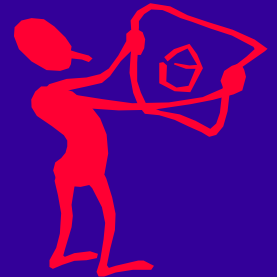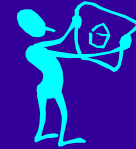# Micro Processor & Controller

Organization

Outline

➡ ● **Project Examples**
  – CPU 8, 16, 32 Bits
  – FPU

● **General Architecture of Computer**
  – CPU - MEM - I/O
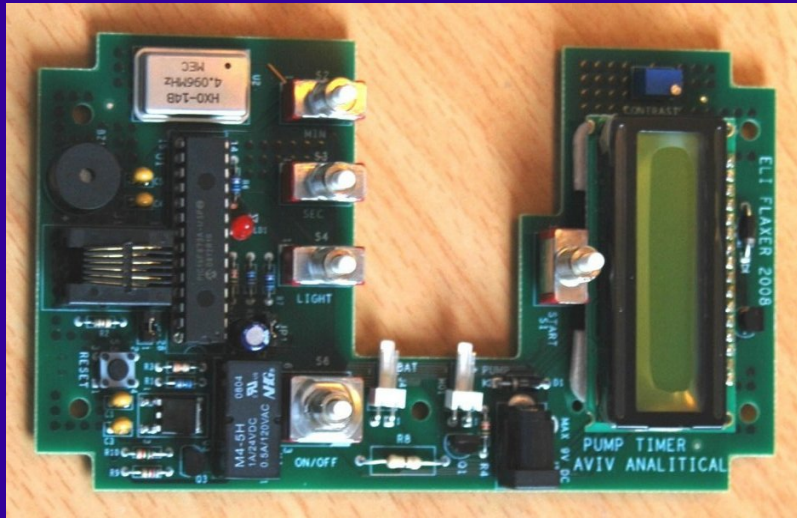 – Peripheral

● **Memory Hierarchy**
  – Main Memory
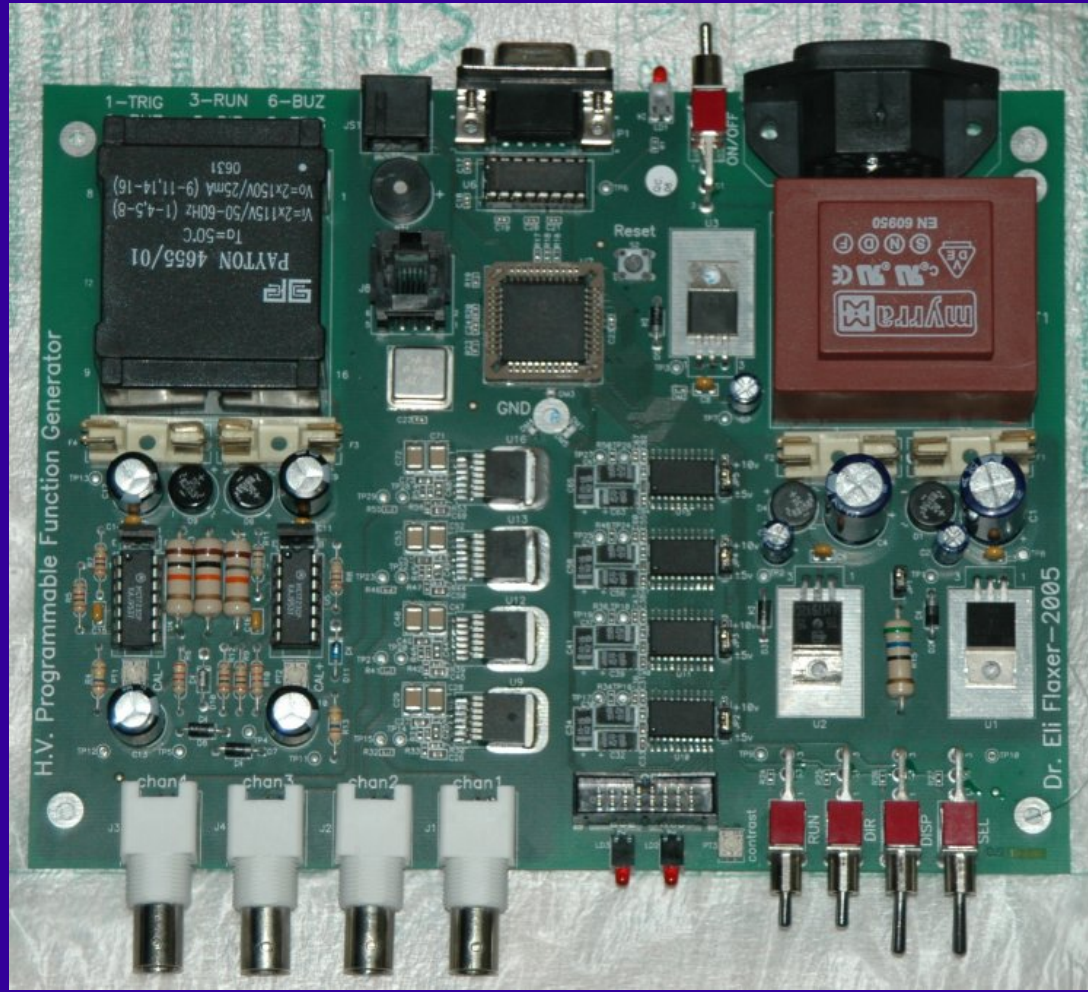 – Auxiliary Memory

Considerations

➡ ● **Compromise between**

  – Performance (Memory, Speed)

  – Price

  – Size

  – Power consumption

  – Development Tools
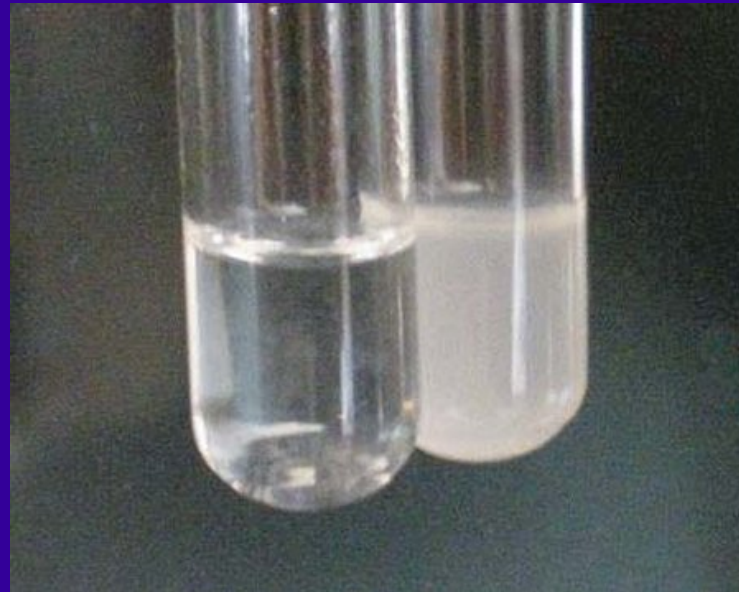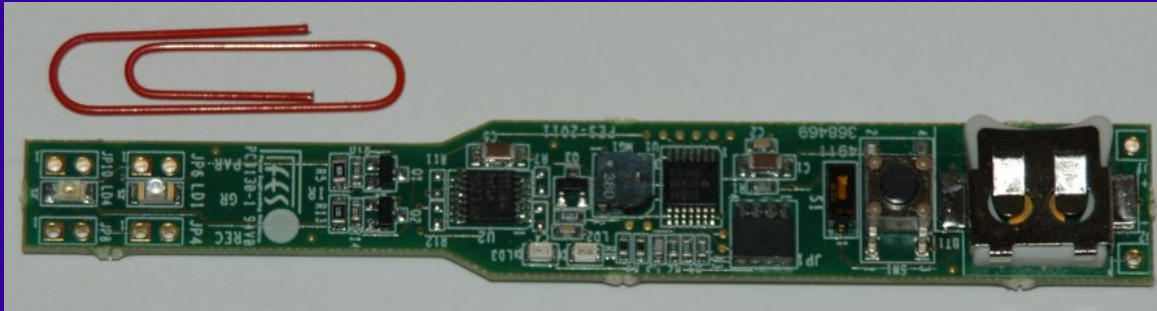
  – Examples

  – Support

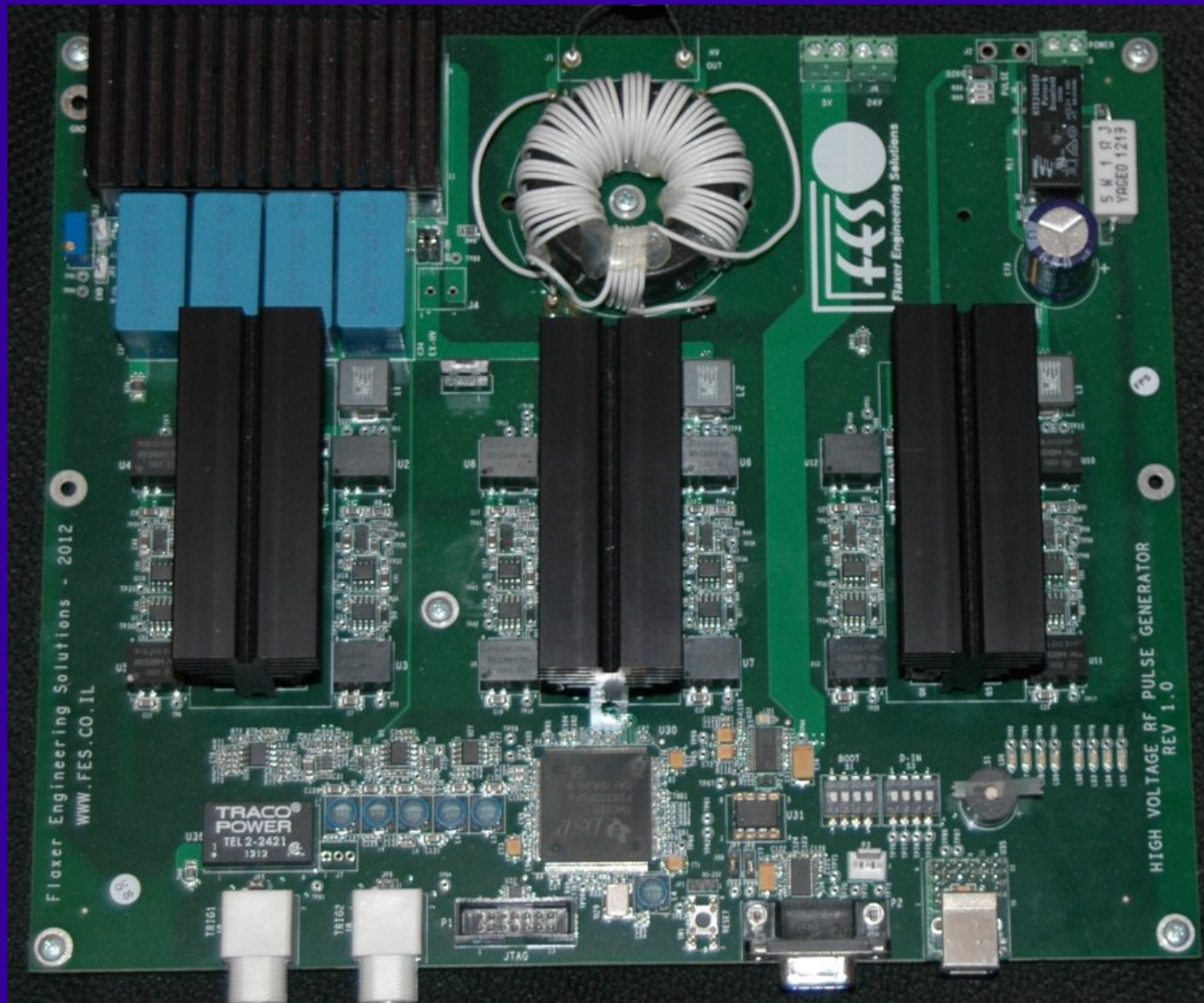# PIC16 – 8 bits DIP CPU : Sniff Probe

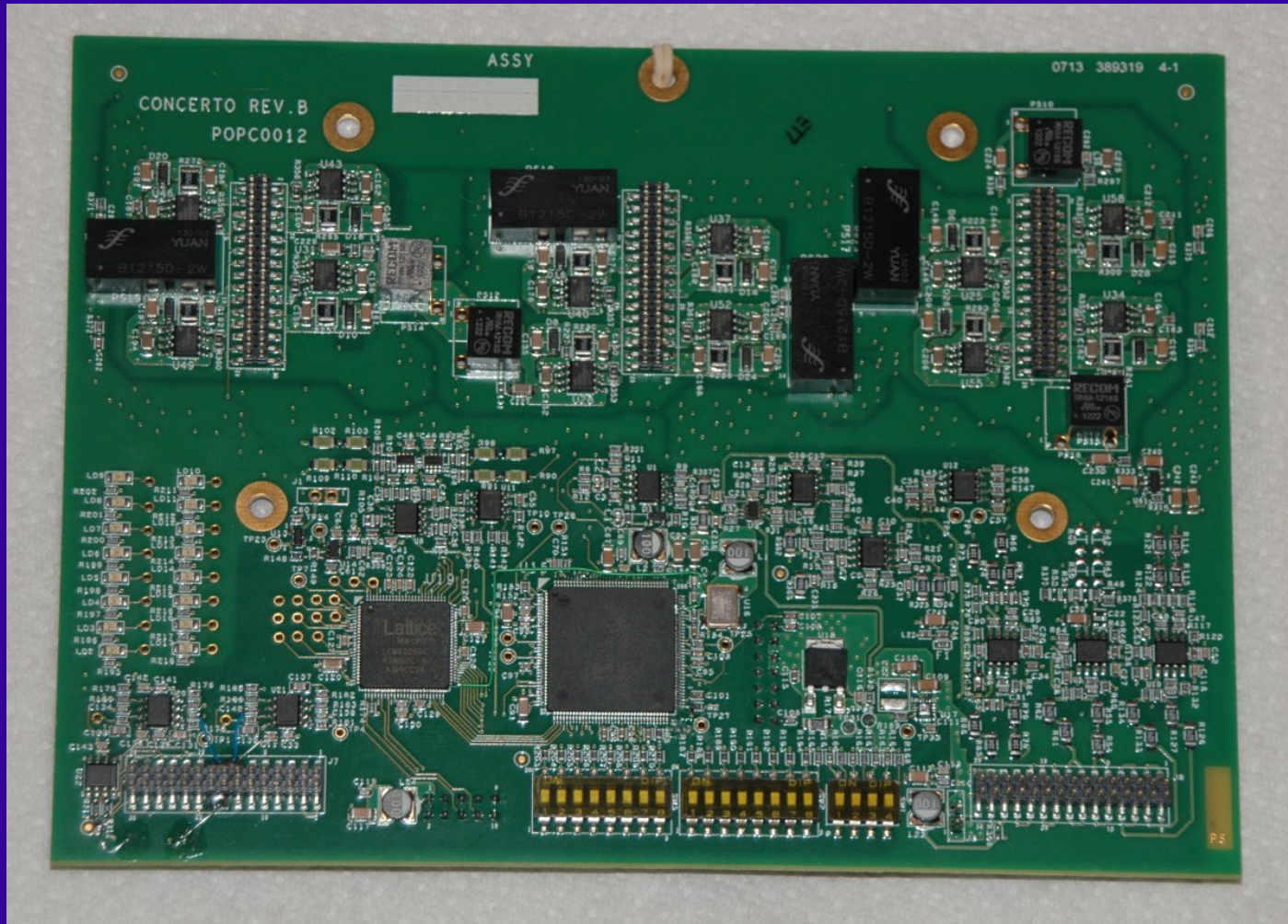# PIC18 – 8 bits PLCC CPU : Pulse Generator

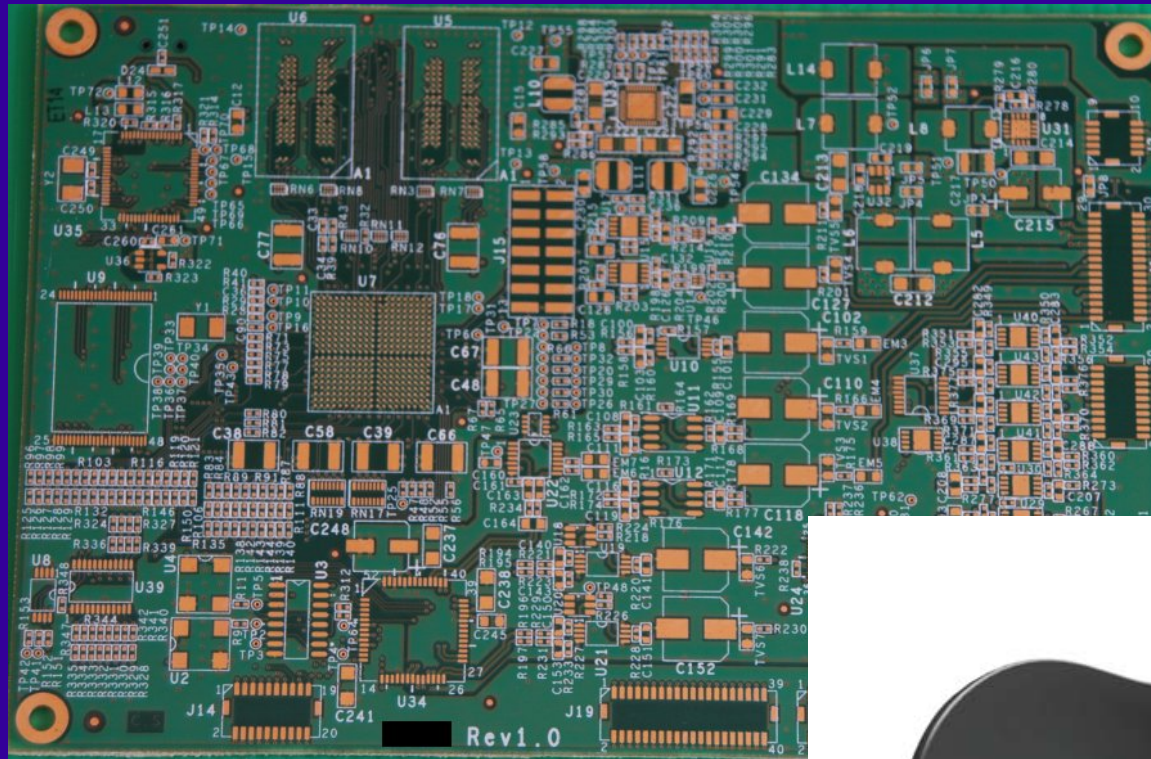# MSP430 – 16 bits CPU : Drug Detector

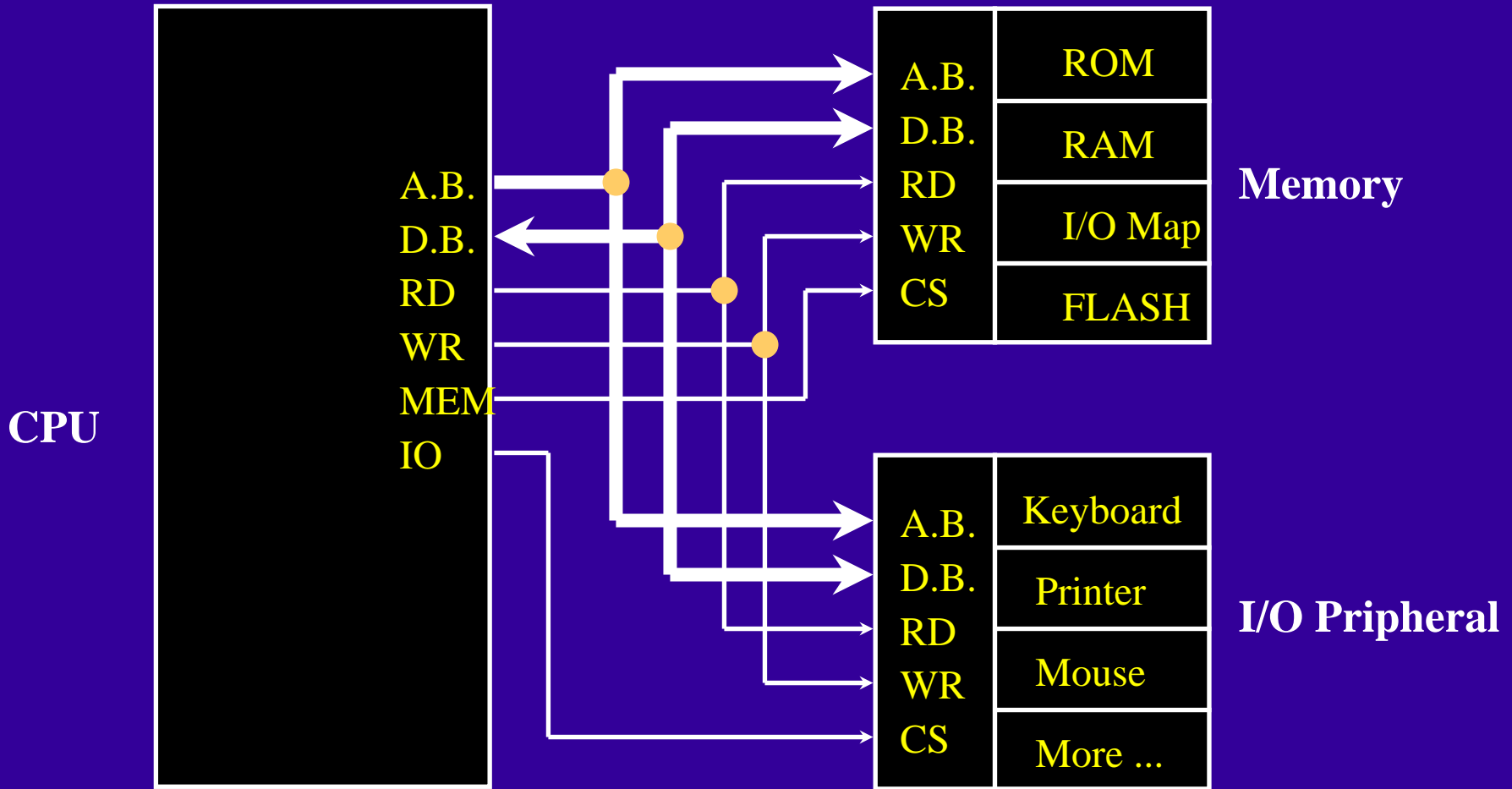# C28335 Delfino – 32 bits CPU + FPU

Concerto F28M35 Dual Core – 32 bits M3+C28

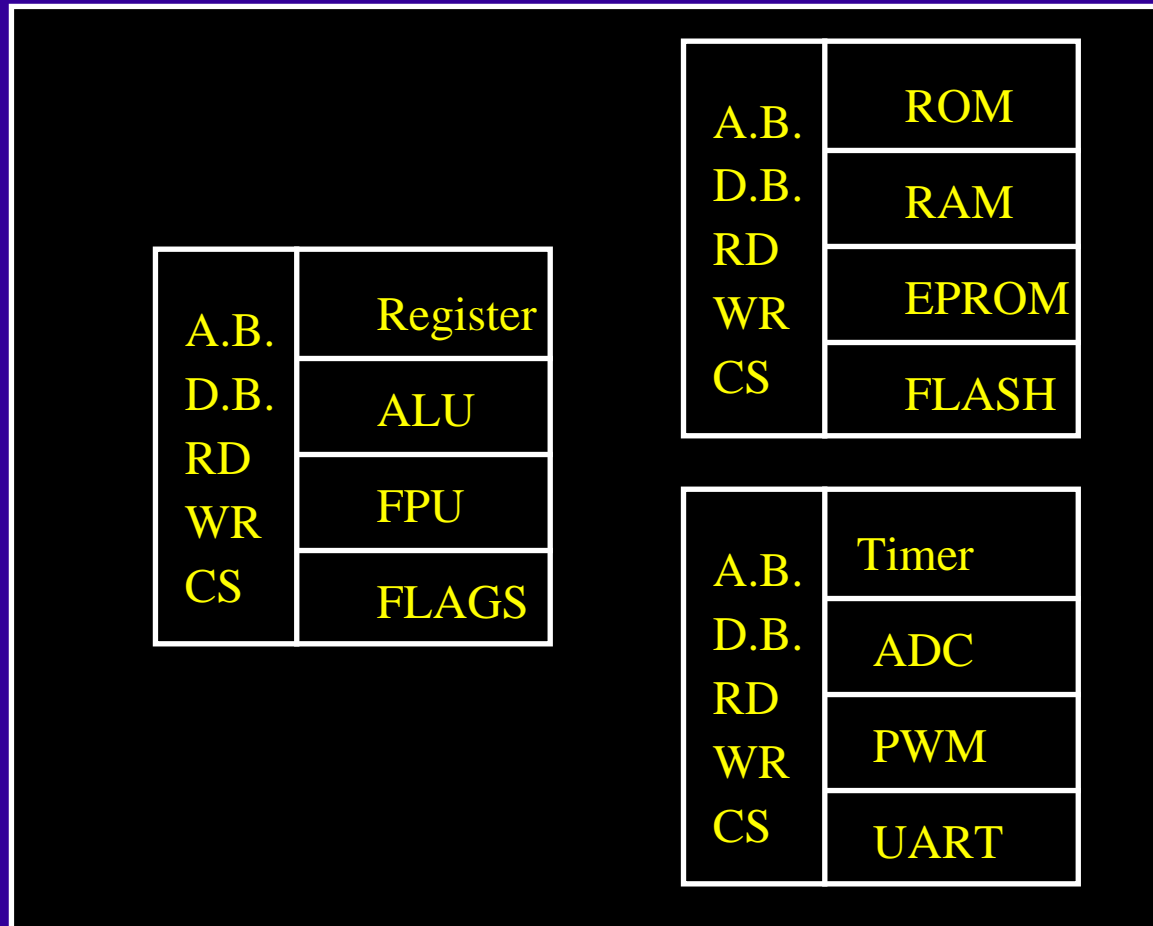# TMS320DM6437 32/64 bits + DDR2 Memory

CPU - Memory - I/O

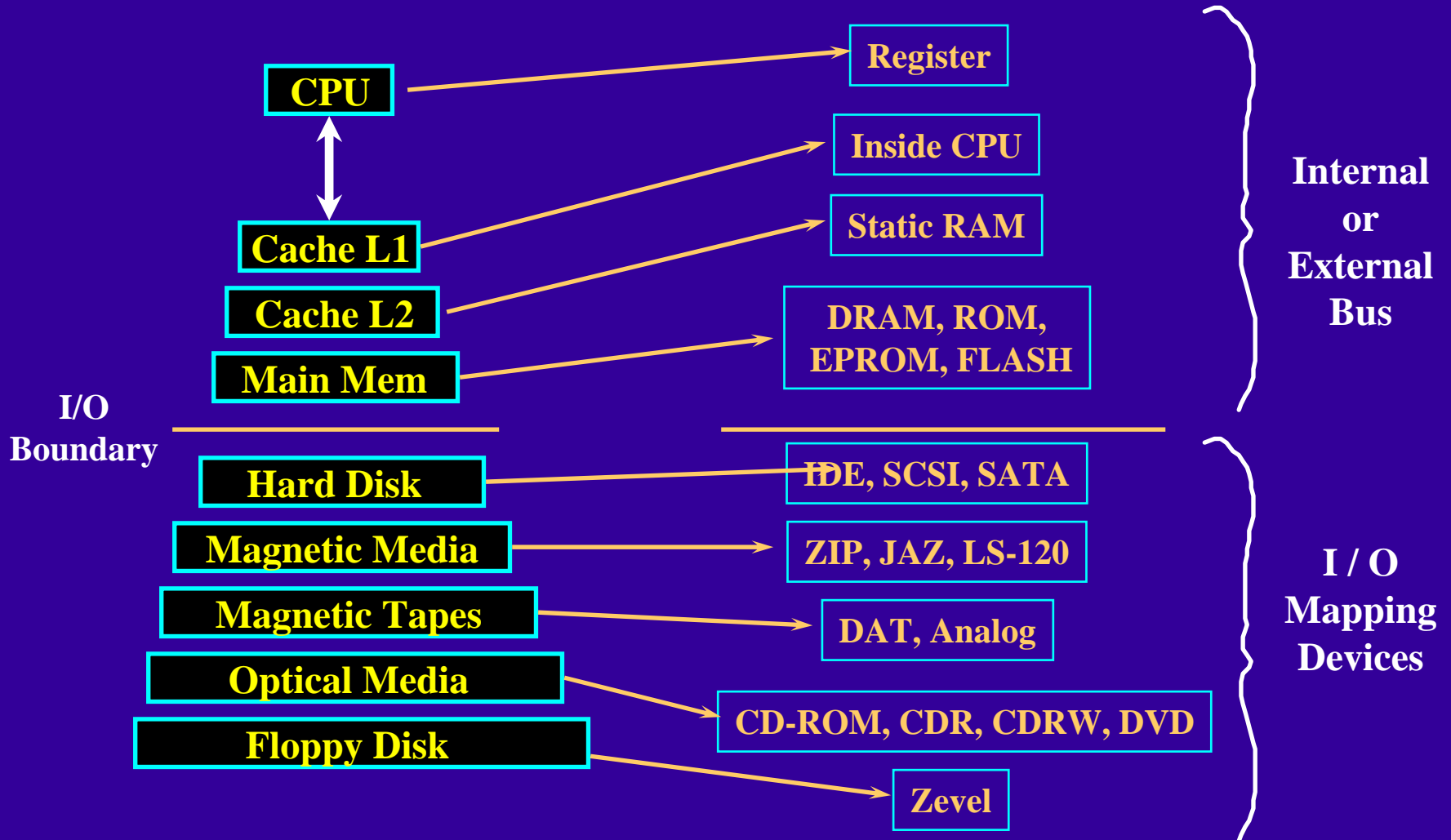# Controller = CPU + Memory + Peripheral

Memory Hierarchy

CPU

Register

Inside CPU

Static RAM

Cache L1

Cache L2

Main Mem

DRAM, ROM, EPROM, FLASH

Internal or External Bus

I/O Boundary

Hard Disk — IDE, SCSI, SATA

Magnetic Media — **ZIP, JAZ, LS-120**

Magnetic Tapes — **DAT, Analog**

Optical Media — **CD-ROM, CDR, CDRW, DVD**

Floppy Disk — **Zevel**

I / O Mapping Devices

I/O Bus and Interface