simple version

;注意要实现优先级关系，即其中的一个中断优先级比另一个高

DATA SEGMENT

SIGN DB 00H

DATA ENDS

CODE SEGMENT

ASSUME CS:CODE,DS:DATA

START:

MOV AX,0000H

MOV DS,AX ;设置数据段地址

MOV DX,0646H

MOV AL,90H

OUT DX,AL ;初始化方式字，A口读入，B口输出

;设置中断向量

MOV AX,OFFSET MIR6

MOV SI,0038H

MOV [SI],AX

MOV AX,CS

MOV SI,003AH

MOV [SI],AX

MOV AX,OFFSET MIR7

MOV SI,003CH

MOV [SI],AX

MOV AX,CS

MOV SI,003EH

MOV [SI],AX

CLI ;关中断

;设置ICW1~ICW4和OCW1

MOV AL, 11H

OUT 20H, AL

MOV AL, 08H

OUT 21H, AL

MOV AL, 04H

OUT 21H, AL

MOV AL, 07H

OUT 21H, AL

MOV AL, 2FH

OUT 21H, AL

STI ;关中断

AA1: ;主程序，让红灯绿灯全亮

MOV DX, 0642H

MOV AL, 0FFH

OUT DX, AL

JMP AA1

MIR6:

MOV DX,0642H

MOV AL, 0FH

OUT DX, AL ;亮绿灯

CALL DELAY ;延时

CALL DELAY

CALL DELAY

CALL DELAY

CMP SIGN,01H ;判断SIGN是否为1

JZ RED ;若为1则跳到RED

JMP BACK ;否则直接中断返回

RED: ;当发生嵌套中断时，高优先级中断结束后回复到低优先级中断状态，即绿灯亮完后红灯亮

MOV DX, 0642H

MOV AL, 0F0H ;亮红灯

OUT DX, AL

BACK:

IRET

MIR7:

STI

MOV SIGN,01H ;SIGN置1，表示此时发生了MIR7中断

MOV DX,0642H

MOV AL,0F0H

OUT DX,AL ;亮红灯

CALL DELAY ;延时

CALL DELAY

CALL DELAY

CALL DELAY

MOV SIGN,00H ;执行完恢复标志位为0

IRET

;延时子程序

DELAY PROC NEAR

MOV CX,0FFFFH

LOOP $

RET

DELAY ENDP

CODE ENDS

END START

plus version

DATA SEGMENT

SIGN DB 00H

LIGHT DB 01H

POS DB 00H

DATA ENDS

SSTACK SEGMENT STACK

DW 32 DUP(?)

SSTACK ENDS

CODE SEGMENT

ASSUME CS:CODE,DS:DATA,SS:SSTACK

START:

MOV AX,0000H

MOV DS,AX ;设置数据段地址

MOV DX,0646H

MOV AL,90H

OUT DX,AL ;初始化方式字，A口读入，B口输出

;设置中断向量

MOV AX,OFFSET MIR6

MOV SI,0038H

MOV [SI],AX

MOV AX,CS

MOV SI,003AH

MOV [SI],AX

MOV AX,OFFSET MIR7

MOV SI,003CH

MOV [SI],AX

MOV AX,CS

MOV SI,003EH

MOV [SI],AX

CLI ;关中断

;设置ICW1~ICW4和OCW1

MOV AL, 11H

OUT 20H, AL

MOV AL, 08H

OUT 21H, AL

MOV AL, 04H

OUT 21H, AL

MOV AL, 07H

OUT 21H, AL

MOV AL, 2FH

OUT 21H, AL

STI ;关中断

MOV LIGHT,80H;INITIALIZE

AA1: ;主程序

MOV DX, 0642H

MOV AL, LIGHT

OUT DX, AL

JMP AA1

MIR6:

MOV DX,0642H

PUSH CX

;MOV CX,0008H

MOV AL,LIGHT

MOV POS,AL

LOOP6:

ROR LIGHT,1

MOV AL, LIGHT ;LIGHT THE RIGHT ONE

OUT DX, AL

CALL DELAY ;延时

CMP LIGHT,01H

JNZ LOOP6

POP CX

CMP SIGN,01H ;判断SIGN是否为1

JZ RED ;若为1则跳到RED

JMP BACK ;否则直接中断返回

RED: ;当发生嵌套中断时，高优先级中断结束后回复到低优先级中断状态

MOV DX, 0642H

MOV AL, POS

MOV LIGHT,AL

OUT DX, AL

CALL DELAY ;延时

BACK:

IRET

MIR7:

STI

MOV SIGN,01H ;表示此时发生了MIR7中断

MOV DX,0642H

PUSH CX

;MOV CX,0008H

LOOP7:

ROL LIGHT,1

MOV AL,LIGHT

OUT DX,AL

CALL DELAY ;延时

CMP LIGHT,80H

JNZ LOOP7

POP CX

MOV SIGN,00H ;执行完恢复标志位为0

IRET

;延时子程序

DELAY PROC NEAR

PUSH CX

MOV CX,0FFFFH

LOOP $

MOV CX,0FFFFH

LOOP $

MOV CX,0FFFFH

LOOP $

MOV CX,0FFFFH

LOOP $

POP CX

RET

DELAY ENDP

CODE ENDS

END START