

پاسخ کویز چهارم ریزپردازنده

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Include 'M64DEF.INC'
.ORG 0x0000
JMP main
.ORG 0x0020
JMP Timer0_ISR
.ORG 0x0050
main : LDI R16, low(RAMEND)
      OUT SPL, R16
      LDI R16, high(RAMEND)
      OUT SPH, R16
      LDI R16, 0x00
      OUT DDRA, R16
      LDI R16, 0x02
      OUT TCCR0, R16
      OUT TCNT0, R16
      LDI R16, 0x01
      OUT TIMSK, R16
      CBI DDRB, 0
      CBI PORTB, 0
      CLR R17
      CLR R18
      CLR R19
      CLR R20
      CLR R22
      LDI R21, 0x01
      SEI
Loop : JMP Loop
Timer0_ISR : LDI R16, 06
            OUT TCNT0, R16
            CPI R19, 0x55
            BREQ next5
            CPI R19, 0x0AA
            BREQ next7
            LDI R19, 0x01
            JMP next4
next5 : INC R22
      CPI R22, 10
      BRNE next6
      JMP next4
next7 : CLR R19
next4 : CALL EV_survey
next6 : CALL EV_250microsec
      RETI
EV_250microsec : INC R17
              CPI R17, 100
              BRNE EV_250end
              CLR R17
              CALL EV_25ms
EV_250end : RET
EV_25ms : INC R18
        CPI R18, 40
        BRNE EV_25end
        CLR R18
        CALL EV_1s
EV_25end : RET
EV_1s : IN R19, PINA
      CALL EV_survey
      RET
EV_survey : CPI R19, 0x55
          BRNE next1
          CLR R22
          CALL square_proudect
          JMP next3
next1 : CPI R19, 0x0AA
      BRNE next2
      SBI PORTB, 0
      JMP next3
next2 : CBI PORTB, 0
next3 : RET
square_proudect : IN R20, PORTB
                EOR R20, R21
                OUT PORTB, R20
                RET

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$$f_t = \frac{1}{T_t} = 1\text{MHz} \rightarrow T_t = 1\mu\text{sec.}, T_{\text{square}} = \frac{1}{f_t} = 1\mu\text{sec.} \rightarrow \frac{1}{f_t} = 1\mu\text{sec.} \rightarrow \frac{1}{1\text{MHz}} = 1\mu\text{sec.} \rightarrow \frac{1}{1\text{MHz}} = 1\mu\text{sec.} \rightarrow \frac{1}{1\text{MHz}} = 1\mu\text{sec.}$$

$$\frac{1}{f_t} = 1\mu\text{sec.} = 1\mu\text{sec.} \times 10^6 = 10^6 \mu\text{sec.}$$

هر ۲۵۰ میکروثانیه بایستی وقفه صادر شود و اگر تولید موج مربعی شروع شده، بایستی مقدار آن مکمل شود.