Capítulo 1

Task 01: Enable Paging

1.1 Task Description

Set up paging by initializing control registers and mapping the first 4MB of memory. This involves configuring the page table and enabling paging in the CPU.

1.2 Planned Implementation

1. Declare the root page table aligned to 4096 bytes using the `__attribute__((aligned(4096)))` directive.
2. Initialize the first 4MB with identity mapping using the value `(1 << 7) | (1 << 1) | (1 << 0)`:
   - Bit 7: 4MB page.
   - Bit 1: Read/Write.
   - Bit 0: Present.
3. Set the `cr3` register to point to the root page table using the `set_cr3()` function.
4. Enable 4MB pages by setting bit 4 of `cr4` using `set_cr4()` and `get_cr4()`.
5. Enable paging by setting bit 31 of `cr0` using `set_cr0()` and `get_cr0()`.
6. Print `"Paginação habilitada"` to confirm that paging is enabled.

1.3 Expected Outcome

- The system successfully enables paging with the first 4MB of memory mapped.
- The message `"Paginação habilitada"` is displayed.

1.4 Implementation Details

(To be filled after implementation)

1.5 Challenges

(To be filled after implementation)

1.6 Final Outcome

(To be filled after implementation)