T4PWM\_T4CMPR由各自的定时器比较逻辑驱动

EvbRegs.GPTCONB.bit.T3PIN=1; //低电平有效

EvbRegs.GPTCONB.bit.T4PIN=2; //高电平有效

EvbRegs.T3PR=0x493E; //1KHz的PWM，周期为1ms

EvbRegs.T3CMPR=0x1D4C; //占空比为40%，低电平有效

EvbRegs.T3CNT=0;

EvbRegs.T4PR=0x493E; //1KHz的PWM，周期为1ms

EvbRegs.T4CMPR=0x2BF2; //占空比为40%，高电平有效

EvbRegs.T4CNT=0;

EvbRegs.COMCONB.bit.CENABLE=1; //使能比较单元的比较操作

EvbRegs.COMCONB.bit.FCOMPOE=1; //全比较输出，PWM7-12引脚均由相应的比较逻辑驱动

EvbRegs.COMCONB.bit.CLD=2;

//死区时间为：4.27us

EvbRegs.DBTCONB.bit.DBT=10; //死区定时器周期，m=10

EvbRegs.DBTCONB.bit.EDBT1=1; //死区定时器1使能位

EvbRegs.DBTCONB.bit.EDBT2=1; //死区定时器2使能位

EvbRegs.DBTCONB.bit.EDBT3=1; //死区定时器3使能位

EvbRegs.DBTCONB.bit.DBTPS=4, //死区定时器预定标因子 Tdb=37.5M/16=2.34M

EvbRegs.ACTRB.all=0x0999; //设定引脚PWM7-PWM12的动作属性

EvbRegs.CMPR4=0x1D4C; //PWM7占空比为40%d4c

EvbRegs.CMPR5=0x1D4C; //PWM9占空比为40%

EvbRegs.CMPR6=0x1D4C; //PWM11占空比为40%

}

1. GPIO初始化部分：

**void** **InitGpio**(**void**)

{

EALLOW;

// 将GPIO中和PWM相关的引脚设置为PWM功能

GpioMuxRegs.GPAMUX.bit.T1PWM\_GPIOA6=1; //设置T1PWM引脚

GpioMuxRegs.GPAMUX.bit.T2PWM\_GPIOA7=1; //设置T2PWM引脚

GpioMuxRegs.GPAMUX.bit.PWM1\_GPIOA0=1; //设置PWM1引脚

GpioMuxRegs.GPAMUX.bit.PWM2\_GPIOA1=1; //设置PWM2引脚

GpioMuxRegs.GPAMUX.bit.PWM3\_GPIOA2=1; //设置PWM3引脚

GpioMuxRegs.GPAMUX.bit.PWM4\_GPIOA3=1; //设置PWM4引脚

GpioMuxRegs.GPAMUX.bit.PWM5\_GPIOA4=1; //设置PWM5引脚

GpioMuxRegs.GPAMUX.bit.PWM6\_GPIOA5=1; //设置PWM6引脚

GpioMuxRegs.GPBMUX.bit.T3PWM\_GPIOB6=1; //设置T3PWM引脚

GpioMuxRegs.GPBMUX.bit.T4PWM\_GPIOB7=1; //设置T4PWM引脚

GpioMuxRegs.GPBMUX.bit.PWM7\_GPIOB0=1; //设置PWM7引脚

GpioMuxRegs.GPBMUX.bit.PWM8\_GPIOB1=1; //设置PWM8引脚

GpioMuxRegs.GPBMUX.bit.PWM9\_GPIOB2=1; //设置PWM9引脚

GpioMuxRegs.GPBMUX.bit.PWM10\_GPIOB3=1; //设置PWM10引脚

GpioMuxRegs.GPBMUX.bit.PWM11\_GPIOB4=1; //设置PWM11引脚

GpioMuxRegs.GPBMUX.bit.PWM12\_GPIOB5=1; //设置PWM12引脚

EDIS;

}