

cs5965 Advanced OS Implementation

Lecture 07 – Address Spaces
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Allocator interface

Based on

<https://os.phil-opp.com/heap-allocation/>

Box::new()

- Way to allocate objects on the heap in Rust
- Internally calls allocate

Plumbing for the allocator

- Dependency on the alloc crate
- GlobalAlloc trait
- [global_allocator] in RedLeaf
- <https://github.com/mars-research/redleaf/blob/7194295d1968c8013ae6b3d104a9192f03516449/kernel/src/memory/mod.rs#L257>

BootInfo

Based on

<https://os.phil-opp.com/heap-allocation/>

- BootInformation in RedLeaf
- <https://github.com/mars-research/redleaf/blob/7194295d1968c8013ae6b3d104a9192f03516449/kernel/src/lib.rs#L128>
- We load it from _bootinfo
- <https://github.com/mars-research/redleaf/blob/7194295d1968c8013ae6b3d104a9192f03516449/kernel/src/lib.rs#L232>

Page table definitions

- x86 crate by Gerd
- <https://docs.rs/x86/latest/x86/bits64/paging/struct.PML4Entry.html>

Thank you!



Are you rewriting
our kernel in Rust?

Nah... let's just verify it