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CIS722
Assignment 3

Base: the base address is the location that is defined within the physical address pace. This address is formed from the three address spots located in the segment descriptor.

Granularity bit: the granularity bit sets the scaling for the limit (described below under "Limit").

Limit: The limit defines the size of the segment, we can find this value by putting together the first byte and the first 4 bits of the fourth byte in order to create our 20bit value. Segment sizes are decided based on the granularity bit, so if the granularity bit is set to 0 the segment size will be from 1b to 1mb and if the granularity bit is set to 1 the segment size will be from 4kb to 4kb.

S bit: the sbit determines if it is a system or code or data segment. So if s is set to 1 it the given segment could be a code or data segment, and if it is set to 0 it would be a system segment.

D/B: in a code segment this is referred to as a D bit and in a data segment it's referred to as a B bit. When the D bit is set 32bit operations and addressing is used and when it is not set 16bit operations and addressing are used.

Type: the type tells us what kind of access the segment has and the direction it grows

P: when a system doesn't need a given segment it can switch the present bit to zero to clear space. When a segment is accessed with this segment set to 0 it will throw an exception. When it is set to 1 it is "present" and can be used.

DPL: DPL is the descriptor privilege level, so it sets the privilege level of the segment which control access to the segment.

NOTE: from what i could find the UNSET should be replaced by the absolute address of the p_gdt table but I could not find the specific address, so I left the values as "UNSET"

MSC

Data2: 0Xffff unset
Data1: unset, 0x9a, 0x00, x000
avl: 0
base: 0000 0000 UNSET(23: 16) UNSET(15: 0)
d/b: 0
dpl: 00
g: 0
limit: 0000 1111 1111 1111 1111
p: 1
s: 1
type: 1010

CS

Data2: 0xffff, unset
Data1: unset, 0x9a, 0xcf, 0x00
avl: 0
base: 0000 0000 UNSET(23: 16) UNSET(15: 0)
d/b: 1
dpl: 00
g: 1
limit: 1111 1111 1111 1111 1111
p: 1
s: 1
type: 1010

SS (Monitor)

Data2: 0xffff, unset
Data1: unset, 0x92, 0x00, 0x00
avl: 0
base: 0000 0000 UNSET(23: 16) UNSET(15: 0)
d/b: 1
dpl: 00
g: 0
limit: 0000 1111 1111 1111 1111 1111
p: 1
s: 1
type: 0010

ES

Data2: 0xffff, 0x0000
Data1: 0x00, 0x92, 0x00, 0x00
avl: 0
base: 0000 0000 0000 0000 0000 0000 0000 0000
d/b: 1
dpl: 00
g: 1
limit: 1111 1111 1111 1111 1111
p: 1
s: 1
type: 0010

DS

Data2: 0xffff, unset
Data1: unset, 0x92, 0xcf, 0x00
avl: 0
base: 0000 0000 UNSET(23: 16) UNSET(15: 0)
d/b: 1
dpl: 00
g: 1
limit: 1111 1111 1111 1111 1111

p: 1
s: 1
type: 0010