# Chapter 1

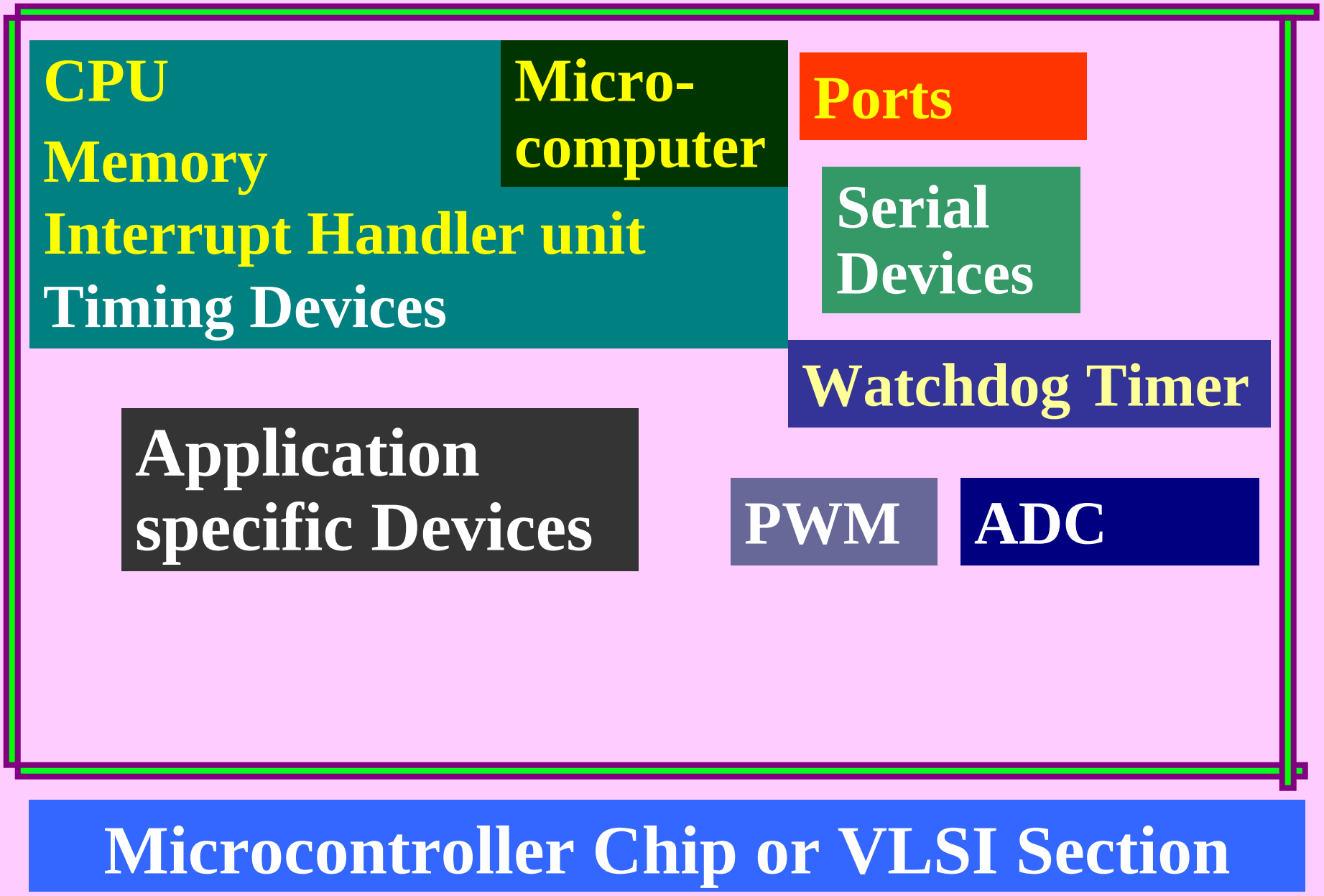
# Microcontroller Overview

Lesson 2

# Microcontrollers- Types and Examples

# Outline

- **Microcontroller Types**
- Examples- 8051 Series Family Members
- Examples- 68HC11/12 Series Family Members


CPU
Memory
Interrupt Handler unit
Timing Devices
Micro-computer
Ports
Serial Devices
Watchdog Timer
Application specific Devices
PWM
ADC
Microcontroller Chip or VLSI Section

# Microcontroller Bits

**8-bit Microcontroller- 8051 Series, Motorola 68HC11**

**16-bit Microcontroller- Extended 8051 XA, Intel 80x96, MC68HC12**

**32-bit Microcontroller- ARM7, ARM9, ARM 11, Motorola683xx**

# Microcontroller Form

**Microcontroller chip**

**Microcontroller VLSI Core VHDL/Verilog File**

# Microcontroller Instruction Set

CISC Microcontroller - Complicated Instruction Set, Multiple addressing modes

**RISC Microcontroller-Reduced Instruction Set, Fewer Addressing modes, Single cycle execution,Same instruction lengths**

# Microcontroller Memory Architecture

Princeton Memory Architecture- Common address space for program and data memories

**Harvard Memory Architecture -** Separate address spaces for program and data memories

# Microcontrollers

- 8051Series
- Motorola
- PIC
- Hitachi
- Texas
- ARM
- Others

# 8051 Family Microcontroller

- Intel
- Philips
- Atmel
- Siemens
- Dallas

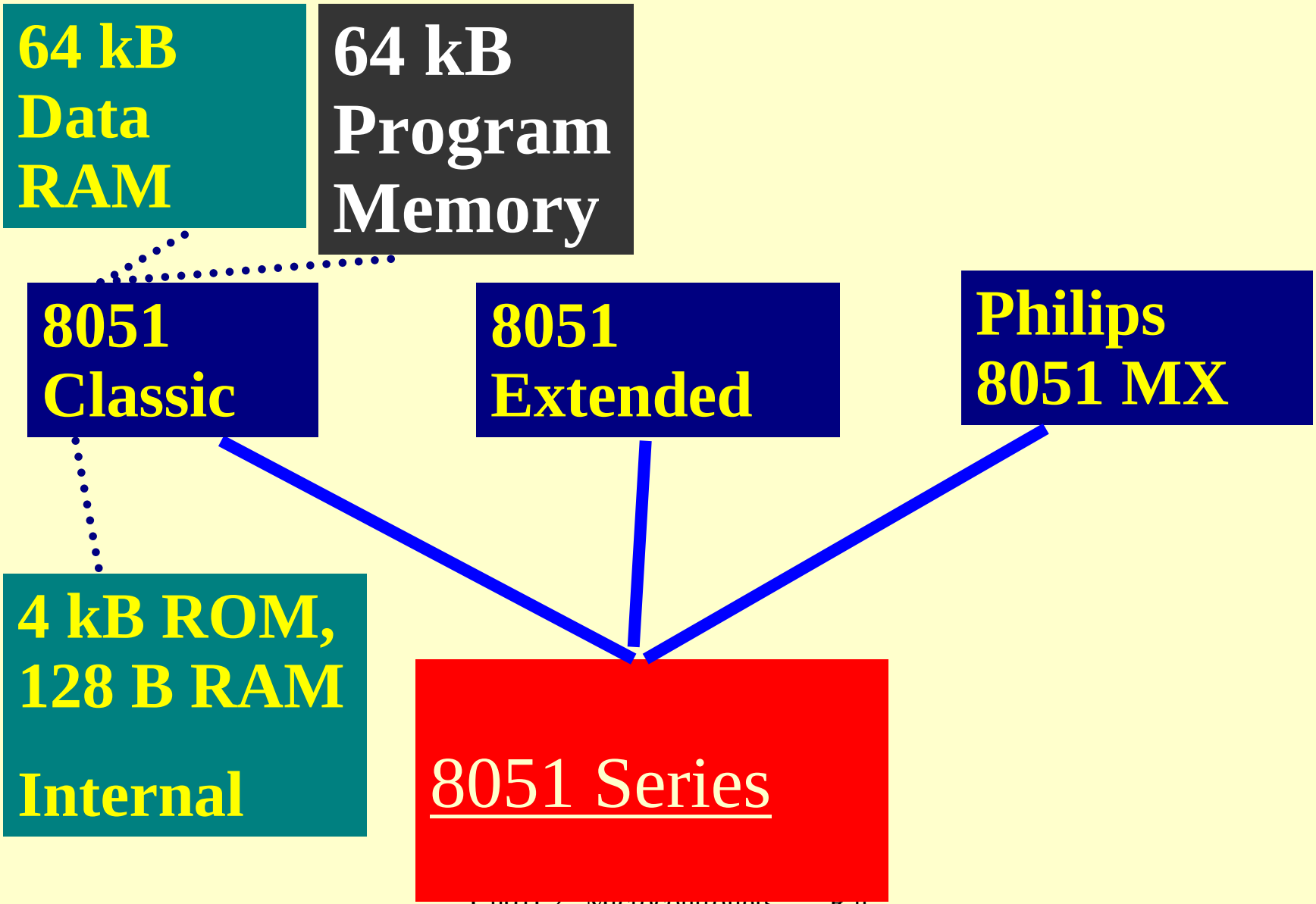
# ARM Microcontrollers

- ST Microelectronics
- Philips
- Atmel
- Samsung

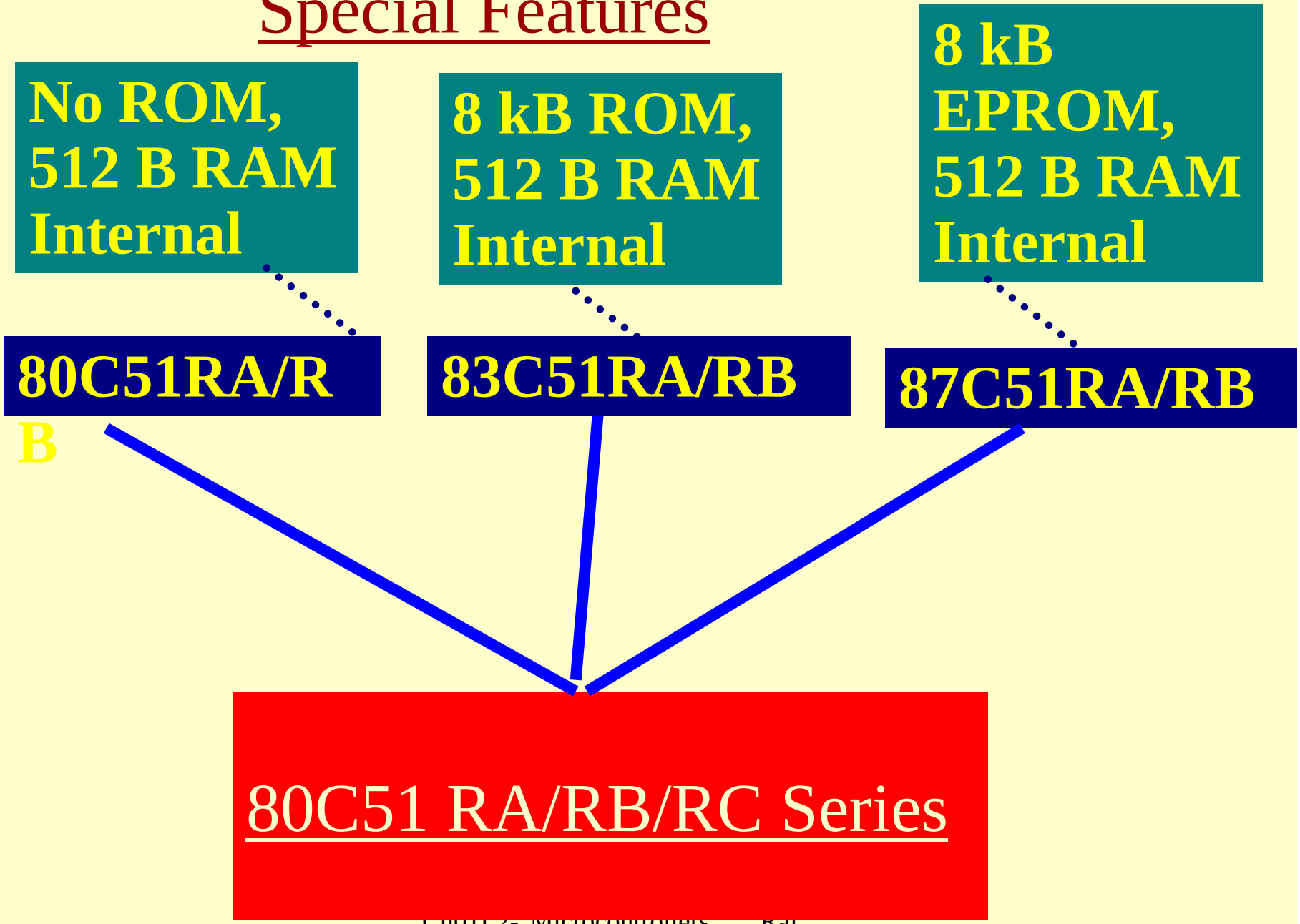
# Outline

- Microcontroller Types
- **Examples- 8051 Series Family Members**
- Examples- 68HC11/12 Series Family Members

# 8051 Series Family Members



# Special Features



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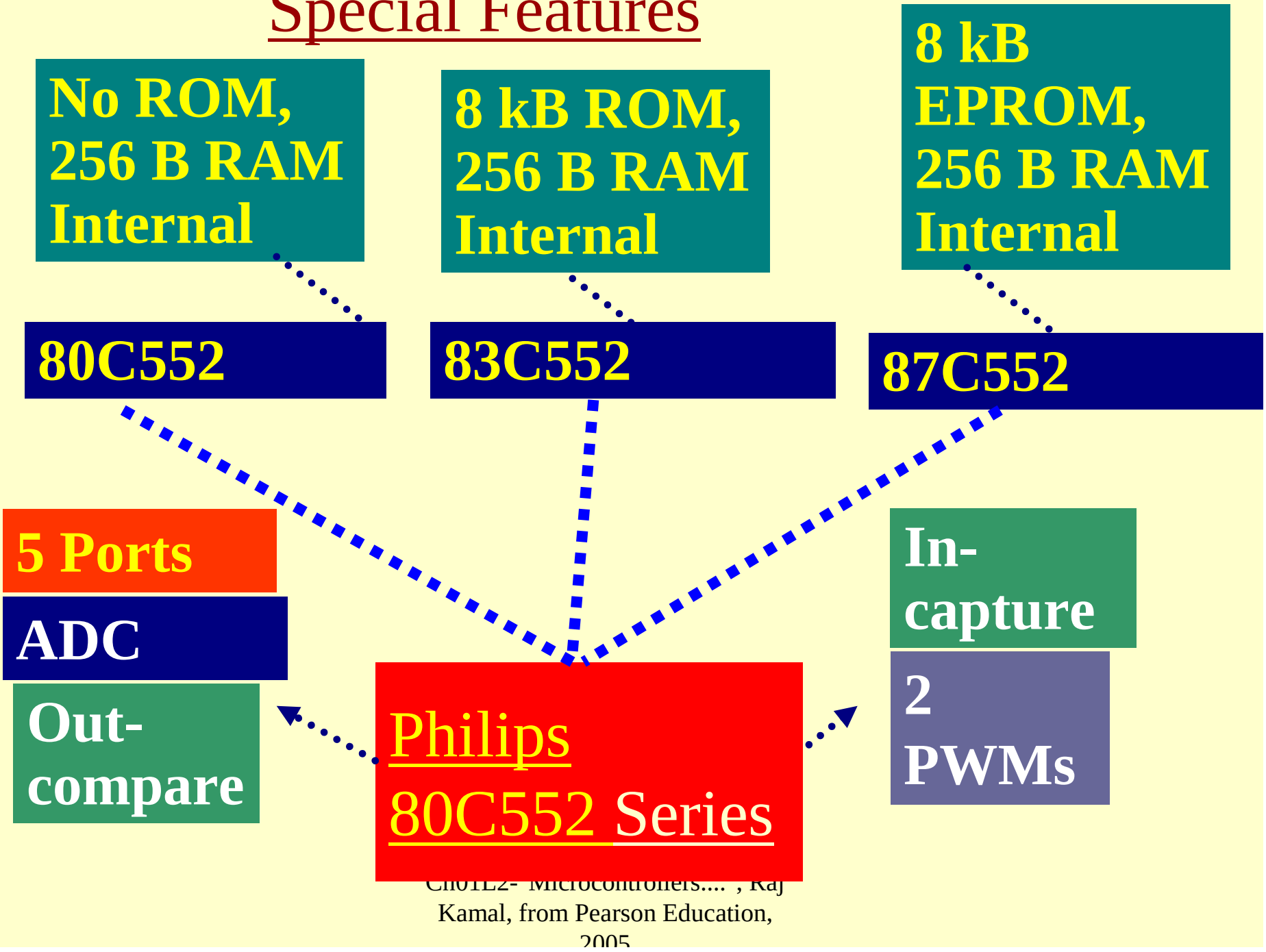

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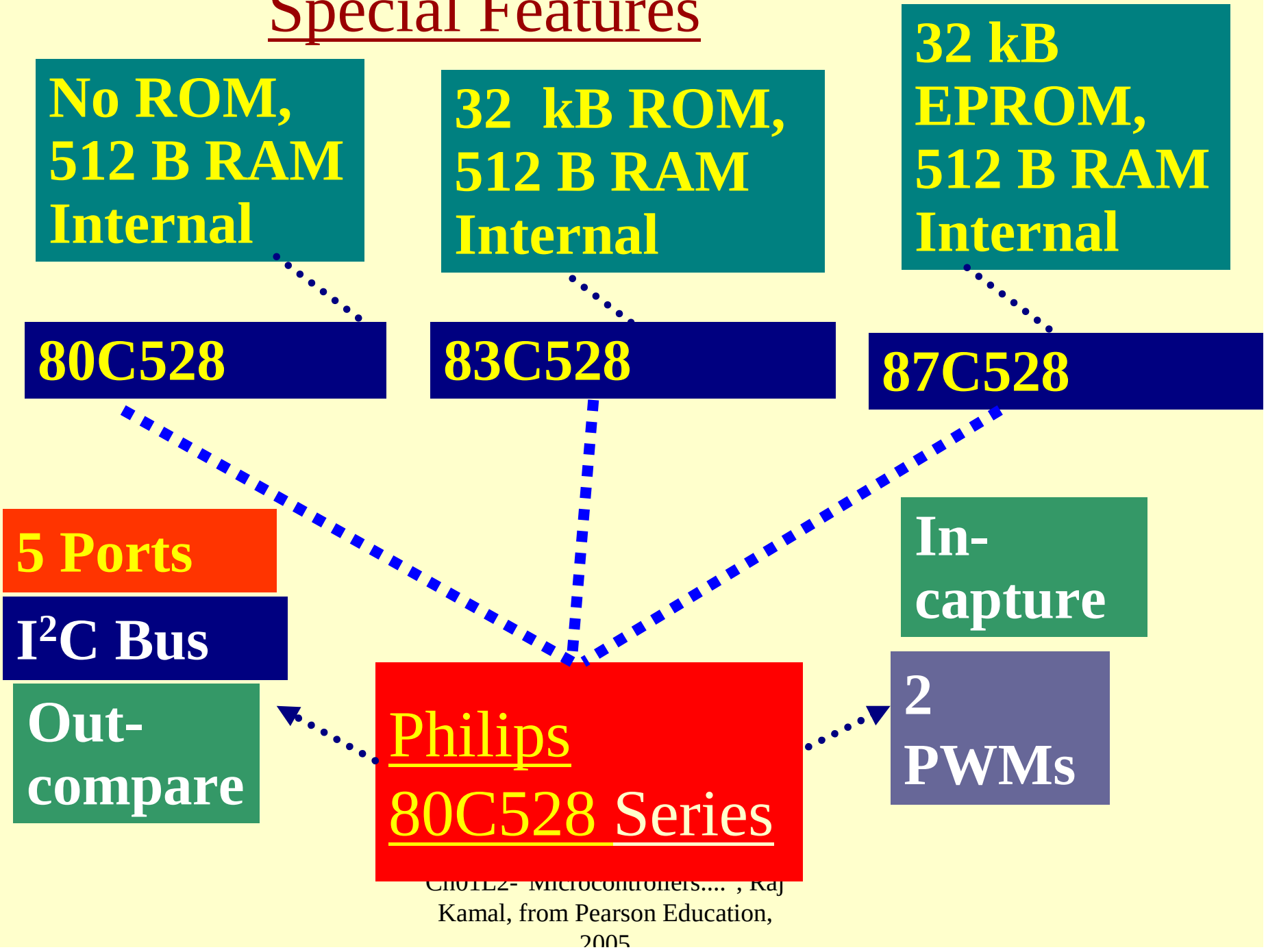

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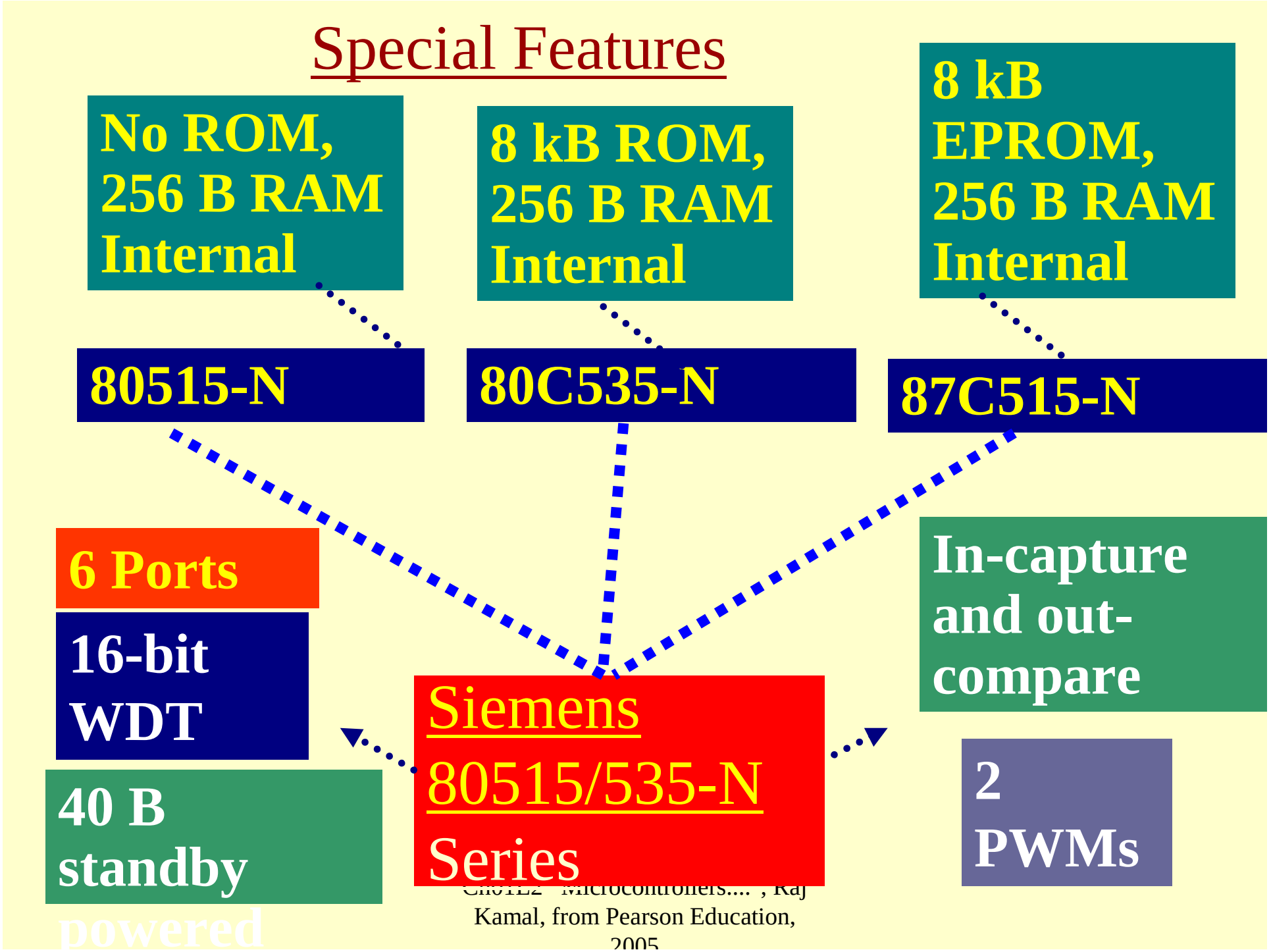

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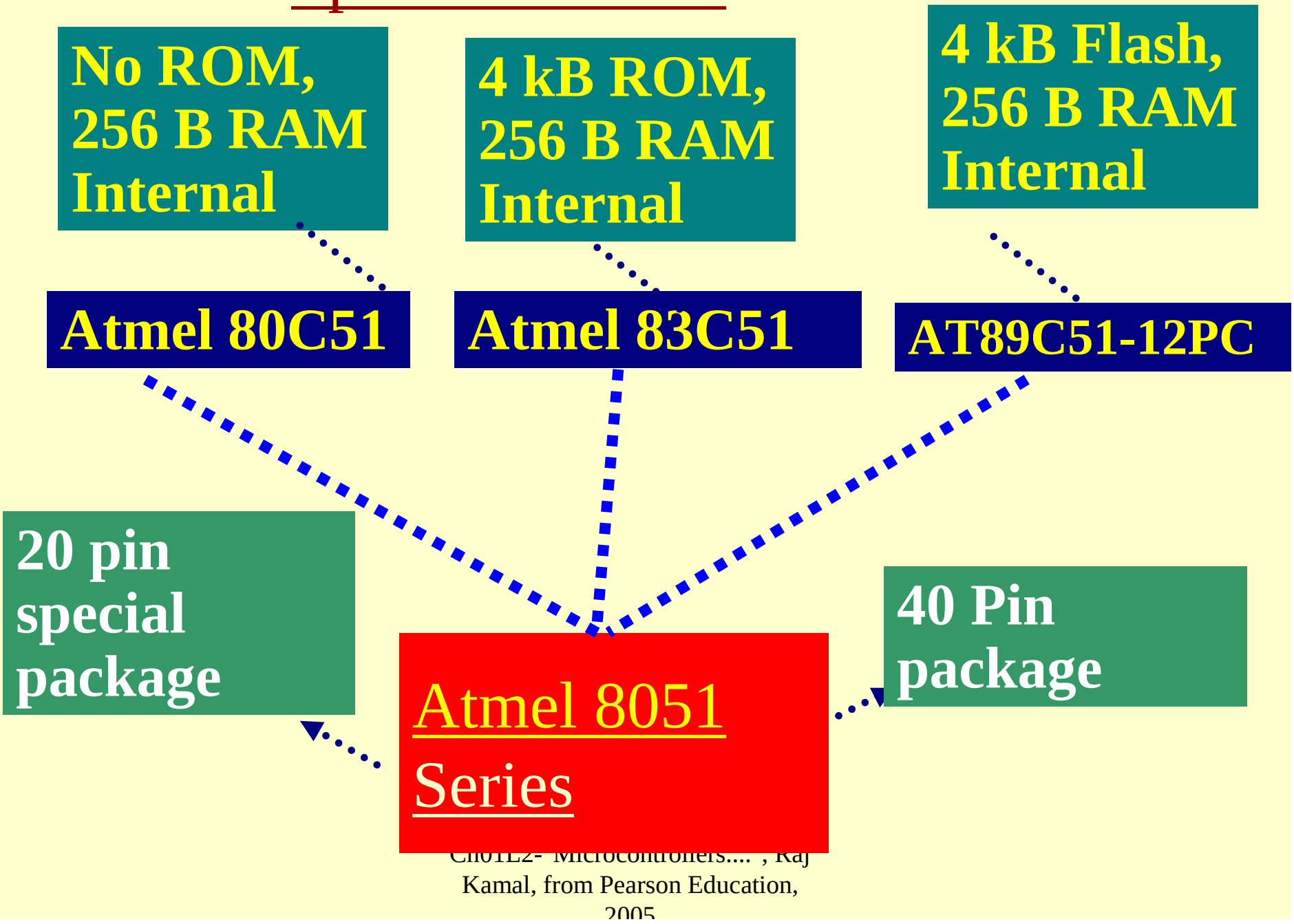

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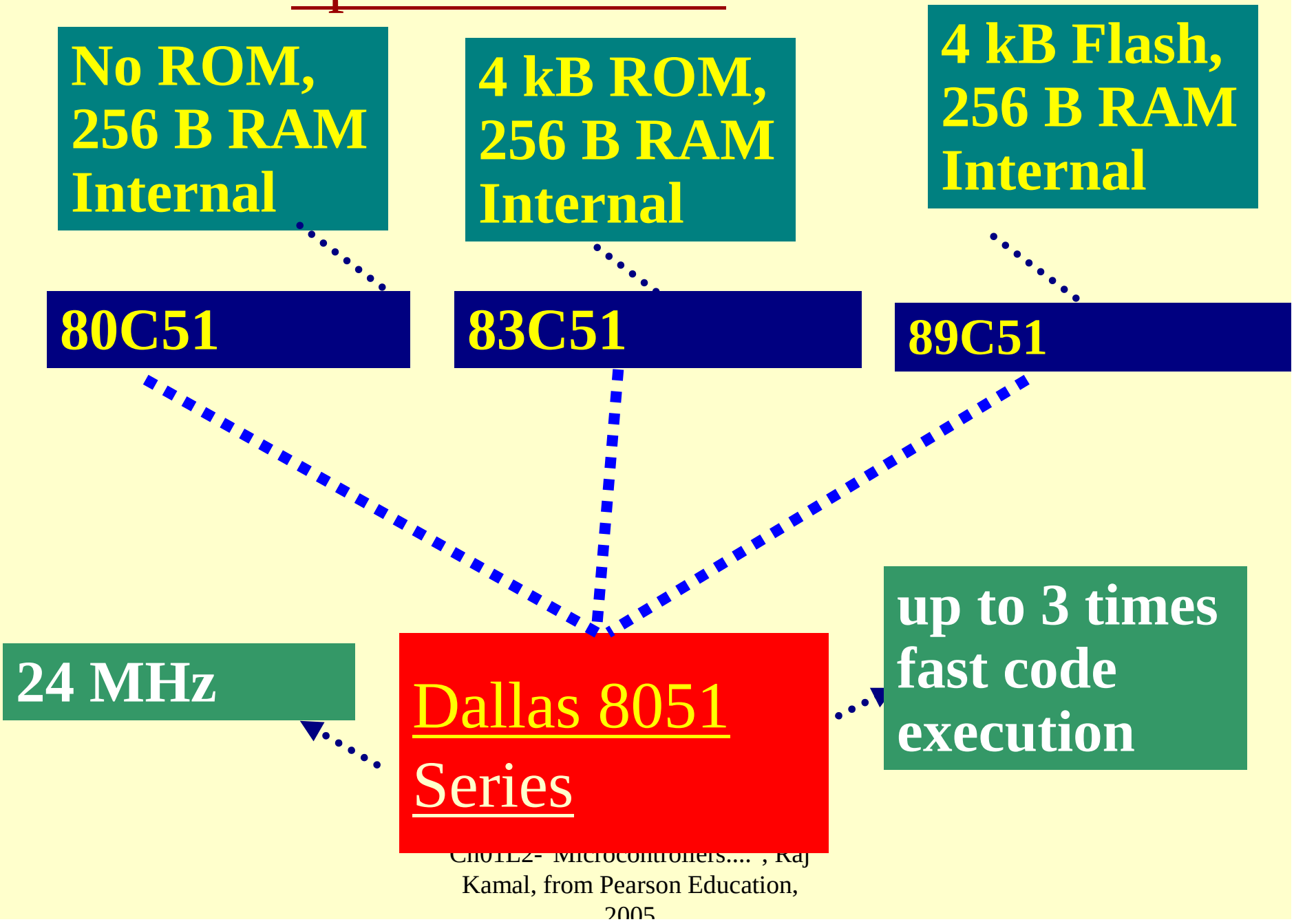
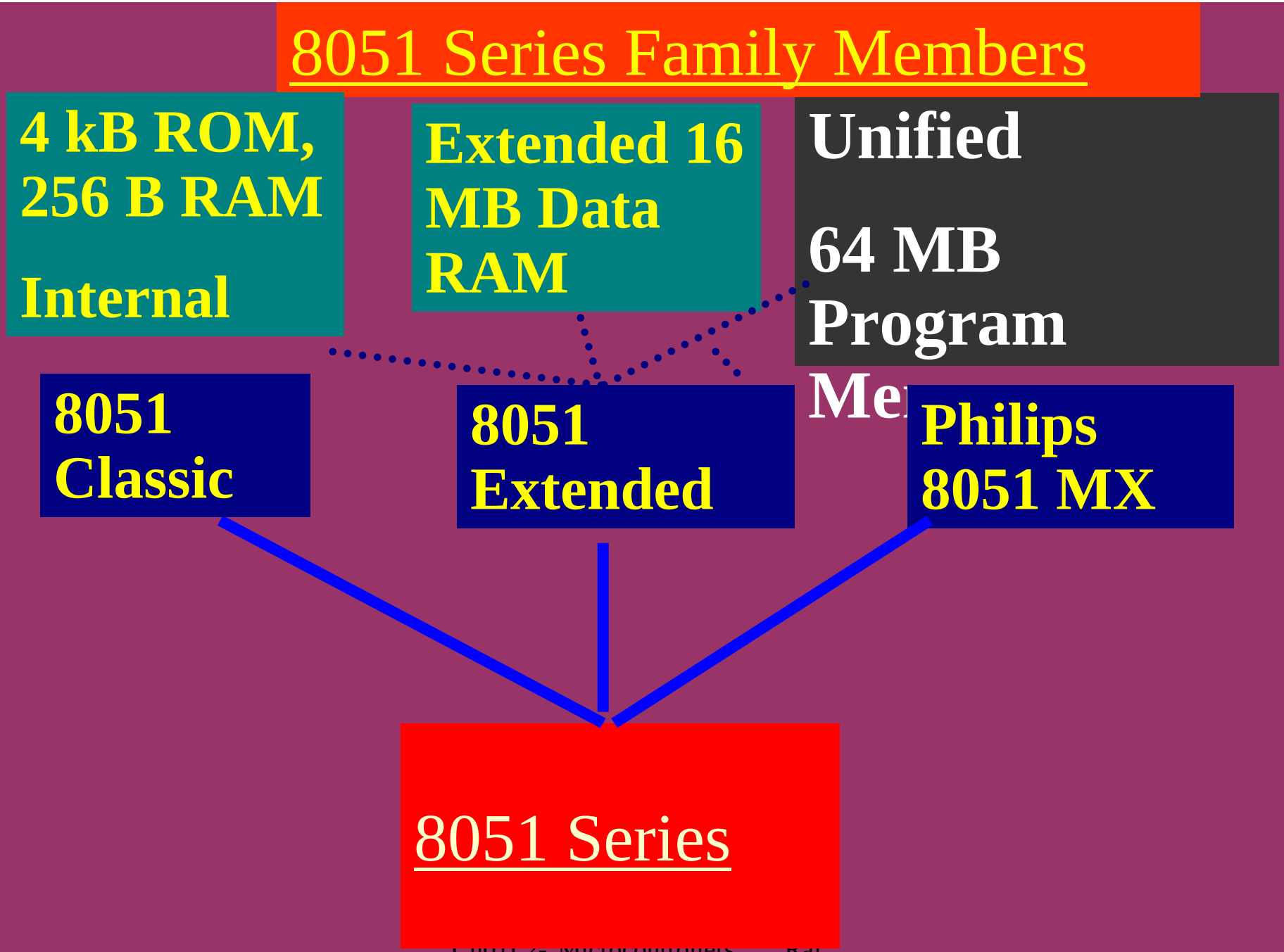


# 8051 Series Family Members



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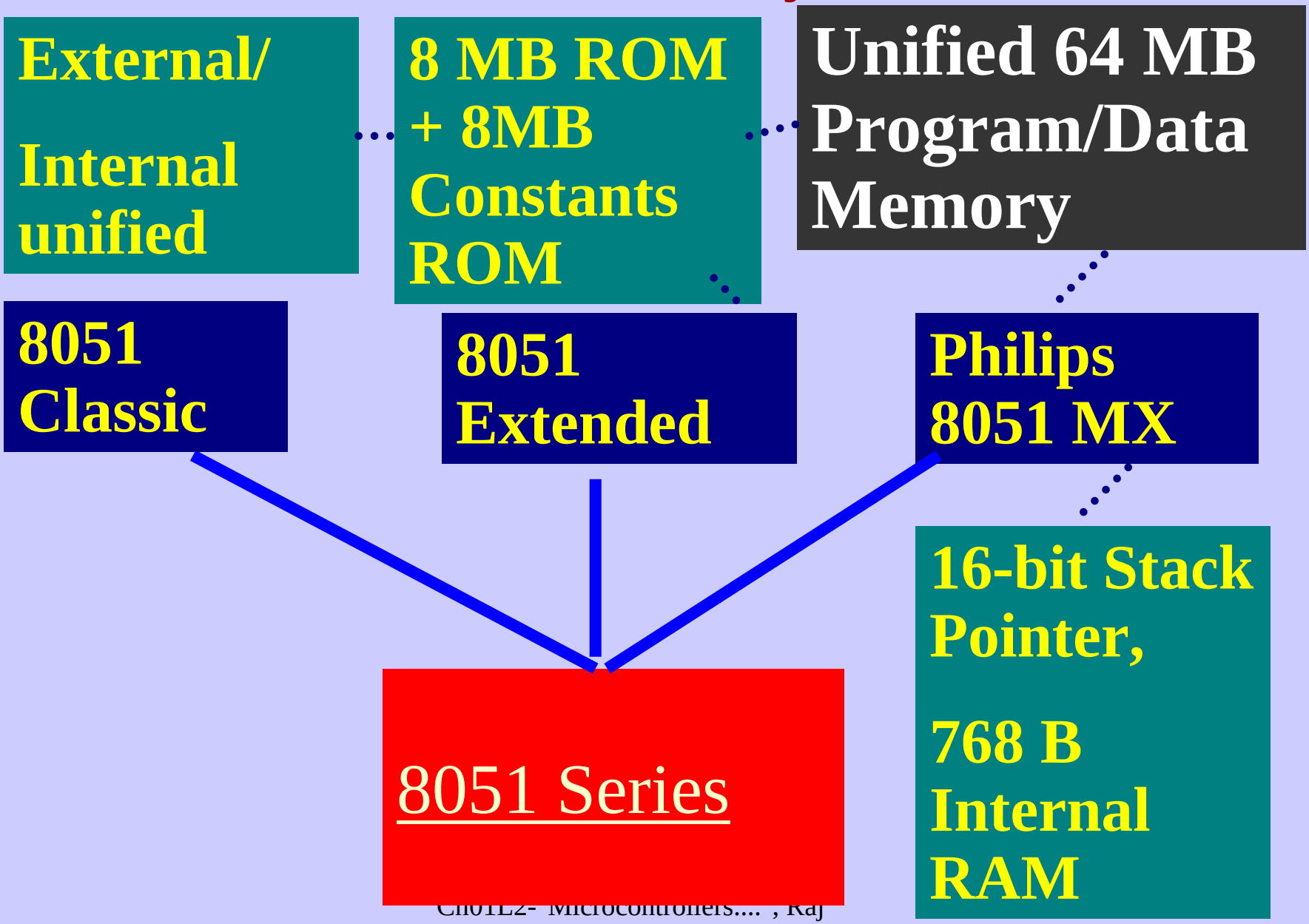
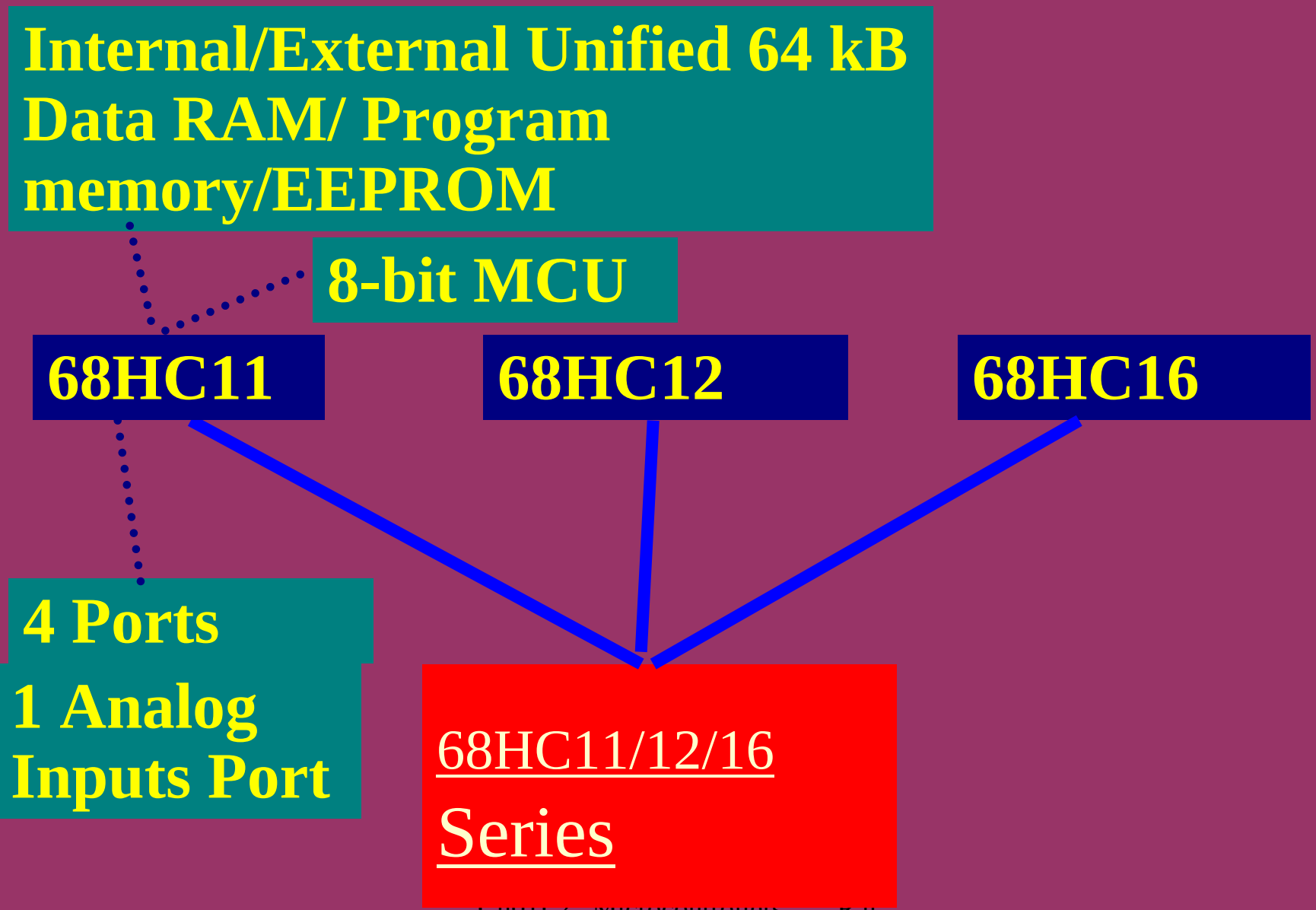


# Outline

- Microcontroller Types
- Examples- 8051 Series Family Members
- **Examples- 68HC11/12 Series Family Members**

# 68HC11/12/16 Series Family Members



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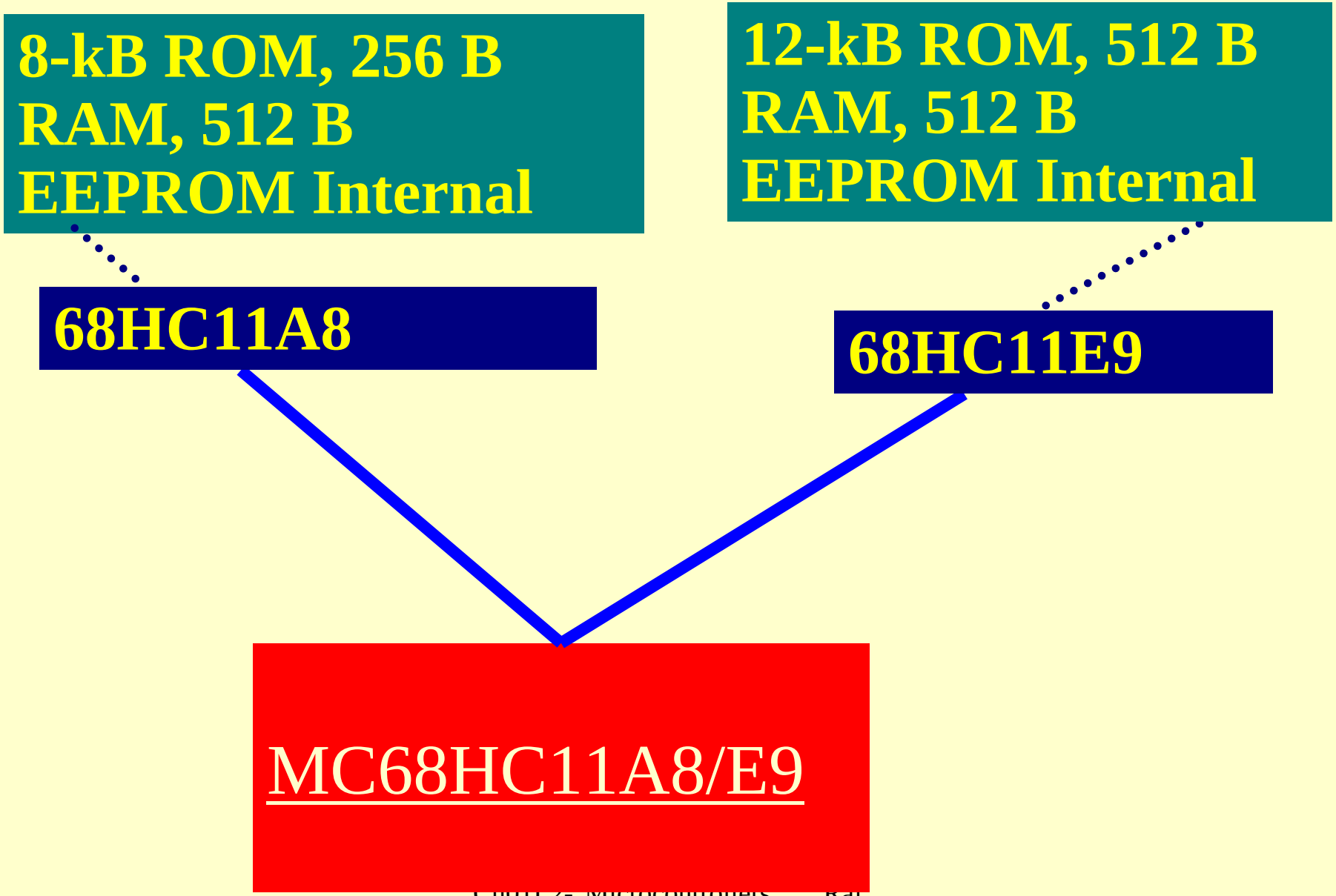

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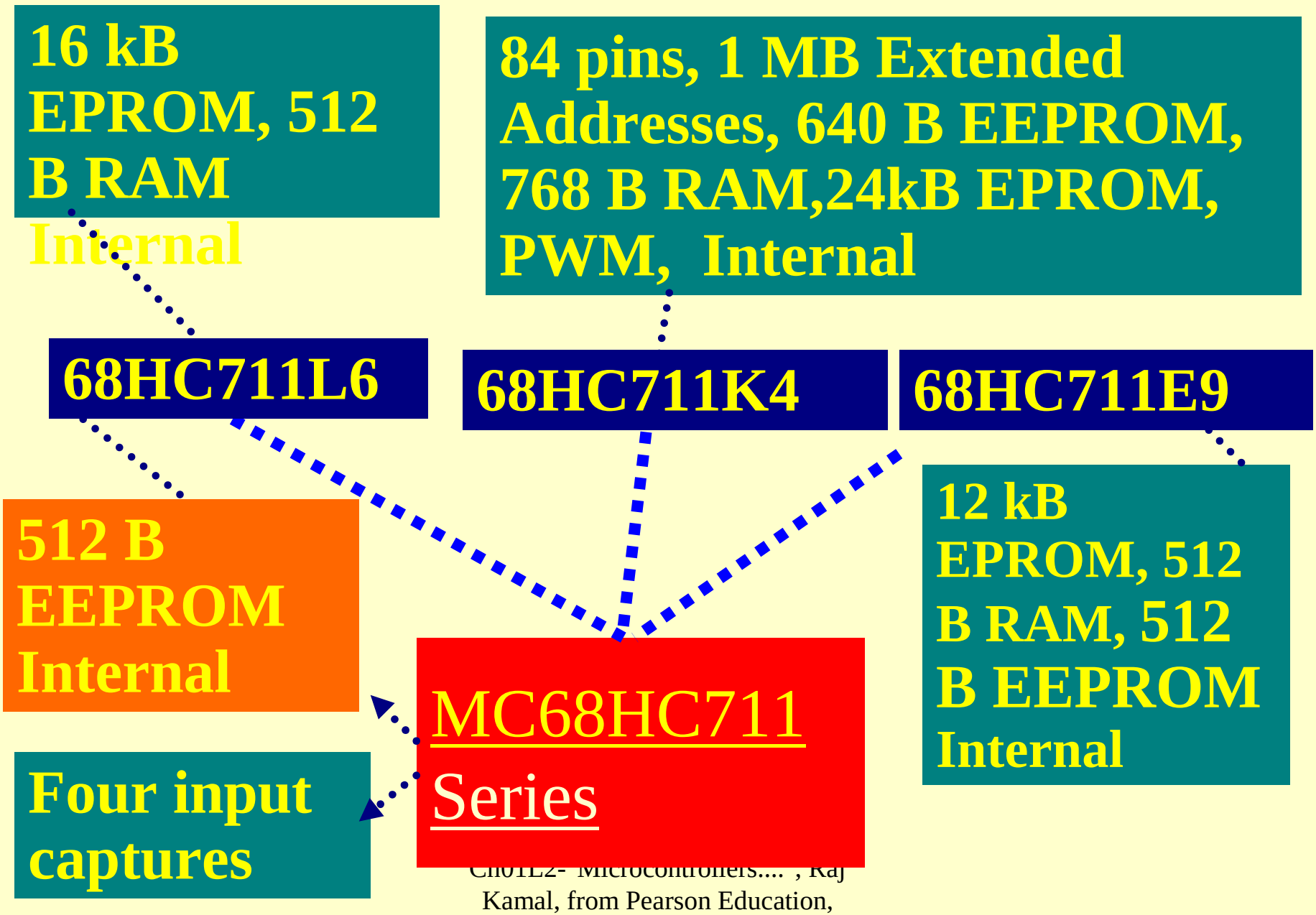

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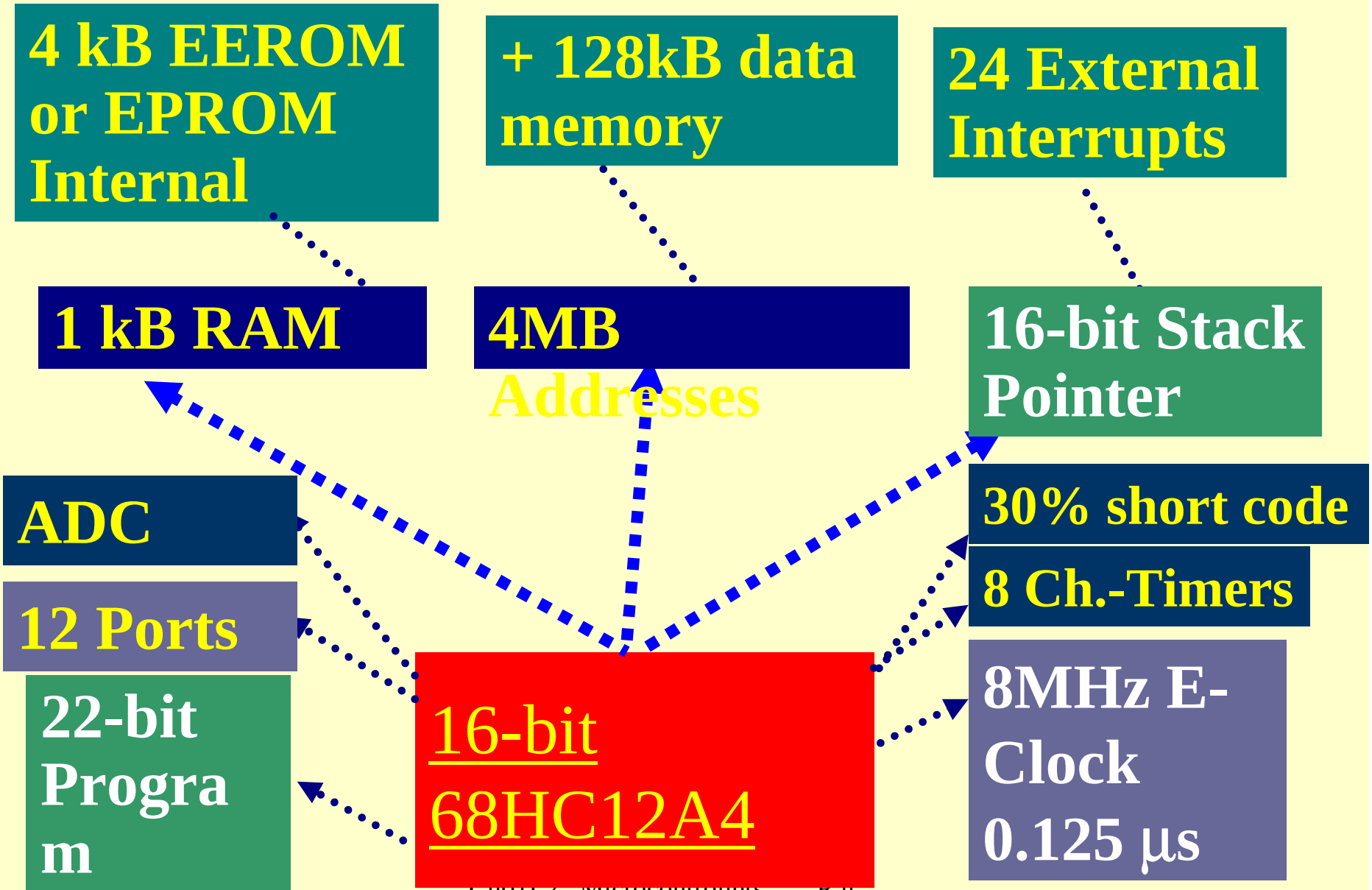

# Summary

- Microcontrollers Types - 8/16/32 bit, RISC/CISC, IC/Core, Many Sources and Many variants
- 8051 Family Examples
- 68HC11/12Series Examples

End of Lesson 2 on

# Microcontrollers-Types and Examples

# THANK YOU