

# **Chapter 12**

## **Development Tools for Microcontroller Applications**

# Lesson 6

## **Emulator, ICE, Target Evaluation/Demonstration board and Device programmer**

# Emulator

- Emulates MCU inputs from sensors
- Emulates controlled outputs for the peripheral interfaces/systems
- Emulates target MCU IOs and socket to connect externally MCU

# In-Circuit Emulator (ICE)

- ICE means In-Circuit Emulator
- Interface COM port of a computer
- Emulates target MCU IOs and socket to connect externally MCU
- Uses computer developed object files and hex files for the MCU
- Uses debugger at the computer developed files for the MCU application

# Nohau Emulator



# Emulating plus Logic Analyser Circuits

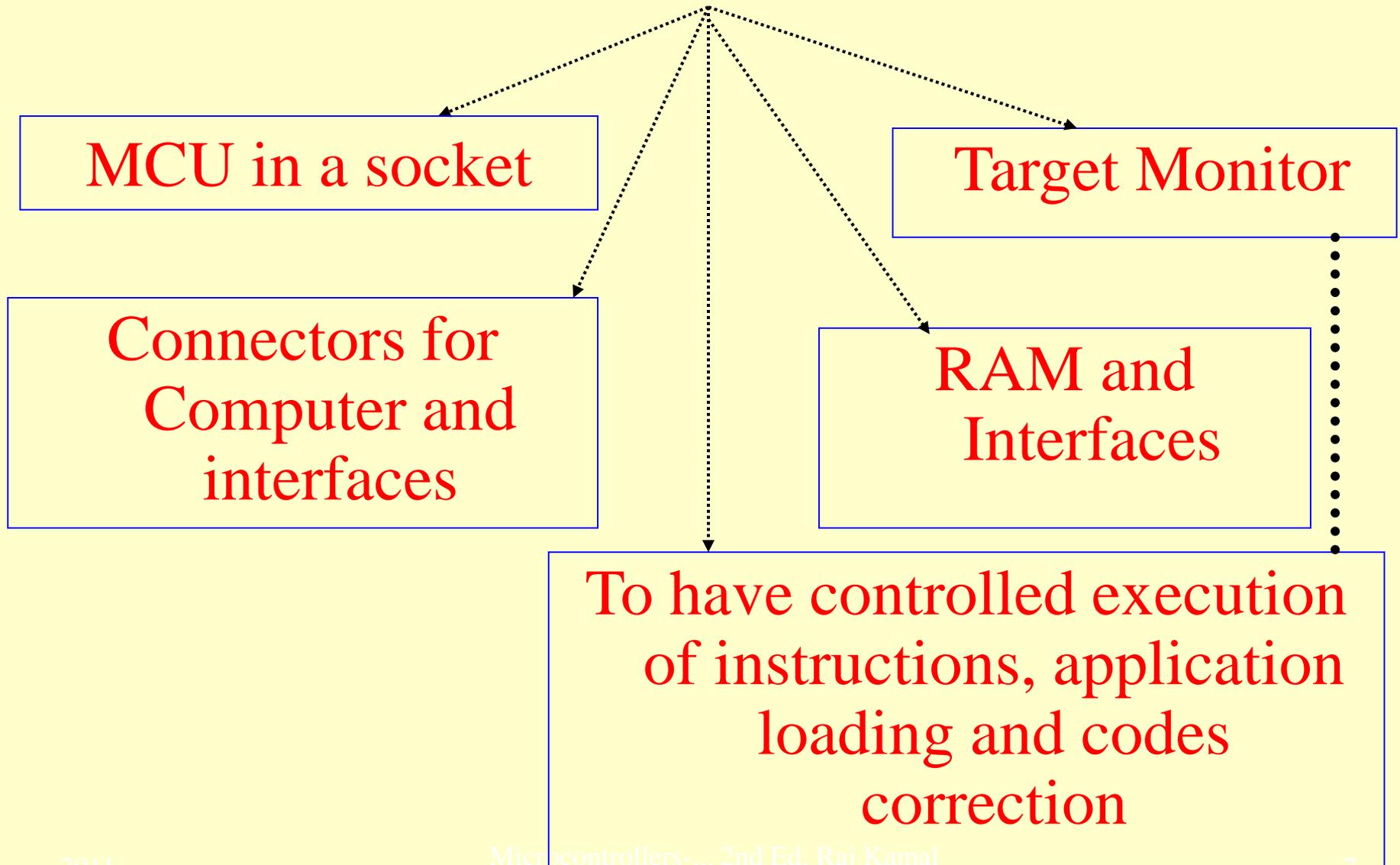
Emulator Logic Analyser

up to 256 transactions

Collects logic timing diagrams at the IOs  
at specific instances

Help in Debugging of real time conditions

# Target/evaluation/Demonstration Board



# Target Monitor

Computer (PC) interface commands

Command interpreter

Application codes down loaded from PC

Data

# Target Commands

Download into monitor

Execute start address define

Full speed execute

Single step execute

Set breakpoints

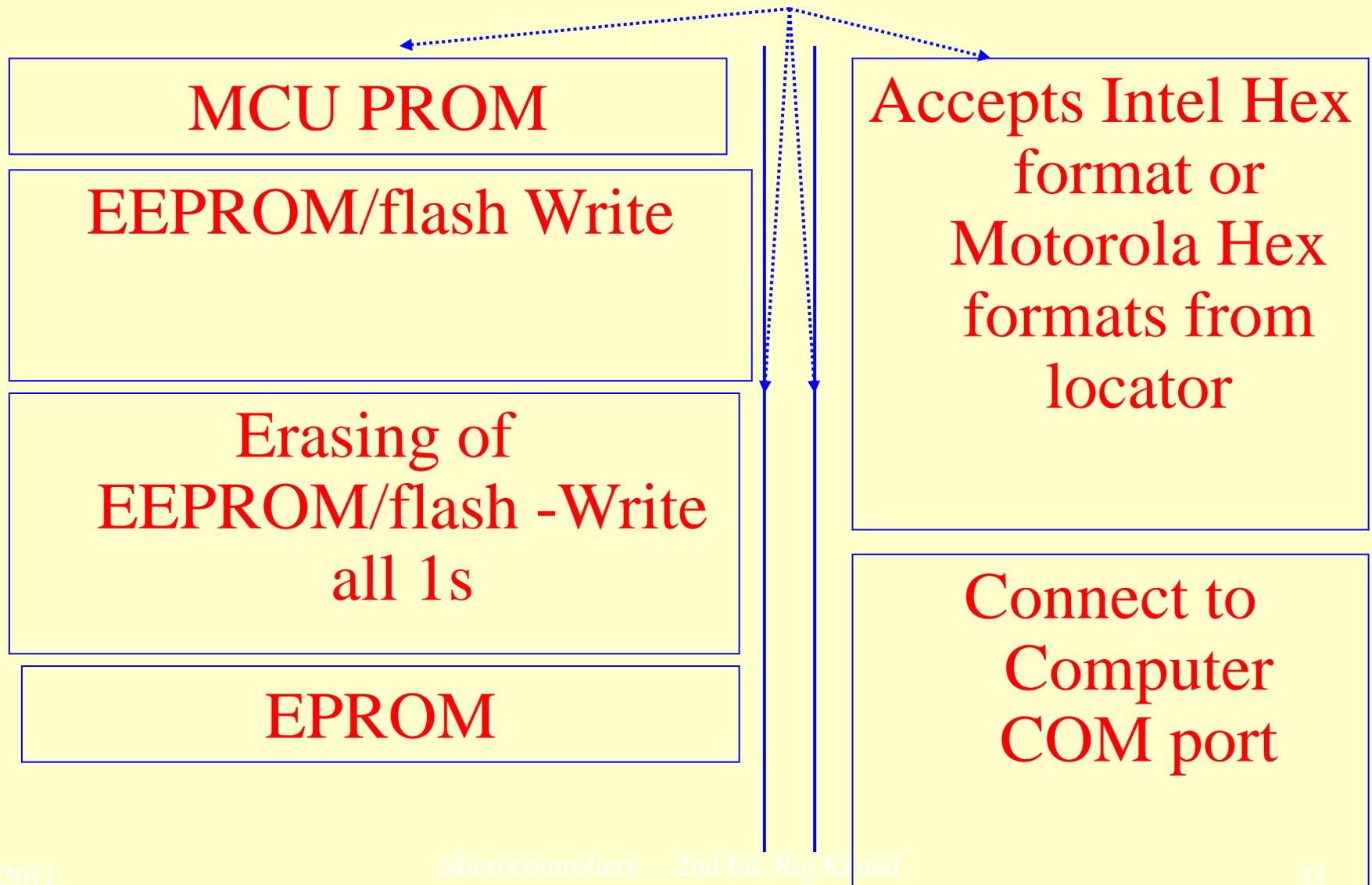
Reset breakpoints

Send selected codes/ IOs info for computer display

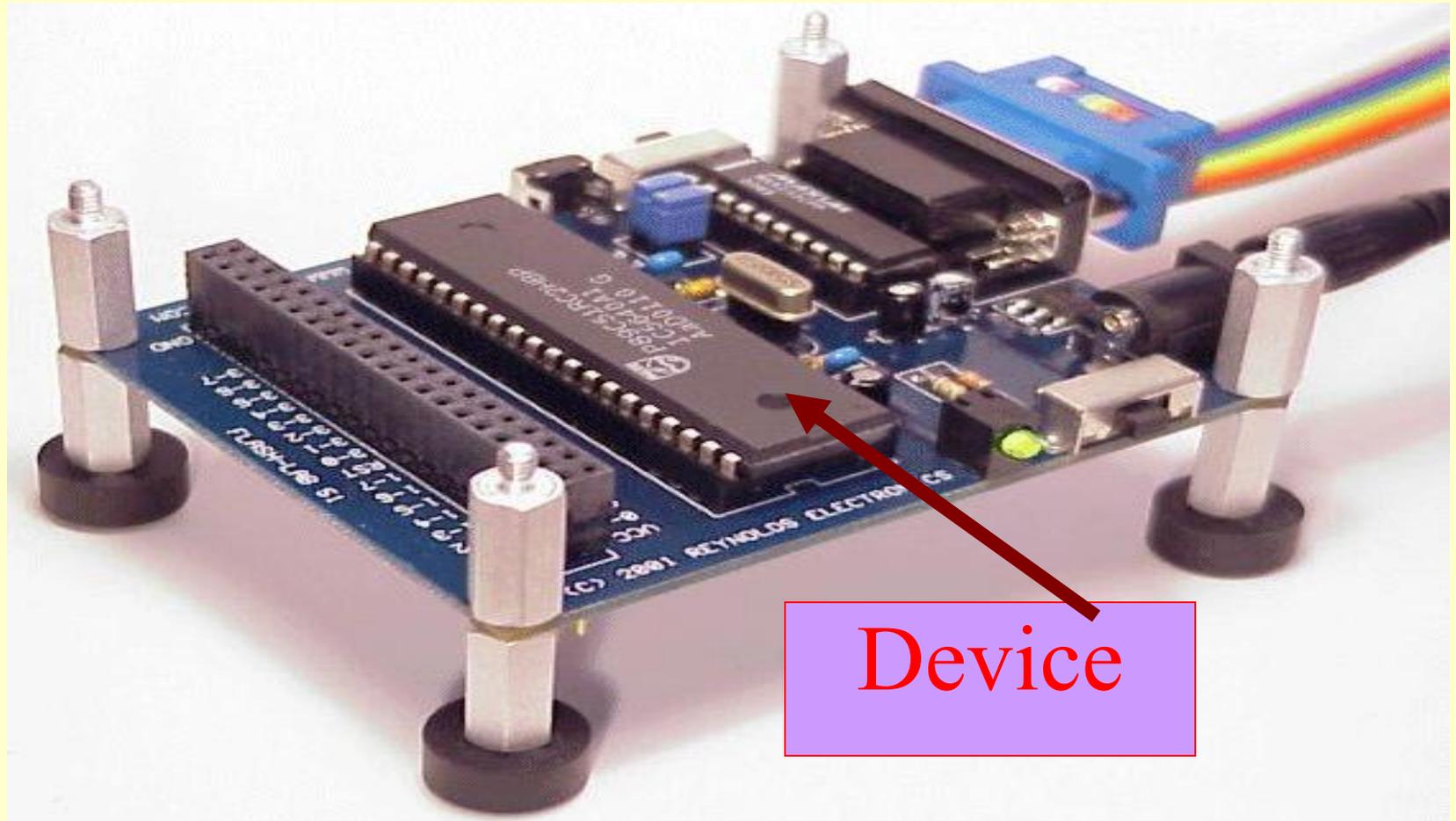


# An Evaluation board for a target system

# Device Programmer



# A device programmer connected to computer



Device

# Summary

**We learnt**

# **Application Emulation and testing on hardware**

- **Emulator, ICE**
- **Target Evaluation/Demonstration Board**
- **Device programmer**

End of Lesson 06 on

**Emulator, ICE, Target  
Evaluation/Demonstration  
board**

**and Device programmer**