Chapter 14

80x96 Family Microcontrollers

Port P0 | AMUX | HSO | AD0-AD8 | AD8-AD15 | Port P2
S/H | HSI | T2 | P3 | P4
ADC | T1 | WDT | PWM | T2CAP
IR | Baud | SI | IO and internal devices SFRs
ID | Execution unit | SP
Reset | PSW | Register file of 232B internal RAM
Osc | | P3, P4
Interrupt Control | PC | Internal ROM
PTS | Port P1

Control and Sequencing Circuit

Lesson 11

ADC

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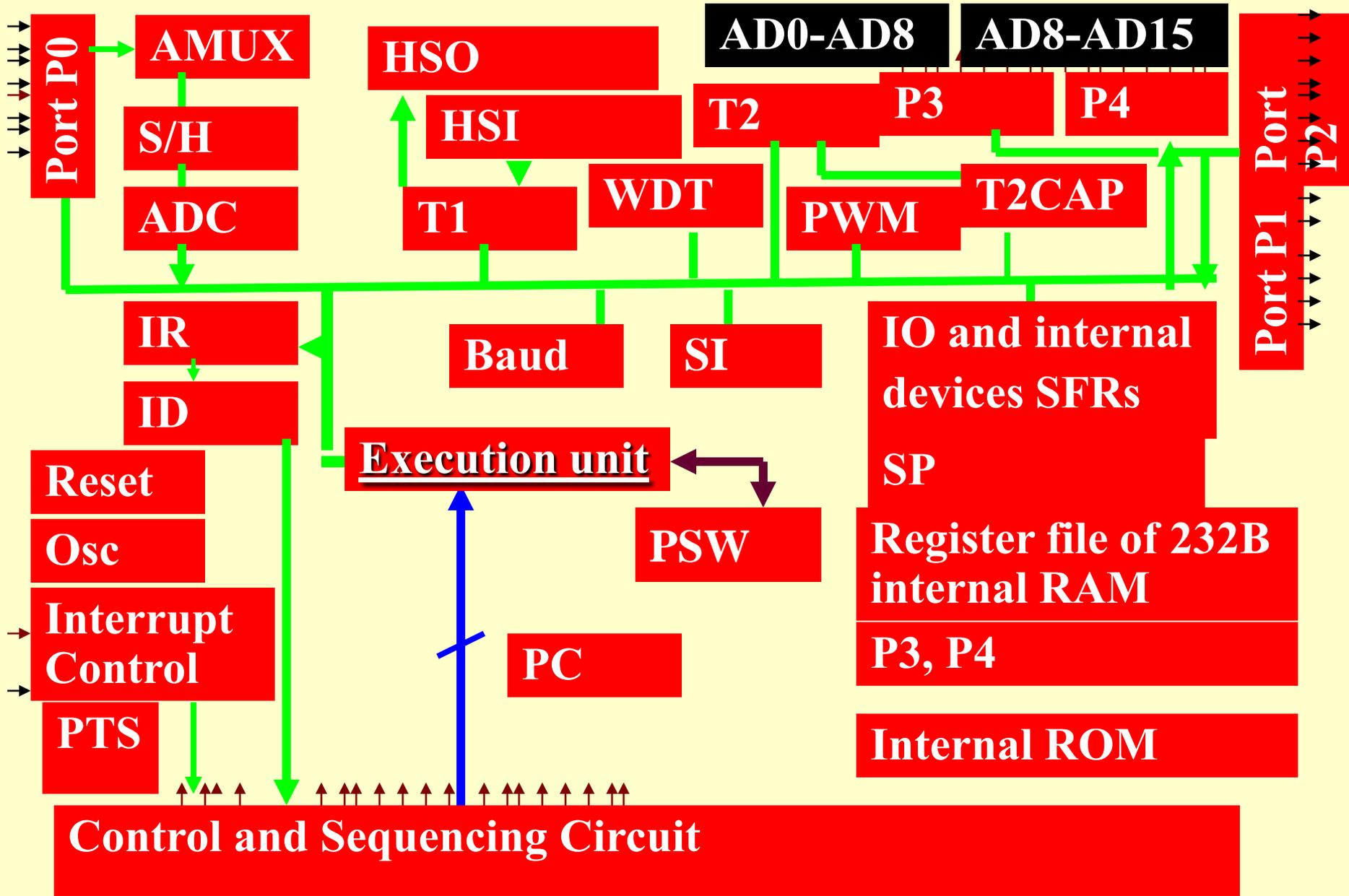
ADC

- **ADC device has inputs at Port P0**

- **Multi channels give multiplexed input to internal ADC**

- **S/H does the sample hold**

- **ADC Channel 0-7 select by 2bits: CH0,CH1, CH2**

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Port P0

Address –0EH

P0.7	I
P0.6	I
P0.5	I
P0.4	I
P0.3	I
P0.2	I
P0.1	I
P0.0	I

Analog Input Option 2

AN7
AN6
AN5
AN4
AN3
AN2
AN1
AN0

Channel Select Ch0-Ch1-Ch2

Analog Multiplexer

Sample-Hold Amplifier

ADC
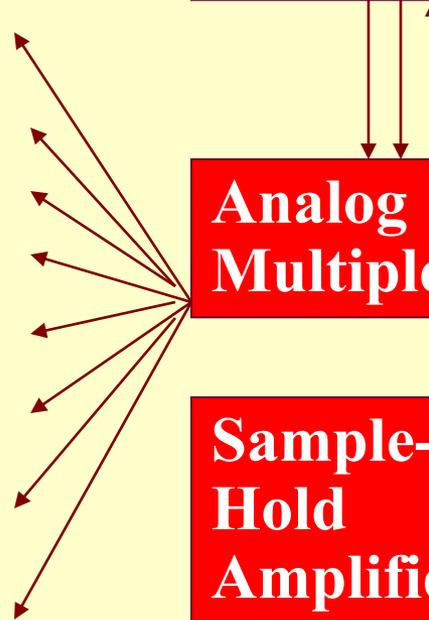
ADC Multi Channel Device

- ADCTL write at AD_Command

- ADR0, .. ADR7 common address AD_result_LO and AD_result Hi at read 02H and 03H,respectively

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ADC Device Control Register

AD_CTL

Write → 02H

bit3 to AD enable (GO)

bit2-bit1-bit0 3 bits for channel number between 0 and 7

AD_result_LO t 02H read

Channel Number 3- bits CH0-CH1-CH2at bit2-bit1-bit0, AD status at bit3, Lower 2 bits ADC output bit7-bit6

AD_result_Hi at 03H separately read as a byte

upper 8-bits ADC output

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ADC Start Using T1 or T2

- Channel bits in the command register HSO_Command are 1111, the A/D conversion starts when comparison is successful

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Summary

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We learnt

- Analog inputs at P0

- ADC Start programmable

- ADC channel selectable

- Conversion over interrupt

- ADC results in registers

End of Lesson 11 on 80x96 ADC

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