Chapter 09

Programming in Assembly

Lesson 04

Programming Examples for Ports

Default Settings for Ports after the 8051 Reset

- P0, P1, P2 and P3

- FFH in each

- All bits at ports are 1s

Programming all 8-bits of a Port simultaneously

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Write odd bits = 0 and even bits = 1 at P1

- WriteP1: MOV P1, # 0AAH; Write 10101010 at the P1

Set all bits = 1 at P2

- SetP2: MOV P2, # 0FFH; Write 11111111 at the P2

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Reset all bits at P0

- RSTP0: MOV P0, # 00H; Write 00000000 at the P1

Toggle (complement) all bits at P3.

- CPLP2: XRL P3, # 0FFH; XOR with FFH gives complement

Read P2 in R1

- ReadP2:MOV R1, P2; Move (copy) P2 into R1

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Programming individual Port bits

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Reset bit 0 of P2

- CLR 90H

- ; Clear bit at bit address of P2^0

- ; CLR P2^0 also means same

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Set bit 1 of P2

- SETB P2^1 ; Set bit at bit address 91H

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Toggle bit 3 of P2

- CPL P2^3; Complement bit at bit address 93H

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Toggle higher four bits of P2

- CPL P2^4; Complement bit at bit address 94H
- CPL P2^5; Complement bit at bit address 95H
- CPL P2^6; Complement bit at bit address 96H
- CPL P2^7; Complement bit at bit address 97H

or

XRL #0F0; XOR with F0H complements upper 4 bits

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Reset bit 1, 2, 6 and 7 of P1

- CLR P1^1;
- CLR P1^2;
- CLR P1^6;
- CLR P1^7;

    or

      ANL #0F; AND with 0FH clears lower 4 bits

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Set bit 3 and reset 4, 5 of P0

- SETB P0^3;
- CLR P0^4;
- CLR P0^5;

Summary

We learnt

- Default port bits on reset are 1s
- Setting and resetting of port bits

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End of Lesson 04 on

Programming Examples for Ports