

# An Updated Emulated Architecture to Support the Study of Operating Systems

μMPS3

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# The $\mu$ MPS Project

## What

An educational computer system architecture based around the MIPS R2/3000 microprocessor featuring

- ▶ a front-end emulator
- ▶ a set of I/O devices

## When

- ▶ 1999      MPS
- ▶ 2004       $\mu$ MPS
- ▶ 2011       $\mu$ MPS2
- ▶ 2020       $\mu$ MPS3

## Where

### Created

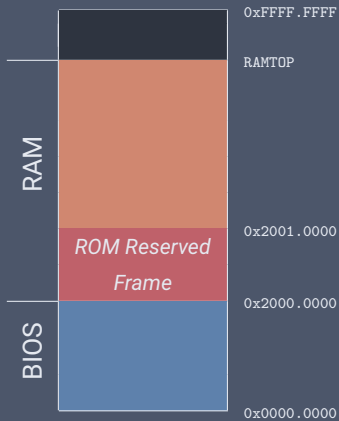
- ▶ University of Bologna
- ▶ Xavier University

### Used

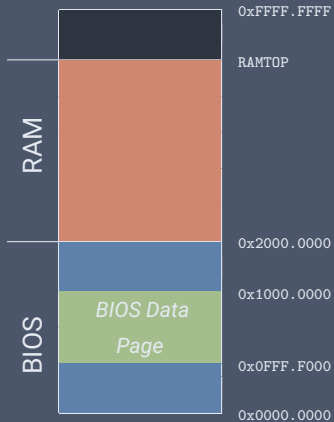
- ▶ all around the world

# Physical Memory

## μMPS2

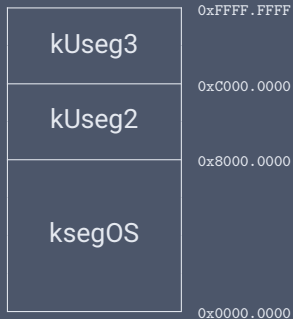


## μMPS3

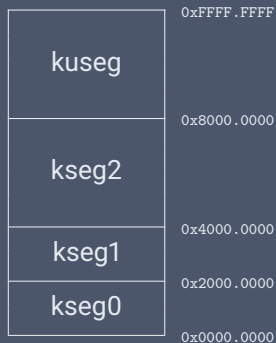


# Virtual Memory

## μMPS2



## μMPS3



# TLB Floor Address

# Exception Handling

# Processors Initialization

# Flash Device



# Building Process

# Graphical User Interface

Thank you