INTRODUCTION

Embedded Xinu is a lightweight operating system that is designed to assist in teaching high school and college level students operating systems concepts\[^1\]. The goal of our project was to port the code to the new Raspberry Pi 3 platform\[^2\]. We chose to do this because:

- Raspberry Pi 1 are no longer being sold
- New hardware features allow Xinu to assist with a larger array of subjects

The Previous Versions of Xinu had a multitasking system, since none of the previous platforms could support anything else, but now we can expand it to a Multiprocessing System. Multiprocessing however means true parallel execution of multiple processes using more than one processor.

THE ctxsw() FUNCTION

In Xinu\(\text{ctxsw}\)() or context switch controls the low level mechanics of how a processor stops working one task and begins working on another. Every time the scheduler decides that a waiting process needs to be run, the context switch is called to exchange the waiting process with the active one. In the Operating Systems Course at Marquette students are assigned to implement this as an assignment. Due to the fact this function operates directly on the memory stored in each core this operating is specific to each implementation of Xinu.

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REFERENCES