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Dsp28335 中断的方法

步骤 1

```
void InitPieCtrl(void) //初始化 PIE 控制寄存器
{
    DINT; //关闭所有 CPU 标准中断 Disable Interrupts at the CPU level:
    PieCtrlRegs.PIECTRL.bit.ENPIE = 0; // 关闭所有 PIE 中断 Disable the PIE

    // Clear all PIEIER registers: 清除所有中断使能位
    PieCtrlRegs.PIEIER1~12(省了中间部分).all = 0;
    // Clear all PIEIFR registers: 清除所有中断标志位
    PieCtrlRegs.PIEIFR1~12.all = 0;
}
```

步骤 2

```
// Disable CPU interrupts and clear all CPU interrupt flags:
IER = 0x0000;
IFR = 0x0000;
```

步骤 3 初始化中断向量表

```
void InitPieVectTable(void)
{
    int16 i;
    Uint32 *Source = (void *) &PieVectTableInit;
    Uint32 *Dest = (void *) &PieVectTable;
    EALLOW;
    for(i=0; i < 128; i++)
        *Dest++ = *Source++;
    EDIS;
    // Enable the PIE Vector Table
    PieCtrlRegs.PIECTRL.bit.ENPIE = 1;
```

```
}  
//下面这个原中断数据地向量位置  
const struct PIE_VECT_TABLE PieVectTableInit = {  
    PIE_RESERVED, // 0 Reserved space  
    PIE_RESERVED, // 1 Reserved space  
    PIE_RESERVED, // 2 Reserved space  
    PIE_RESERVED, // 3 Reserved space  
    PIE_RESERVED, // 4 Reserved space  
    PIE_RESERVED, // 5 Reserved space  
    PIE_RESERVED, // 6 Reserved space  
    PIE_RESERVED, // 7 Reserved space  
    PIE_RESERVED, // 8 Reserved space  
    PIE_RESERVED, // 9 Reserved space  
    PIE_RESERVED, // 10 Reserved space  
    PIE_RESERVED, // 11 Reserved space  
    PIE_RESERVED, // 12 Reserved space  
// Non-Peripheral Interrupts  
    INT13_ISR, // XINT13 or CPU-Timer 1  
    INT14_ISR, // CPU-Timer2  
    DATALOG_ISR, // Datalogging interrupt  
    RTOSINT_ISR, // RTOS interrupt  
    EMUINT_ISR, // Emulation interrupt  
    NMI_ISR, // Non-maskable interrupt  
    ILLEGAL_ISR, // Illegal operation TRAP  
    USER1_ISR, // User Defined trap 1  
    USER2_ISR, // User Defined trap 2  
    USER3_ISR, // User Defined trap 3  
    USER4_ISR, // User Defined trap 4  
    USER5_ISR, // User Defined trap 5  
    USER6_ISR, // User Defined trap 6  
    USER7_ISR, // User Defined trap 7  
    USER8_ISR, // User Defined trap 8  
    USER9_ISR, // User Defined trap 9  
    USER10_ISR, // User Defined trap 10  
    USER11_ISR, // User Defined trap 11  
    USER12_ISR, // User Defined trap 12  
// Group 1 PIE Vectors  
    SEQ1INT_ISR, // 1.1 ADC  
    SEQ2INT_ISR, // 1.2 ADC  
    rsvd_ISR, // 1.3  
    XINT1_ISR, // 1.4  
    XINT2_ISR, // 1.5  
    ADCINT_ISR, // 1.6 ADC
```

```
TINT0_ISR,      // 1.7 Timer 0
WAKEINT_ISR,    // 1.8 WD, Low Power
// Group 2 PIE Vectors
EPWM1_TZINT_ISR, // 2.1 EPWM-1 Trip Zone
EPWM2_TZINT_ISR, // 2.2 EPWM-2 Trip Zone
EPWM3_TZINT_ISR, // 2.3 EPWM-3 Trip Zone
EPWM4_TZINT_ISR, // 2.4 EPWM-4 Trip Zone
EPWM5_TZINT_ISR, // 2.5 EPWM-5 Trip Zone
EPWM6_TZINT_ISR, // 2.6 EPWM-6 Trip Zone
rsvd_ISR,       // 2.7
rsvd_ISR,       // 2.8
// Group 3 PIE Vectors
EPWM1_INT_ISR,  // 3.1 EPWM-1 Interrupt
EPWM2_INT_ISR,  // 3.2 EPWM-2 Interrupt
EPWM3_INT_ISR,  // 3.3 EPWM-3 Interrupt
EPWM4_INT_ISR,  // 3.4 EPWM-4 Interrupt
EPWM5_INT_ISR,  // 3.5 EPWM-5 Interrupt
EPWM6_INT_ISR,  // 3.6 EPWM-6 Interrupt
rsvd_ISR,       // 3.7
rsvd_ISR,       // 3.8
// Group 4 PIE Vectors
ECAP1_INT_ISR,  // 4.1 ECAP-1
ECAP2_INT_ISR,  // 4.2 ECAP-2
ECAP3_INT_ISR,  // 4.3 ECAP-3
ECAP4_INT_ISR,  // 4.4 ECAP-4
ECAP5_INT_ISR,  // 4.5 ECAP-5
ECAP6_INT_ISR,  // 4.6 ECAP-6
rsvd_ISR,       // 4.7
rsvd_ISR,       // 4.8
// Group 5 PIE Vectors
EQEP1_INT_ISR,  // 5.1 EQEP-1
EQEP2_INT_ISR,  // 5.2 EQEP-2
rsvd_ISR,       // 5.3
rsvd_ISR,       // 5.4
rsvd_ISR,       // 5.5
rsvd_ISR,       // 5.6
rsvd_ISR,       // 5.7
rsvd_ISR,       // 5.8
// Group 6 PIE Vectors
SPIRXINTA_ISR,  // 6.1 SPI-A
SPITXINTA_ISR,  // 6.2 SPI-A
MRINTA_ISR,     // 6.3 McBSP-A
MXINTA_ISR,     // 6.4 McBSP-A
```

```
MRINTB_ISR,      // 6.5 McBSP-B
MXINTB_ISR,      // 6.6 McBSP-B
rsvd_ISR,        // 6.7
rsvd_ISR,        // 6.8
// Group 7 PIE Vectors
DINTCH1_ISR,     // 7.1  DMA channel 1
DINTCH2_ISR,     // 7.2  DMA channel 2
DINTCH3_ISR,     // 7.3  DMA channel 3
DINTCH4_ISR,     // 7.4  DMA channel 4
DINTCH5_ISR,     // 7.5  DMA channel 5
DINTCH6_ISR,     // 7.6  DMA channel 6
rsvd_ISR,        // 7.7
rsvd_ISR,        // 7.8
// Group 8 PIE Vectors
I2CINT1A_ISR,    // 8.1  I2C
I2CINT2A_ISR,    // 8.2  I2C
rsvd_ISR,        // 8.3
rsvd_ISR,        // 8.4
SCIRXINTC_ISR,   // 8.5  SCI-C
SCITXINTC_ISR,   // 8.6  SCI-C
rsvd_ISR,        // 8.7
rsvd_ISR,        // 8.8
// Group 9 PIE Vectors
SCIRXINTA_ISR,   // 9.1  SCI-A
SCITXINTA_ISR,   // 9.2  SCI-A
SCIRXINTB_ISR,   // 9.3  SCI-B
SCITXINTB_ISR,   // 9.4  SCI-B
ECAN0INTA_ISR,   // 9.5  eCAN-A
ECAN1INTA_ISR,   // 9.6  eCAN-A
ECAN0INTB_ISR,   // 9.7  eCAN-B
ECAN1INTB_ISR,   // 9.8  eCAN-B
// Group 10 PIE Vectors
rsvd_ISR,        // 10.1
rsvd_ISR,        // 10.2
rsvd_ISR,        // 10.3
rsvd_ISR,        // 10.4
rsvd_ISR,        // 10.5
rsvd_ISR,        // 10.6
rsvd_ISR,        // 10.7
rsvd_ISR,        // 10.8
// Group 11 PIE Vectors
rsvd_ISR,        // 11.1
rsvd_ISR,        // 11.2
```

```
rsvd_ISR,      // 11.3
rsvd_ISR,      // 11.4
rsvd_ISR,      // 11.5
rsvd_ISR,      // 11.6
rsvd_ISR,      // 11.7
rsvd_ISR,      // 11.8
// Group 12 PIE Vectors
XINT3_ISR,     // 12.1
XINT4_ISR,     // 12.2
XINT5_ISR,     // 12.3
XINT6_ISR,     // 12.4
XINT7_ISR,     // 12.5
rsvd_ISR,      // 12.6
LVF_ISR,       // 12.7
LUF_ISR,       // 12.8
};
这是中断目的向量表
struct PIE_VECT_TABLE {
// Reset is never fetched from this table.
// It will always be fetched from 0x3FFFC0 in
// boot ROM
    PINT    PIE1_RESERVED;
    PINT    PIE2_RESERVED;
    PINT    PIE3_RESERVED;
    PINT    PIE4_RESERVED;
    PINT    PIE5_RESERVED;
    PINT    PIE6_RESERVED;
    PINT    PIE7_RESERVED;
    PINT    PIE8_RESERVED;
    PINT    PIE9_RESERVED;
    PINT    PIE10_RESERVED;
    PINT    PIE11_RESERVED;
    PINT    PIE12_RESERVED;
    PINT    PIE13_RESERVED;
// Non-Peripheral Interrupts:
    PINT    XINT13;    // XINT13 / CPU-Timer1
    PINT    TINT2;     // CPU-Timer2
    PINT    DATALOG;   // Datalogging interrupt
    PINT    RTOSINT;   // RTOS interrupt
    PINT    EMUINT;    // Emulation interrupt
    PINT    XNMI;      // Non-maskable interrupt
    PINT    ILLEGAL;   // Illegal operation TRAP
    PINT    USER1;    // User Defined trap 1
```

```
PINT    USER2;    // User Defined trap 2
PINT    USER3;    // User Defined trap 3
PINT    USER4;    // User Defined trap 4
PINT    USER5;    // User Defined trap 5
PINT    USER6;    // User Defined trap 6
PINT    USER7;    // User Defined trap 7
PINT    USER8;    // User Defined trap 8
PINT    USER9;    // User Defined trap 9
PINT    USER10;   // User Defined trap 10
PINT    USER11;   // User Defined trap 11
PINT    USER12;   // User Defined trap 12

// Group 1 PIE Peripheral Vectors:
PINT    SEQ1INT;
PINT    SEQ2INT;
PINT    rsvd1_3;
PINT    XINT1;
PINT    XINT2;
PINT    ADCINT;    // ADC
PINT    TINT0;     // Timer 0
PINT    WAKEINT;   // WD

// Group 2 PIE Peripheral Vectors:
PINT    EPWM1_TZINT; // EPWM-1
PINT    EPWM2_TZINT; // EPWM-2
PINT    EPWM3_TZINT; // EPWM-3
PINT    EPWM4_TZINT; // EPWM-4
PINT    EPWM5_TZINT; // EPWM-5
PINT    EPWM6_TZINT; // EPWM-6
PINT    rsvd2_7;
PINT    rsvd2_8;

// Group 3 PIE Peripheral Vectors:
PINT    EPWM1_INT; // EPWM-1
PINT    EPWM2_INT; // EPWM-2
PINT    EPWM3_INT; // EPWM-3
PINT    EPWM4_INT; // EPWM-4
PINT    EPWM5_INT; // EPWM-5
PINT    EPWM6_INT; // EPWM-6
PINT    rsvd3_7;
PINT    rsvd3_8;

// Group 4 PIE Peripheral Vectors:
PINT    ECAP1_INT; // ECAP-1
PINT    ECAP2_INT; // ECAP-2
PINT    ECAP3_INT; // ECAP-3
PINT    ECAP4_INT; // ECAP-4
```

```
PINT    ECAP5_INT; // ECAP-5
PINT    ECAP6_INT; // ECAP-6
PINT    rsvd4_7;
PINT    rsvd4_8;
// Group 5 PIE Peripheral Vectors:
PINT    EQEP1_INT; // EQEP-1
PINT    EQEP2_INT; // EQEP-2
PINT    rsvd5_3;
PINT    rsvd5_4;
PINT    rsvd5_5;
PINT    rsvd5_6;
PINT    rsvd5_7;
PINT    rsvd5_8;
// Group 6 PIE Peripheral Vectors:
PINT    SPIRXINTA; // SPI-A
PINT    SPITXINTA; // SPI-A
PINT    MRINTB;    // McBSP-B
PINT    MXINTB;    // McBSP-B
PINT    MRINTA;    // McBSP-A
PINT    MXINTA;    // McBSP-A
PINT    rsvd6_7;
PINT    rsvd6_8;
// Group 7 PIE Peripheral Vectors:
PINT    DINTCH1;   // DMA
PINT    DINTCH2;   // DMA
PINT    DINTCH3;   // DMA
PINT    DINTCH4;   // DMA
PINT    DINTCH5;   // DMA
PINT    DINTCH6;   // DMA
PINT    rsvd7_7;
PINT    rsvd7_8;
// Group 8 PIE Peripheral Vectors:
PINT    I2CINT1A;  // I2C-A
PINT    I2CINT2A;  // I2C-A
PINT    rsvd8_3;
PINT    rsvd8_4;
PINT    SCIRXINTC; // SCI-C
PINT    SCITXINTC; // SCI-C
PINT    rsvd8_7;
PINT    rsvd8_8;
// Group 9 PIE Peripheral Vectors:
PINT    SCIRXINTA; // SCI-A
PINT    SCITXINTA; // SCI-A
```

```
PINT    SCIRXINTB; // SCI-B
PINT    SCITXINTB; // SCI-B
PINT    ECAN0INTA; // eCAN-A
PINT    ECAN1INTA; // eCAN-A
PINT    ECAN0INTB; // eCAN-B
PINT    ECAN1INTB; // eCAN-B
// Group 10 PIE Peripheral Vectors:
PINT    rsvd10_1;
PINT    rsvd10_2;
PINT    rsvd10_3;
PINT    rsvd10_4;
PINT    rsvd10_5;
PINT    rsvd10_6;
PINT    rsvd10_7;
PINT    rsvd10_8;
// Group 11 PIE Peripheral Vectors:
PINT    rsvd11_1;
PINT    rsvd11_2;
PINT    rsvd11_3;
PINT    rsvd11_4;
PINT    rsvd11_5;
PINT    rsvd11_6;
PINT    rsvd11_7;
PINT    rsvd11_8;
// Group 12 PIE Peripheral Vectors:
PINT    XINT3;      // External interrupt
PINT    XINT4;
PINT    XINT5;
PINT    XINT6;
PINT    XINT7;
PINT    rsvd12_6;
PINT    LVF;        // Latched overflow
PINT    LUF;        // Latched underflow
};
//-----
// PIE Interrupt Vector Table External References & Function Declarations:
//
extern struct PIE_VECT_TABLE PieVectTable;
实例说明
void main(void)
{
    Uint16 i;
    InitSysCtrl(); //初始化系统
```



```
DINT;
InitPieCtrl(); //初始化 PIE
IER = 0x0000;
IFR = 0x0000;
InitPieVectTable(); //初始化中断向量表
EALLOW;
PieVectTable.DINTCH1 = &local_DINTCH1_ISR; //这个对就是 INT7.Y 的第一个位 DMA
EDIS;
IER = M_INT7; //M_INT7=0x0040=0100,0000
//打开 INT7.Y 这个很重要
EnableInterrupts();
}
void EnableInterrupts()
{
    // Enable the PIE
    PieCtrlRegs.PIECTRL.bit.ENPIE = 1;
    // Enables PIE to drive a pulse into the CPU
    PieCtrlRegs.PIEACK.all = 0xFFFF;
    // Enable Interrupts at the CPU level
    EINT;
}

// INT7.1
interrupt void local_DINTCH1_ISR(void) // DMA Channel 1
{
    // To receive more interrupts from this PIE group, acknowledge this interrupt
    PieCtrlRegs.PIEACK.all |= PIEACK_GROUP7;
    // Next two lines for debug only to halt the processor here
    // Remove after inserting ISR Code
    asm ("        ESTOP0");
    for(;;);
}
```

Table 6-4. PIE MUXed Peripheral Interrupt Vector Table

	INTx.8	INTx.7	INTx.6	INTx.5	INTx.4	INTx.3	INTx.2	INTx.1
INT1.y	WAKEINT (LPM/WD) 0xD4E	TINT0 (TIMER 0) 0xD4C	ADCINT (ADC) 0xD4A	XINT2 Ext. int. 2 0xD48	XINT1 Ext. int. 1 0xD46	Reserved -	SEQ2INT (ADC) 0xD42	SEQ1INT (ADC) 0xD40
INT2.y	Reserved	Reserved	EPWM6_TZINT (ePWM6) 0xD5A	EPWM5_TZINT (ePWM5) 0xD58	EPWM4_TZINT (ePWM4) 0xD56	EPWM3_TZINT (ePWM3) 0xD54	EPWM2_TZINT (ePWM2) 0xD52	EPWM1_TZINT (ePWM1) 0xD50
INT3.y	Reserved	Reserved	EPWM6_INT (ePWM6) 0xD6A	EPWM5_INT (ePWM5) 0xD68	EPWM4_INT (ePWM4) 0xD66	EPWM3_INT (ePWM3) 0xD64	EPWM2_INT (ePWM2) 0xD62	EPWM1_INT (ePWM1) 0xD60
INT4.y	Reserved	Reserved	ECAP6_INT (eCAP6) 0xD7A	ECAP5_INT (eCAP5) 0xD78	ECAP4_INT (eCAP4) 0xD76	ECAP3_INT (eCAP3) 0xD74	ECAP2_INT (eCAP2) 0xD72	ECAP1_INT (eCAP1) 0xD70
INT5.y	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	EQEP2_INT (eQEP2) 0xD82	EQEP1_INT (eQEP1) 0xD80
INT6.y	Reserved	Reserved	MXINTA (McBSP-A) 0xD9A	MRINTA (McBSP-A) 0xD98	MXINTB (McBSP-B) 0xD96	MRINTB (McBSP-B) 0xD94	SPITXINTA (SPI-A) 0xD92	SPIRXINTA (SPI-A) 0xD90
INT7.y	Reserved	Reserved	DINTCH6 (DMA6) 0xDAA	DINTCH5 (DMA5) 0xDA8	DINTCH4 (DMA4) 0xDA6	DINTCH3 (DMA3) 0xDA4	DINTCH2 (DMA2) 0xDA2	DINTCH1 (DMA1) 0xDA0
INT8.y	Reserved	Reserved	SCITXINTC (SCI-C) 0xDBA	SCIRXINTC (SCI-C) 0xDB8	Reserved	Reserved	I2CINT2A (I2C-A) 0xDB2	I2CINT1A (I2C-A) 0xDB0
INT9.y	Reserved	Reserved	ECAN1INTB (CAN-B) 0xDCE	ECAN0INTA (CAN-A) 0xDC8	SCITXINTB (SCI-B) 0xDC6	SCIRXINTB (SCI-B) 0xDC4	SCITXINTA (SCI-A) 0xDC2	SCIRXINTA (SCI-A) 0xDC0
INT10.y	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
INT11.y	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
INT12.y	LUF (FPU) 0xDFE	LUF (FPU) 0xDFC	Reserved	XINT7 Ext. int. 7 0xDF8	XINT6 Ext. int. 6 0xDF6	XINT5 Ext. int. 5 0xDF4	XINT4 Ext. int. 4 0xDF2	XINT3 Ext. int. 3 0xDF0

SCI 串口的一般用法

步骤 1 初始化 IO 口为串口

```
void InitSciaGpio()
{
    EALLOW;
    GpioCtrlRegs.GPBPUD.bit.GPIO36 = 0; //SCIRXDA
    GpioCtrlRegs.GPBPUD.bit.GPIO35 = 0; //SCITXDA
    GpioCtrlRegs.GPBQSEL1.bit.GPIO36 = 3; //SCIRXDA
    GpioCtrlRegs.GPBMUX1.bit.GPIO35 = 1;
    GpioCtrlRegs.GPBMUX1.bit.GPIO36 = 1;
    EDIS;
}
```

步骤 2 我在这里设置为中断方式及初始化程序

```
EALLOW;
PieVectTable.SCIRXINTA = &sciaRxFifoIsra;
PieVectTable.SCITXINTA = &sciaTxFifoIsra;
EDIS;

scia_fifo_init(); // Init SCI-A 用 FIFO 模式
PieCtrlRegs.PIECTRL.bit.ENPIE = 1; // Enable the PIE block 使能总中断模块
PieCtrlRegs.PIEIER9.bit.INTx1=1; // PIE Group 9, int1 使能接收中断使能位
//PieCtrlRegs.PIEIER9.bit.INTx2=1; // PIE Group 9, INT2 使能发送中断使能位
IER |= 0x100; // Enable CPU INT 打开 Group 9 所有可以使能中到 CPU
EINT;
```

初始化 FIFO

```
void scia_fifo_init()
{
    SciaRegs.SCICCR.all = 0x0007; // 1 stop bit, No loopback
    // No parity, 8 char bits,
    // async mode 同步模式, idle-line protocol 空闲线协议
    SciaRegs.SCICTL1.all = 0x0003; // enable TX, RX, internal SCICLK,
    // Disable RX ERR, SLEEP, TXWAKE
    SciaRegs.SCICTL2.bit.TXINTENA = 1; //使能发送中断
    SciaRegs.SCICTL2.bit.RXBKINTENA = 1; //使能接收中断
    SciaRegs.SCIHBAUD = 0x0001;
    SciaRegs.SCILBAUD = 0x00E7; // 9600 baud @LSPCLK = 37.5MHz
    SciaRegs.SCICCR.bit.LOOPBKENA = 0; // 1 Enable loop back 0 关闭自己测模式
    SciaRegs.SCIFFTX.all = 0xC028; //FIFO 小于或等于 8 个字节时发送中断产生
    SciaRegs.SCIFFRX.all = 0x002F; //FIFO 大于或等于 16 个字节时接收中断产生 (注意: 不大于时不会产
    生中断)
    // SciaRegs.SCIFFCT.all = 0x00;
```

```
SciaRegs.SCICTL1.all=0x0023;    // Relinquish SCI from Reset 软件复位后使能中断
SciaRegs.SCIFFTX.bit.TXFIFOXRESET=1; //发送 FIFO 复位
SciaRegs.SCIFFRX.bit.RXFIFORESET=1; //接收 FIFO 复位
}
```

步骤3 编写中断处理程序

```
interrupt void sciaTxFifoIsra(void)
{
    //中断处理内容
    SciaRegs.SCIFFTX.bit.TXFFINTCLR=1;    // Clear SCI Interrupt flag
    PieCtrlRegs.PIEACK.all=0x100;    // Issue PIE ACK
}

//-----SCI 接收中断-----
interrupt void sciaRxFifoIsra(void)
{
    Uint16 i;
    for(i=0;i<16;i++)
    {
        rdataB[i]=SciaRegs.SCIRXBUF.all; // Read data
        //rdataB[i]=rdataA[i];
    }
    SciaRegs.SCIFFRX.bit.RXFFOVRCLR=1;    // Clear Overflow flag
    SciaRegs.SCIFFRX.bit.RXFFINTCLR=1;    // Clear Interrupt flag
    PieCtrlRegs.PIEACK.all=0x100;    // Issue PIE ack
}
```

相信对你有帮助的:

[dsp28335 之 GPIO](#)

[DSP28335SCI 总结](#)

[TMS320F28335 中文资料](#)

[ccs3.3\(28335\)如何新建并且配置工程](#)

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