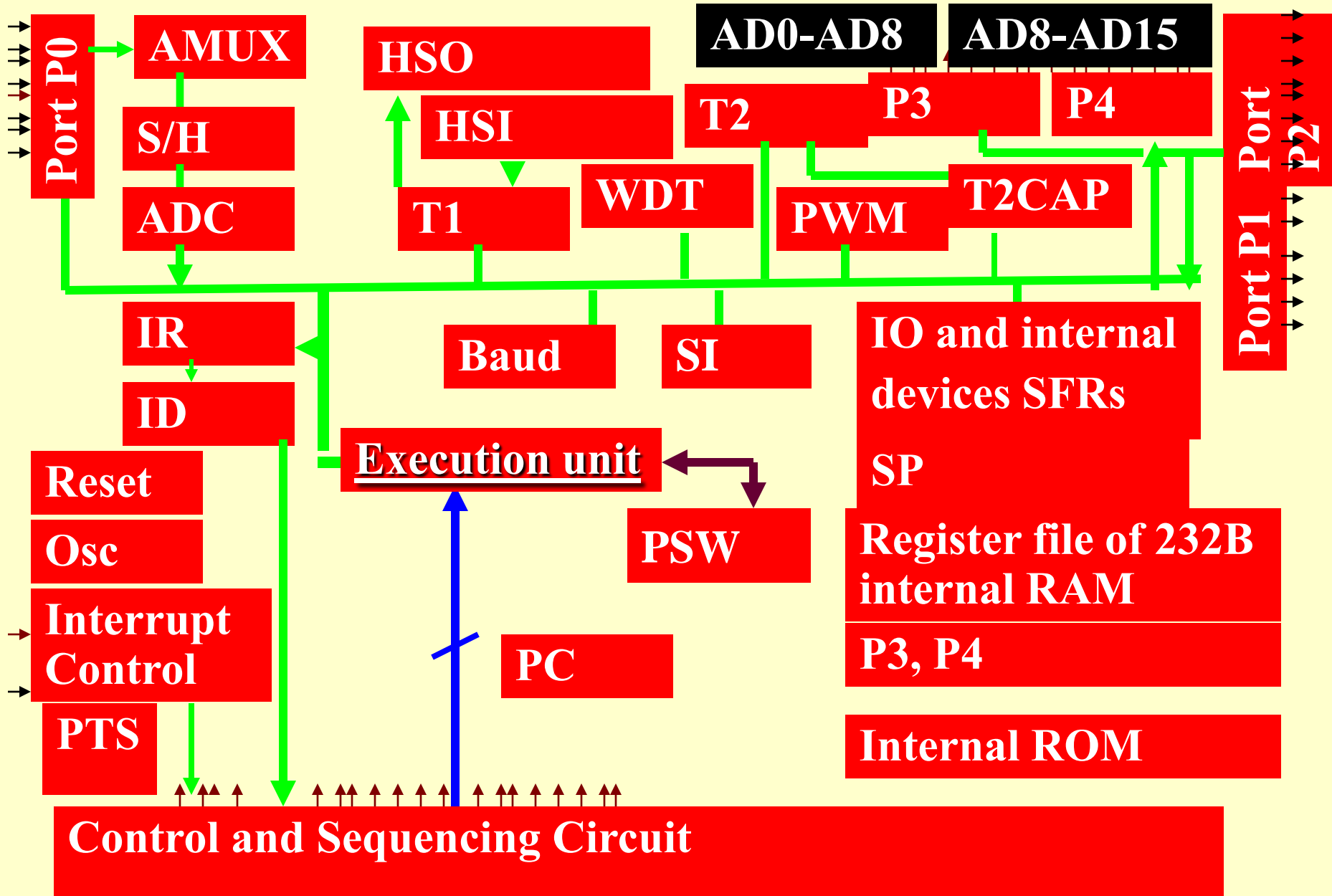


Chapter 14

80x96 Family Microcontrollers



Lesson 3

80x96 MCU

Special Function Registers

Special function Register

- Page 0 256 bytes accessed by 256 addresses
- Between 0x0000 and 0x00FFH in four H-Windows
- Special Function Registers (SFRs) between 0x00 and 0x17H
- Special function register 1-bit stack pointer SP (at 0x18H–0x19) common in all four Windows
- A register file of 232 bytes (FFH – 17H) page 0 RAM at Internal RAM

Special function Registers for Internal Devices and System

- T1 (Timer-Counter) with HSO units for out compares, HSI-units for input capture, four software timers for Real time interrupts
- T2 (Timer-Counter) with external clocking and reset inputs

Special function Registers for Internal Devices and System

- SI (Serial Interface) with full duplex UART or half duplex synchronous serial communication
- PWMs
- ADC - Analog inputs multi channel

Special function Registers for Internal Devices and System

IO Ports

- Port P0, option EXINT1, option of analog inputs multi channel AMUX, S/H, ADC
- Port P4 , AD8-AD15/A8-A15 options
- Port P3, AD0-AD7option
- Port P2, T2, PWM0, EXINT
- Port P1, PTS signals and PWM1, PWM2

On-Chip SFR Addresses in 80x96

Address Space

00H-19H
Page 0

IO and internal
Devices Registers

System Registers

WSR

b6-b0

selects/

switches

to a V or

H-window

System Function Registers Examples

WSR

13H

.....**When write**

SP

18-19H

INT_MSK

08H

.....**PSW.7-PSW.0**

Lower 8-bits

INT_Pend

09H

WDT

0AH

**Write two
Times, first
Lower 8-bits
Then upper**

INT_MSK1

12H

INT_Pend1

13H

.....**When read**

Examples

**Window select
Register**

When write 13H

INT_Pend1

12H

interrupt pending register1

**WDT watchdog
16-bit timer**

**When write
0AH**

INT_Pend

**09H interrupt
pending register0**

Examples

interrupt mask register

INT_Mask

When read or write 08H

INT_Mask1

When read or write 13H

interrupt mask register1

Horizontal windows

- R0 16-bit 0x01-00 in all 4-windows (Register always all 16-bits = 0)

Horizontal window 0 (read) and window 0 (write)

- AD_Command
- AD_Result_LO
- AD_Result_HO

Horizontal window 0 (read) and window 0 (write)

- HSO_Time (High speed output on comparison of Time)
- HSO_Command (High speed output on comparison of Time command)
- HSO_Stat (High speed output on comparison of Time status)

Horizontal window 0 (read) and window 0 (write)

- HSI_Mode (High speed input captured mode)
- HSI_Time (High speed input captured Time)

Horizontal window 0 (read) and window 0 (write)

- SBUF (transmitter SBUF when written and receiver SBUF when read)

Horizontal window 0 (read) and window 0 (write)

- SP_Control (Serial Port Control)
- SP_Stat (Serial Port Status)

Horizontal window 0 (read) and window 0 (write)

- INT_Mask
- INT_Pending

Horizontal window 0 (write)

- Watchdog

Horizontal window 0 (read) and window 0 (write)

- IOC2
- Timer 1
- Timer 2
- Baud_Rate

Horizontal window 0 (read) and window 0 (write)

- P0
- P1
- P2

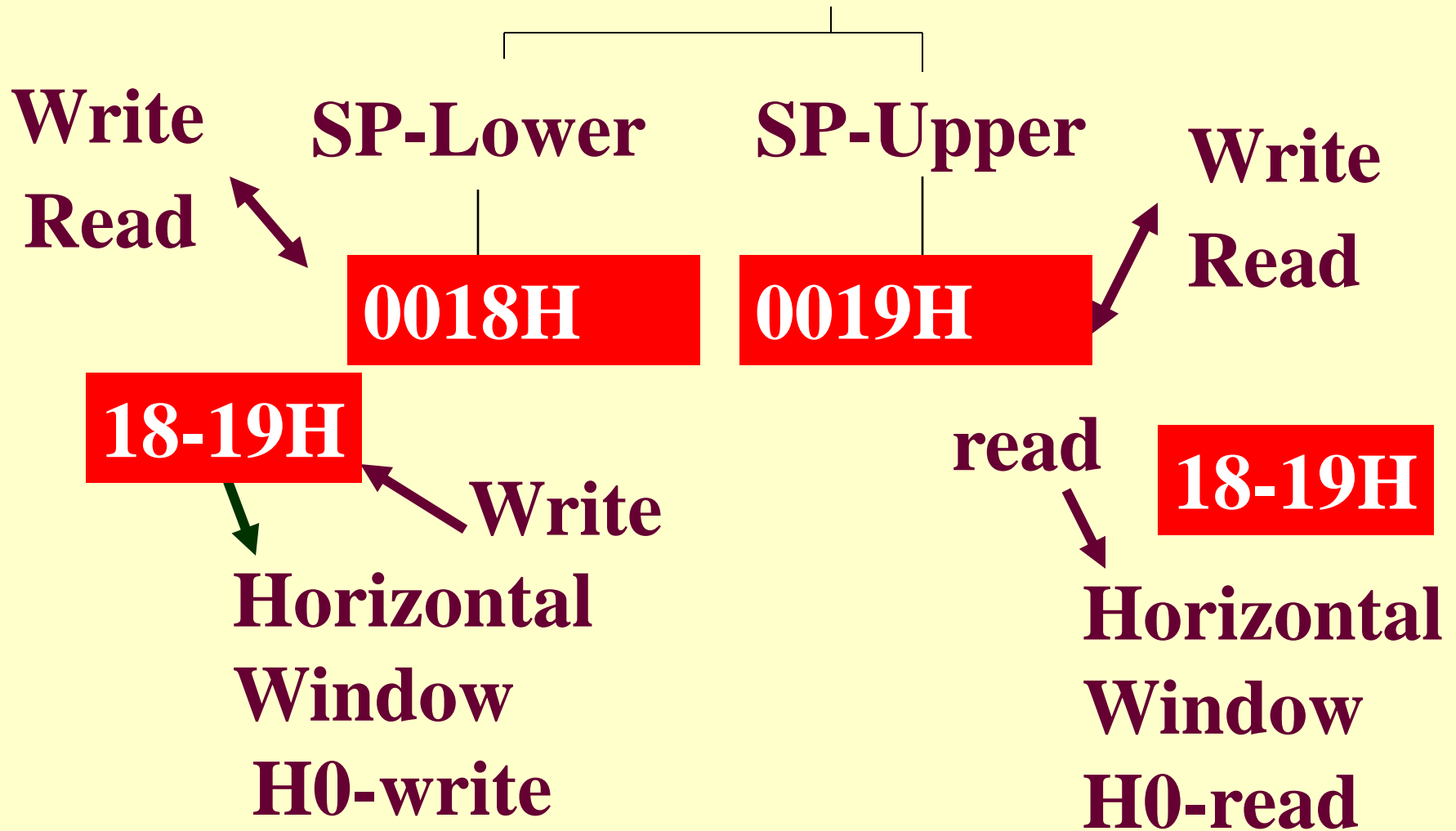
Horizontal window 0 (read) and window 0 (write)

- INT_Pend
- 1INT_Mask1
- WSR
- IOC0
- IOS0
- IOC1
- IOS1
- IOS2 0x17H

All 4 H-windows

- Horizontal window 0 (read), window 0 (write), H1 and H15
- SP 0x19-0x18 (16-bit)

SP Addresses in all H-windows



Horizontal window 1 (read) cum (write)

- AD_Time
- PTSSEL_LO
- PTSSEL_HO
- PTSSRV_LO
- PTSSRV_HO
- IOC3
- PWM2Control
- PWM1Control

Horizontal window 15 (read) cum (write)

- T2Capture_LO 0x0CH
- T2Capture_HO 0x16H

Summary

We learnt

- H0 Read
- R0, AD result, HSI time, HSO status, Serial receive buffer, INT_Mask, INT_Pend,
- Timer 1, Timer 2, P0, P1, P2, SP_status
- INT_Pend1, INT_Mask1, WSR, IOS0, IOS1, IOS2,
- SP

We learnt

- H0 Write
- R0, AD Command, HSI mode, HSO Time,
- HSO_Command
- Serial port Serial transmit buffer, INT_Mask, INT_Pend, Watchdog timer, IOC2, Baud_Rate, P1, P2, Serial port SP_Control
- INT_Pend1, INT_Mask1, WSR, IOC0, IOC1
- SP

We learnt

- H1
- IOC3
- four peripheral transaction server registers
- PWM2 control and PWM1 registers
- SP

We learnt

- H15 T2 Capture LO and HI registers
- SP

End of Lesson 3 on
80x96 MCU
Special Function Registers