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PIC ASSEMBLER LISTING
Line    Address Opcode  Instruction
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0001    0000            ; Compiled with: OshonSoft PIC Basic Compiler v7.883
0002    0000            ; Microcontroller model: PIC16F877A
0003    0000            ; Clock frequency: 10.0MHz
0004    0000            ;
0005    0000             R0L EQU 0x020
0006    0000             R0H EQU 0x021
0007    0000             R1L EQU 0x022
0008    0000             R1H EQU 0x023
0009    0000             R2L EQU 0x024
0010    0000             R2H EQU 0x025
0011    0000             R3L EQU 0x026
0012    0000             R3H EQU 0x027
0013    0000             R4L EQU 0x028
0014    0000             R4H EQU 0x029
0015    0000             R5L EQU 0x02A
0016    0000             R5H EQU 0x02B
0017    0000             R0HL EQU 0x020
0018    0000             R1HL EQU 0x022
0019    0000             R2HL EQU 0x024
0020    0000             R3HL EQU 0x026
0021    0000             R4HL EQU 0x028
0022    0000             R5HL EQU 0x02A
0023    0000             R1HL0HL EQU 0x020
0024    0000             R3HL2HL EQU 0x024
0025    0000             R5HL4HL EQU 0x028
0026    0000             SO_PORT EQU 0x035
0027    0000             SO_BIT EQU 0x036
0028    0000             SO_INTL EQU 0x037
0029    0000            ;       The address of 'pre1' (byte) (global) is 0x038
0030    0000            ;       The address of 'pre2' (byte) (global) is 0x039
0031    0000            ;       The address of 'bajt1' (byte) (global) is 0x03A
0032    0000            ;       The address of 'bajt2' (byte) (global) is 0x03B
0033    0000            ;       The address of 'bajt3' (byte) (global) is 0x03C
0034    0000             ORG 0x0000
0035    0000    118A     BCF PCLATH,3
0036    0001    120A     BCF PCLATH,4
0037    0002    2805     GOTO L0003
0038    0003             ORG 0x0004
0039    0004    0009     RETFIE
0040    0005            ; User code start
0041    0005            L0003:
0042    0005            ; 1: 'program cte dva bajty preambule na UART
0043    0005            ; 2: 'pokud je pre1 a pre2 rozdilna od 254, nedela nic
0044    0005            ; 3: 'pokud je pre1 = pre2 = 254, precte dalsi bajty,
nastavi PORTy a potvrdi do uartu odeslanim hodnot
0045    0005            ; 4:
0046    0005            ; 5: 'deklarace promennych
0047    0005            ; 6: Dim pre1 As Byte  'preambule pre1
0048    0005            ; 7: Dim pre2 As Byte  'preambule pre2
0049    0005            ; 8:
0050    0005            ; 9: 'bajty dat
0051    0005            ; 10:
0052    0005            ; 11: Dim bajt1 As Byte
0053    0005            ; 12: Dim bajt2 As Byte
0054    0005            ; 13: Dim bajt3 As Byte
0055    0005            ; 14:
0056    0005            ; 15: 'konfigurace portu
0057    0005            ; 16:
0058    0005            ; 17: ConfigPin RB0 = Output  'bajt indukcnost
0059    0005    1683     BSF STATUS,RP0
0060    0006    1006     BCF TRISB,0
0061    0007            ; 18: ConfigPin RB1 = Output
0062    0007    1086     BCF TRISB,1
0063    0008            ; 19: ConfigPin RB2 = Output
0064    0008    1106     BCF TRISB,2
0065    0009            ; 20: ConfigPin RB3 = Output
0066    0009    1186     BCF TRISB,3
0067    000A            ; 21: ConfigPin RB4 = Output
0068    000A    1206     BCF TRISB,4
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0069    000B            ; 22: ConfigPin RB5 = Output
0070    000B    1286     BCF TRISB,5
0071    000C            ; 23: ConfigPin RB6 = Output
0072    000C    1306     BCF TRISB,6
0073    000D            ; 24: ConfigPin RB7 = Output
0074    000D    1386     BCF TRISB,7
0075    000E            ; 25:
0076    000E            ; 26: ConfigPin RA0 = Output  'bajt kapacita - spodni
bity
0077    000E    1005     BCF TRISA,0
0078    000F            ; 27: ConfigPin RA1 = Output
0079    000F    1085     BCF TRISA,1
0080    0010            ; 28: ConfigPin RA2 = Output
0081    0010    1105     BCF TRISA,2
0082    0011            ; 29: ConfigPin RA3 = Output
0083    0011    1185     BCF TRISA,3
0084    0012            ; 30:
0085    0012            ; 31: ConfigPin RD4 = Output  'bajt kapacita - horni bity
0086    0012    1208     BCF TRISD,4
0087    0013            ; 32: ConfigPin RD5 = Output
0088    0013    1288     BCF TRISD,5
0089    0014            ; 33: ConfigPin RD6 = Output
0090    0014    1308     BCF TRISD,6
0091    0015            ; 34: ConfigPin RD7 = Output
0092    0015    1388     BCF TRISD,7
0093    0016            ; 35:
0094    0016            ; 36: ConfigPin RC0 = Output  'bajt konfigurace - jeden
bit
0095    0016    1007     BCF TRISC,0
0096    0017    1283     BCF STATUS,RP0
0097    0018            ; 37:
0098    0018            ; 38: 'pocatecni podminky
0099    0018            ; 39:
0100    0018            ; 40: pre1 = 254
0101    0018    30FE     MOVLW 0xFE
0102    0019    00B8     MOVWF 0x038
0103    001A            ; 41: pre2 = 254
0104    001A    30FE     MOVLW 0xFE
0105    001B    00B9     MOVWF 0x039
0106    001C            ; 42: bajt1 = 0
0107    001C    01BA     CLRF 0x03A
0108    001D            ; 43: bajt2 = 0
0109    001D    01BB     CLRF 0x03B
0110    001E            ; 44: bajt3 = 0
0111    001E    01BC     CLRF 0x03C
0112    001F            ; 45:
0113    001F            ; 46: 'jednorazove prikazy - znacka pristroje
0114    001F            ; 47:
0115    001F            ; 48: Serout PORTC.6, 9600, "*** ok1ufc ART-30 ***", CrLf
0116    001F            ; exact baud rate achieved = 9652.51; bit period =
103.6µs; baud rate error = .54%
0117    001F    304F     MOVLW 0x4F
0118    0020    00B7     MOVWF SO_INTL
0119    0021    1707     BSF PORTC,6
0120    0022    1683     BSF STATUS,RP0
0121    0023    1307     BCF TRISC,6
0122    0024    1283     BCF STATUS,RP0
0123    0025    3007     MOVLW 0x07
0124    0026    00B5     MOVWF SO_PORT
0125    0027    3040     MOVLW 0x40
0126    0028    00B6     MOVWF SO_BIT
0127    0029    302A     MOVLW 0x2A
0128    002A    2162     CALL SO01
0129    002B    302A     MOVLW 0x2A
0130    002C    2162     CALL SO01
0131    002D    302A     MOVLW 0x2A
0132    002E    2162     CALL SO01
0133    002F    3020     MOVLW 0x20
0134    0030    2162     CALL SO01
0135    0031    306F     MOVLW 0x6F
0136    0032    2162     CALL SO01
0137    0033    306B     MOVLW 0x6B
0138    0034    2162     CALL SO01
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0139    0035    3031     MOVLW 0x31
0140    0036    2162     CALL SO01
0141    0037    3075     MOVLW 0x75
0142    0038    2162     CALL SO01
0143    0039    3066     MOVLW 0x66
0144    003A    2162     CALL SO01
0145    003B    3063     MOVLW 0x63
0146    003C    2162     CALL SO01
0147    003D    3020     MOVLW 0x20
0148    003E    2162     CALL SO01
0149    003F    3041     MOVLW 0x41
0150    0040    2162     CALL SO01
0151    0041    3052     MOVLW 0x52
0152    0042    2162     CALL SO01
0153    0043    3054     MOVLW 0x54
0154    0044    2162     CALL SO01
0155    0045    302D     MOVLW 0x2D
0156    0046    2162     CALL SO01
0157    0047    3033     MOVLW 0x33
0158    0048    2162     CALL SO01
0159    0049    3030     MOVLW 0x30
0160    004A    2162     CALL SO01
0161    004B    3020     MOVLW 0x20
0162    004C    2162     CALL SO01
0163    004D    302A     MOVLW 0x2A
0164    004E    2162     CALL SO01
0165    004F    302A     MOVLW 0x2A
0166    0050    2162     CALL SO01
0167    0051    302A     MOVLW 0x2A
0168    0052    2162     CALL SO01
0169    0053    300D     MOVLW 0x0D
0170    0054    2162     CALL SO01
0171    0055    300A     MOVLW 0x0A
0172    0056    2162     CALL SO01
0173    0057             ; 49:
0174    0057             ; 50: 'hlavni smycka programu
0175    0057             ; 51:
0176    0057             ; 52: loop:
0177    0057             L0001:
0178    0057             ; 53:
0179    0057             ; 54: Serout PORTC.6, 9600, "Zadej pre1 pre2 bajt:", CrLf
0180    0057             ; exact baud rate achieved = 9652.51; bit period =
103.6µs; baud rate error = .54%
0181    0057    304F     MOVLW 0x4F
0182    0058    00B7     MOVWF SO_INTL
0183    0059    1707     BSF PORTC,6
0184    005A    1683     BSF STATUS,RP0
0185    005B    1307     BCF TRISC,6
0186    005C    1283     BCF STATUS,RP0
0187    005D    3007     MOVLW 0x07
0188    005E    00B5     MOVWF SO_PORT
0189    005F    3040     MOVLW 0x40
0190    0060    00B6     MOVWF SO_BIT
0191    0061    305A     MOVLW 0x5A
0192    0062    2162     CALL SO01
0193    0063    3061     MOVLW 0x61
0194    0064    2162     CALL SO01
0195    0065    3064     MOVLW 0x64
0196    0066    2162     CALL SO01
0197    0067    3065     MOVLW 0x65
0198    0068    2162     CALL SO01
0199    0069    306A     MOVLW 0x6A
0200    006A    2162     CALL SO01
0201    006B    3020     MOVLW 0x20
0202    006C    2162     CALL SO01
0203    006D    3070     MOVLW 0x70
0204    006E    2162     CALL SO01
0205    006F    3072     MOVLW 0x72
0206    0070    2162     CALL SO01
0207    0071    3065     MOVLW 0x65
0208    0072    2162     CALL SO01
0209    0073    3031     MOVLW 0x31
0210    0074    2162     CALL SO01
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0211    0075    3020     MOVLW 0x20
0212    0076    2162     CALL SO01
0213    0077    3070     MOVLW 0x70
0214    0078    2162     CALL SO01
0215    0079    3072     MOVLW 0x72
0216    007A    2162     CALL SO01
0217    007B    3065     MOVLW 0x65
0218    007C    2162     CALL SO01
0219    007D    3032     MOVLW 0x32
0220    007E    2162     CALL SO01
0221    007F    3020     MOVLW 0x20
0222    0080    2162     CALL SO01
0223    0081    3062     MOVLW 0x62
0224    0082    2162     CALL SO01
0225    0083    3061     MOVLW 0x61
0226    0084    2162     CALL SO01
0227    0085    306A     MOVLW 0x6A
0228    0086    2162     CALL SO01
0229    0087    3074     MOVLW 0x74
0230    0088    2162     CALL SO01
0231    0089    303A     MOVLW 0x3A
0232    008A    2162     CALL SO01
0233    008B    300D     MOVLW 0x0D
0234    008C    2162     CALL SO01
0235    008D    300A     MOVLW 0x0A
0236    008E    2162     CALL SO01
0237    008F            ; 55: Serin PORTC.7, 9600, pre1  'serial ceka na
preambuli pre1
0238    008F            ; exact baud rate achieved = 9689.922; bit period =
103.2µs; baud rate error = .93%
0239    008F    3050     MOVLW 0x50
0240    0090    00B7     MOVWF SO_INTL
0241    0091    1683     BSF STATUS,RP0
0242    0092    1787     BSF TRISC,7
0243    0093    1283     BCF STATUS,RP0
0244    0094    3007     MOVLW 0x07
0245    0095    00B5     MOVWF SO_PORT
0246    0096    3080     MOVLW 0x80
0247    0097    00B6     MOVWF SO_BIT
0248    0098    2182     CALL SI01
0249    0099    00B8     MOVWF 0x038
0250    009A            ; 56: Serin PORTC.7, 9600, pre2  'serial ceka na
preambuli pre2
0251    009A            ; exact baud rate achieved = 9689.922; bit period =
103.2µs; baud rate error = .93%
0252    009A    3050     MOVLW 0x50
0253    009B    00B7     MOVWF SO_INTL
0254    009C    1683     BSF STATUS,RP0
0255    009D    1787     BSF TRISC,7
0256    009E    1283     BCF STATUS,RP0
0257    009F    3007     MOVLW 0x07
0258    00A0    00B5     MOVWF SO_PORT
0259    00A1    3080     MOVLW 0x80
0260    00A2    00B6     MOVWF SO_BIT
0261    00A3    2182     CALL SI01
0262    00A4    00B9     MOVWF 0x039
0263    00A5            ; 57:
0264    00A5            ; 58: 'testovani prijatych bajtu
0265    00A5            ; 59: If pre1 <> pre1 Then Goto konec
0266    00A5    0838     MOVF 0x038,W
0267    00A6    0238     SUBWF 0x038,W
0268    00A7    1903     BTFSC STATUS,Z
0269    00A8    28AA     GOTO L0004
0270    00A9    2913     GOTO L0002
0271    00AA            L0004:
0272    00AA            ; 60: If pre2 <> pre2 Then Goto konec
0273    00AA    0839     MOVF 0x039,W
0274    00AB    0239     SUBWF 0x039,W
0275    00AC    1903     BTFSC STATUS,Z
0276    00AD    28AF     GOTO L0005
0277    00AE    2913     GOTO L0002
0278    00AF            L0005:
0279    00AF            ; 61:
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0280    00AF            ; 62:
0281    00AF            ; 63: Serin PORTC.7, 9600, bajt1  'serial ceka na bajt
dat
0282    00AF            ; exact baud rate achieved = 9689.922; bit period =
103.2µs; baud rate error = .93%
0283    00AF    3050     MOVLW 0x50
0284    00B0    00B7     MOVWF SO_INTL
0285    00B1    1683     BSF STATUS,RP0
0286    00B2    1787     BSF TRISC,7
0287    00B3    1283     BCF STATUS,RP0
0288    00B4    3007     MOVLW 0x07
0289    00B5    00B5     MOVWF SO_PORT
0290    00B6    3080     MOVLW 0x80
0291    00B7    00B6     MOVWF SO_BIT
0292    00B8    2182     CALL SI01
0293    00B9    00BA     MOVWF 0x03A
0294    00BA            ; 64: PORTB = bajt1
0295    00BA    083A     MOVF 0x03A,W
0296    00BB    0086     MOVWF PORTB
0297    00BC            ; 65:
0298    00BC            ; 66: Serin PORTC.7, 9600, bajt2  'serial ceka na bajt
dat
0299    00BC            ; exact baud rate achieved = 9689.922; bit period =
103.2µs; baud rate error = .93%
0300    00BC    3050     MOVLW 0x50
0301    00BD    00B7     MOVWF SO_INTL
0302    00BE    1683     BSF STATUS,RP0
0303    00BF    1787     BSF TRISC,7
0304    00C0    1283     BCF STATUS,RP0
0305    00C1    3007     MOVLW 0x07
0306    00C2    00B5     MOVWF SO_PORT
0307    00C3    3080     MOVLW 0x80
0308    00C4    00B6     MOVWF SO_BIT
0309    00C5    2182     CALL SI01
0310    00C6    00BB     MOVWF 0x03B
0311    00C7            ; 67: PORTA = bajt2
0312    00C7    083B     MOVF 0x03B,W
0313    00C8    0085     MOVWF PORTA
0314    00C9            ; 68: PORTD = bajt2
0315    00C9    083B     MOVF 0x03B,W
0316    00CA    0088     MOVWF PORTD
0317    00CB            ; 69:
0318    00CB            ; 70: Serin PORTC.7, 9600, bajt3  'serial ceka na bajt
dat
0319    00CB            ; exact baud rate achieved = 9689.922; bit period =
103.2µs; baud rate error = .93%
0320    00CB    3050     MOVLW 0x50
0321    00CC    00B7     MOVWF SO_INTL
0322    00CD    1683     BSF STATUS,RP0
0323    00CE    1787     BSF TRISC,7
0324    00CF    1283     BCF STATUS,RP0
0325    00D0    3007     MOVLW 0x07
0326    00D1    00B5     MOVWF SO_PORT
0327    00D2    3080     MOVLW 0x80
0328    00D3    00B6     MOVWF SO_BIT
0329    00D4    2182     CALL SI01
0330    00D5    00BC     MOVWF 0x03C
0331    00D6            ; 71: PORTC = bajt3
0332    00D6    083C     MOVF 0x03C,W
0333    00D7    0087     MOVWF PORTC
0334    00D8            ; 72:
0335    00D8            ; 73:
0336    00D8            ; 74: 'a taky to odesle do serialu hodnotu bajtu
0337    00D8            ; 75: WaitMs 1
0338    00D8    30F8     MOVLW 0xF8
0339    00D9    00A8     MOVWF R4L
0340    00DA    3000     MOVLW 0x00
0341    00DB    00A9     MOVWF R4H
0342    00DC    214B     CALL DL02
0343    00DD            ; 76: Serout PORTC.6, 9600, "Data: ", #bajt1, " ",
#bajt2, " ", #bajt3, CrLf
0344    00DD            ; exact baud rate achieved = 9652.51; bit period =
103.6µs; baud rate error = .54%
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0345    00DD    304F     MOVLW 0x4F
0346    00DE    00B7     MOVWF SO_INTL
0347    00DF    1707     BSF PORTC,6
0348    00E0    1683     BSF STATUS,RP0
0349    00E1    1307     BCF TRISC,6
0350    00E2    1283     BCF STATUS,RP0
0351    00E3    3007     MOVLW 0x07
0352    00E4    00B5     MOVWF SO_PORT
0353    00E5    3040     MOVLW 0x40
0354    00E6    00B6     MOVWF SO_BIT
0355    00E7    3044     MOVLW 0x44
0356    00E8    2162     CALL SO01
0357    00E9    3061     MOVLW 0x61
0358    00EA    2162     CALL SO01
0359    00EB    3074     MOVLW 0x74
0360    00EC    2162     CALL SO01
0361    00ED    3061     MOVLW 0x61
0362    00EE    2162     CALL SO01
0363    00EF    303A     MOVLW 0x3A
0364    00F0    2162     CALL SO01
0365    00F1    3020     MOVLW 0x20
0366    00F2    2162     CALL SO01
0367    00F3    083A     MOVF 0x03A,W
0368    00F4    00B2     MOVWF 0x032
0369    00F5    01B3     CLRF 0x033
0370    00F6    211B     CALL _append_lab_0001
0371    00F7    1383     BCF STATUS,IRP
0372    00F8    302C     MOVLW 0x2C
0373    00F9    0084     MOVWF FSR
0374    00FA    21BB     CALL SO21
0375    00FB    3020     MOVLW 0x20
0376    00FC    2162     CALL SO01
0377    00FD    083B     MOVF 0x03B,W
0378    00FE    00B2     MOVWF 0x032
0379    00FF    01B3     CLRF 0x033
0380    0100    211B     CALL _append_lab_0001
0381    0101    1383     BCF STATUS,IRP
0382    0102    302C     MOVLW 0x2C
0383    0103    0084     MOVWF FSR
0384    0104    21BB     CALL SO21
0385    0105    3020     MOVLW 0x20
0386    0106    2162     CALL SO01
0387    0107    083C     MOVF 0x03C,W
0388    0108    00B2     MOVWF 0x032
0389    0109    01B3     CLRF 0x033
0390    010A    211B     CALL _append_lab_0001
0391    010B    1383     BCF STATUS,IRP
0392    010C    302C     MOVLW 0x2C
0393    010D    0084     MOVWF FSR
0394    010E    21BB     CALL SO21
0395    010F    300D     MOVLW 0x0D
0396    0110    2162     CALL SO01
0397    0111    300A     MOVLW 0x0A
0398    0112    2162     CALL SO01
0399    0113             ; 77:
0400    0113             ; 78: konec:
0401    0113             L0002:
0402    0113             ; 79: WaitMs 1
0403    0113    30F8     MOVLW 0xF8
0404    0114    00A8     MOVWF R4L
0405    0115    3000     MOVLW 0x00
0406    0116    00A9     MOVWF R4H
0407    0117    214B     CALL DL02
0408    0118             ; 80:
0409    0118             ; 81: Goto loop
0410    0118    2857     GOTO L0001
0411    0119             ; 82: End
0412    0119    2919     L0006:   GOTO L0006
0413    011A             ; Library code
0414    011A             ; End of user code
0415    011A    291A     L0007:   GOTO L0007
0416    011B             ; APPEND CODE BEGIN: _routine_ascii_word_
0417    011B             _append_lab_0001:
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0418    011B    1383     BCF STATUS,IRP
0419    011C    302C     MOVLW 0x2C
0420    011D    0084     MOVWF FSR
0421    011E    1034     BCF 0x034,0
0422    011F    0832     MOVF 0x032,W
0423    0120    00A4     MOVWF R2L
0424    0121    0833     MOVF 0x033,W
0425    0122    00A5     MOVWF R2H
0426    0123    3010     MOVLW 0x10
0427    0124    00A2     MOVWF R1L
0428    0125    3027     MOVLW 0x27
0429    0126    00A3     MOVWF R1H
0430    0127    2139     CALL _append_lab_0002
0431    0128    30E8     MOVLW 0xE8
0432    0129    00A2     MOVWF R1L
0433    012A    3003     MOVLW 0x03
0434    012B    00A3     MOVWF R1H
0435    012C    2139     CALL _append_lab_0002
0436    012D    3064     MOVLW 0x64
0437    012E    00A2     MOVWF R1L
0438    012F    01A3     CLRF R1H
0439    0130    2139     CALL _append_lab_0002
0440    0131    300A     MOVLW 0x0A
0441    0132    00A2     MOVWF R1L
0442    0133    01A3     CLRF R1H
0443    0134    2139     CALL _append_lab_0002
0444    0135    0824     MOVF R2L,W
0445    0136    2144     CALL _append_lab_0003
0446    0137    0180     CLRF INDF
0447    0138    0008     RETURN
0448    0139            _append_lab_0002:
0449    0139    0824     MOVF R2L,W
0450    013A    00A0     MOVWF R0L
0451    013B    0825     MOVF R2H,W
0452    013C    00A1     MOVWF R0H
0453    013D    21A0     CALL D001
0454    013E    0820     MOVF R0L,W
0455    013F    1903     BTFSC 0x003,2
0456    0140    2942     GOTO L0008
0457    0141    1434     BSF 0x034,0
0458    0142            L0008:
0459    0142    1C34     BTFSS 0x034,0
0460    0143    2947     GOTO L0009
0461    0144            _append_lab_0003:
0462    0144    3E30     ADDLW 0x30
0463    0145    0080     MOVWF INDF
0464    0146    0A84     INCF FSR,f
0465    0147            L0009:
0466    0147    0008     RETURN
0467    0148            ; APPEND CODE END.
0468    0148            ;
0469    0148            ;
0470    0148            ; Delay Routine Byte
0471    0148            ; minimal routine execution time: 3.2µs
0472    0148            ; routine execution time step: 1.2µs
0473    0148            ; maximal routine execution time: 308µs
0474    0148            DL01:
0475    0148    0BA8     DECFSZ R4L,F
0476    0149    2948     GOTO DL01
0477    014A    0008     RETURN
0478    014B            ; Delay Routine Word
0479    014B            ; minimal routine execution time: 6µs
0480    014B            ; routine execution time step: 4µs
0481    014B            ; maximal routine execution time: 262146µs
0482    014B            DL02:
0483    014B    3001     MOVLW 0x01
0484    014C    02A8     SUBWF R4L,F
0485    014D    0100     CLRW
0486    014E    1C03     BTFSS STATUS,C
0487    014F    3E01     ADDLW 0x01
0488    0150    02A9     SUBWF R4H,F
0489    0151    1C03     BTFSS STATUS,C
0490    0152    0008     RETURN
```

```
0491    0153    294B     GOTO DL02
0492    0154            ; Waitms Routine
0493    0154    3001    W001:     MOVLW 0x01
0494    0155    02A0     SUBWF R0L,F
0495    0156    0100     CLRW
0496    0157    1C03     BTFSS STATUS,C
0497    0158    3E01     ADDLW 0x01
0498    0159    02A1     SUBWF R0H,F
0499    015A    1C03     BTFSS STATUS,C
0500    015B    0008     RETURN
0501    015C    30F7     MOVLW 0xF7
0502    015D    00A8     MOVWF R4L
0503    015E    3000     MOVLW 0x00
0504    015F    00A9     MOVWF R4H
0505    0160    214B     CALL DL02
0506    0161    2954     GOTO W001
0507    0162            ; Serout Routine
0508    0162    00AA    SO01:     MOVWF R5L
0509    0163    1383     BCF STATUS,IRP
0510    0164    30F8     MOVLW 0xF8
0511    0165    00A8     MOVWF R4L
0512    0166    3000     MOVLW 0x00
0513    0167    00A9     MOVWF R4H
0514    0168    214B     CALL DL02
0515    0169    0835     MOVF SO_PORT,W
0516    016A    0084     MOVWF FSR
0517    016B    3009     MOVLW 0x09
0518    016C    00AB     MOVWF R5H
0519    016D    1003     BCF STATUS,C
0520    016E            SO02:
0521    016E    2175     CALL SO03
0522    016F    0CAA     RRF R5L,F
0523    0170    0BAB     DECFSZ R5H,F
0524    0171    296E     GOTO SO02
0525    0172    1403     BSF STATUS,C
0526    0173    2175     CALL SO03
0527    0174    0008     RETURN
0528    0175    0800    SO03:     MOVF INDF,W
0529    0176    0436     IORWF SO_BIT,W
0530    0177    1C03     BTFSS STATUS,C
0531    0178    0636     XORWF SO_BIT,W
0532    0179    0080     MOVWF INDF
0533    017A    1784     BSF FSR,7
0534    017B    0900     COMF INDF,W
0535    017C    1384     BCF FSR,7
0536    017D    0580     ANDWF INDF,F
0537    017E    0837     MOVF SO_INTL,W
0538    017F    00A8     MOVWF R4L
0539    0180    2148     CALL DL01
0540    0181    0008     RETURN
0541    0182            ; Serin Routine
0542    0182            SI01:
0543    0182    1383     BCF STATUS,IRP
0544    0183    219A     CALL SI03
0545    0184    1803     BTFSC STATUS,C
0546    0185    2982     GOTO SI01
0547    0186    0837     MOVF SO_INTL,W
0548    0187    00A8     MOVWF R4L
0549    0188    0CA8     RRF R4L,F
0550    0189    1003     BCF STATUS,C
0551    018A    0CA8     RRF R4L,F
0552    018B    2148     CALL DL01
0553    018C    3008     MOVLW 0x08
0554    018D    00AB     MOVWF R5H
0555    018E            SI02:
0556    018E    0837     MOVF SO_INTL,W
0557    018F    00A8     MOVWF R4L
0558    0190    2148     CALL DL01
0559    0191    219A     CALL SI03
0560    0192    0CAA     RRF R5L,F
0561    0193    0BAB     DECFSZ R5H,F
0562    0194    298E     GOTO SI02
0563    0195    0837     MOVF SO_INTL,W
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```
0564    0196    00A8     MOVWF R4L
0565    0197    2148     CALL DL01
0566    0198    082A     MOVF R5L,W
0567    0199    0008     RETURN
0568    019A    0835    SI03:     MOVF SO_PORT,W
0569    019B    0084     MOVWF FSR
0570    019C    0836     MOVF SO_BIT,W
0571    019D    0500     ANDWF INDF,W
0572    019E    3EFF     ADDLW 0xFF
0573    019F    0008     RETURN
0574    01A0            ;
0575    01A0            ;
0576    01A0            ; Word Division Routine
0577    01A0    3010    D001:     MOVLW 0x10
0578    01A1    00A6     MOVWF R3L
0579    01A2    01A5     CLRF R2H
0580    01A3    01A4     CLRF R2L
0581    01A4    0D21    D002:     RLF R0H,W
0582    01A5    0DA4     RLF R2L,F
0583    01A6    0DA5     RLF R2H,F
0584    01A7    0822     MOVF R1L,W
0585    01A8    02A4     SUBWF R2L,F
0586    01A9    0823     MOVF R1H,W
0587    01AA    1C03     BTFSS STATUS,C
0588    01AB    0F23     INCFSZ R1H,W
0589    01AC    02A5     SUBWF R2H,F
0590    01AD    1803     BTFSC STATUS,C
0591    01AE    29B6     GOTO D003
0592    01AF    0822     MOVF R1L,W
0593    01B0    07A4     ADDWF R2L,F
0594    01B1    0823     MOVF R1H,W
0595    01B2    1803     BTFSC STATUS,C
0596    01B3    0F23     INCFSZ R1H,W
0597    01B4    07A5     ADDWF R2H,F
0598    01B5    1003     BCF STATUS,C
0599    01B6    0DA0    D003:     RLF R0L,F
0600    01B7    0DA1     RLF R0H,F
0601    01B8    0BA6     DECFSZ R3L,F
0602    01B9    29A4     GOTO D002
0603    01BA    0008     RETURN
0604    01BB            ; Serout Decimal Conversion Routine
0605    01BB            SO21:
0606    01BB    00A7     MOVWF R3H
0607    01BC            SO22:
0608    01BC    1383     BCF STATUS,IRP
0609    01BD    0827     MOVF R3H,W
0610    01BE    0084     MOVWF FSR
0611    01BF    0800     MOVF INDF,W
0612    01C0    1903     BTFSC STATUS,Z
0613    01C1    0008     RETURN
0614    01C2    0AA7     INCF R3H,F
0615    01C3    2162     CALL SO01
0616    01C4    29BC     GOTO SO22
0617    01C5            ;
0618    01C5            ;
0619    01C5            ; End of listing
0620    01C5             END
-------------------------------------------
Number of errors = 0
```