

TUGAS LAPORAN PRAKTIKUM

SISTEM OPERASI MODUL 3

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1. Masuk ke OS dengan perintah 'CD OS', lalu dilanjutkan dengan memasukan perintah 'setpath'

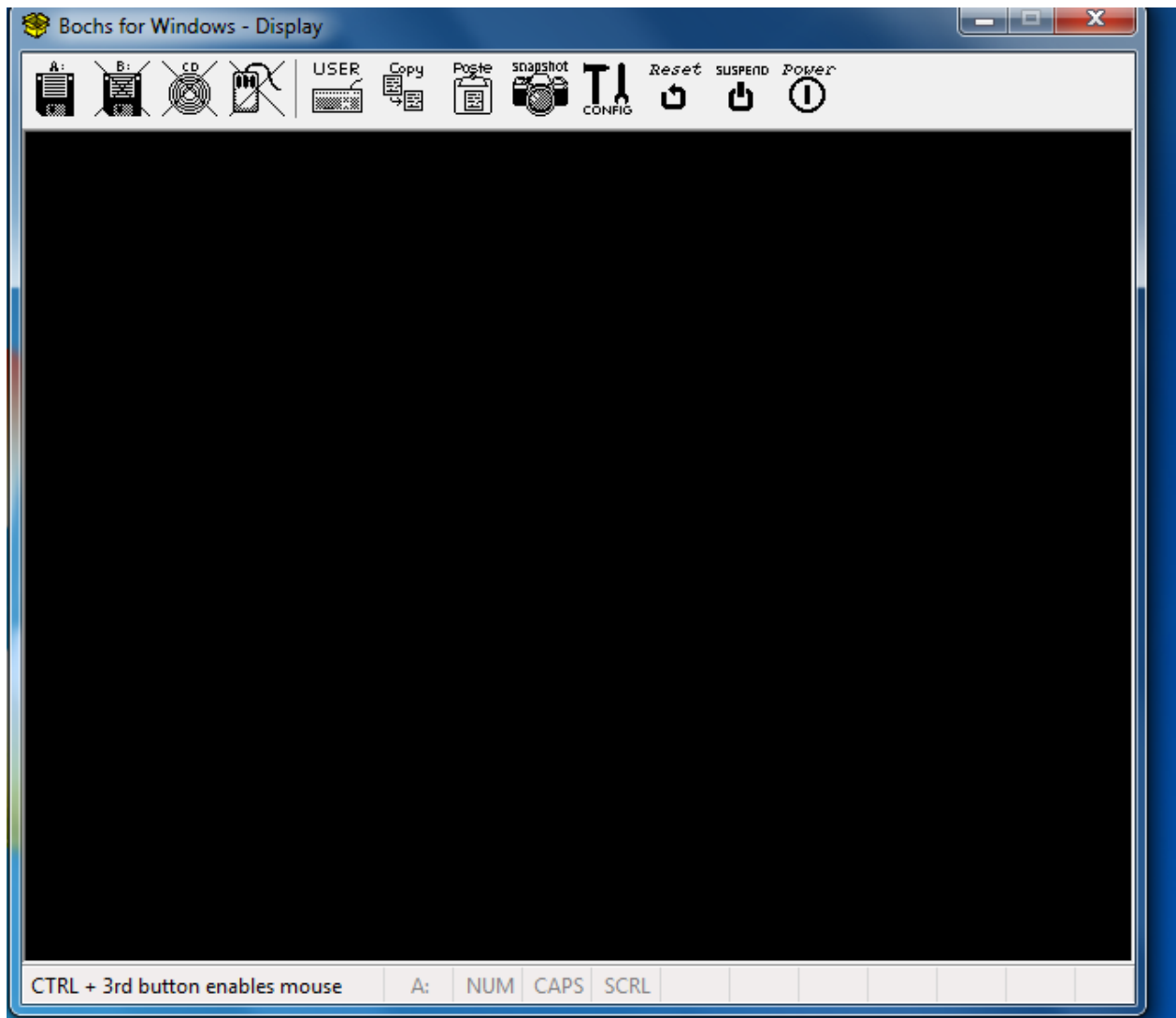
```
C:\Users\Lab Jarkom-02>cd ../..
C:\>cd os
C:\OS>setpath
C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\
System32
C:\OS>cd LAB/LAB3
```

2. Selanjutnya ketikan perintah 'type s.bat'

```
C:\OS\LAB\LAB3>type s.bat
..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
C:\OS\LAB\LAB3>
```

3. Dilanjutkan dengan memasukan perintah 's' untuk masuk ke PC simulator dan akan muncul seperti gambar dibawah ini

```
C:\OS\LAB\LAB3>s
C:\OS\LAB\LAB3>..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
000000000000i[APIC?] local apic in  initializing
=====
                        Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
000000000000i[      ] reading configuration from bochsrc.bxrc
000000000000i[      ] installing win32 module as the Bochs GUI
000000000000i[      ] using log file bochs.log
Next at t=0
<0> [0xffffffff] f000:fff0 <unk. ctxt>: jmp far f000:e05b          ; ea5be000f0
<bochs:1>
```



4. Ketikan perintah 'r' hingga muncul seperti gambar dibawah ini

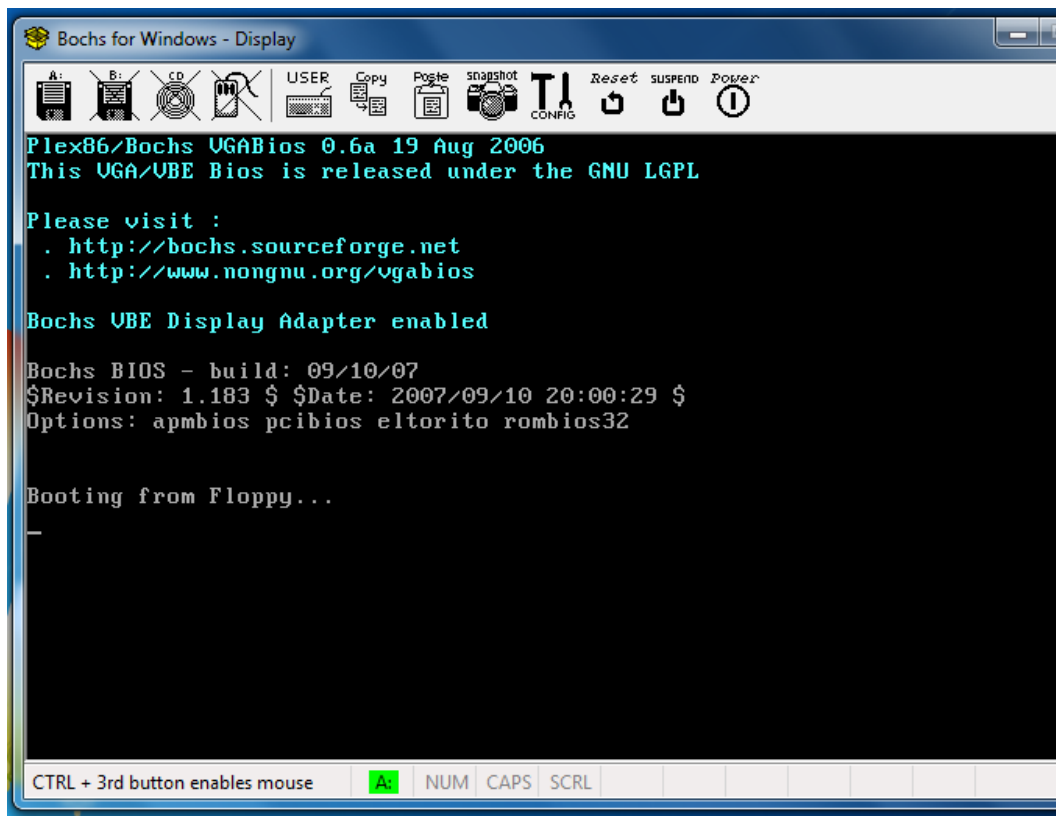
```
<bochs:1> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000f20 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
rsi: 0x00000000:00000000 rdi: 0x00000000:00000000
r8 : 0x00000000:00000000 r9 : 0x00000000:00000000
r10: 0x00000000:00000000 r11: 0x00000000:00000000
r12: 0x00000000:00000000 r13: 0x00000000:00000000
r14: 0x00000000:00000000 r15: 0x00000000:00000000
rip: 0x00000000:0000ffff
eflags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:2>
```

5. Dilanjutkan dengan memasukan perintah 's'

```

<bochs:2> s
Next at t=1
<0> [0x000fe05b] f000:e05b (unk. ctxt): xor ax, ax ; 31c0
<bochs:3> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:0000f20 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
rsi: 0x00000000:00000000 rdi: 0x00000000:00000000
r8 : 0x00000000:00000000 r9 : 0x00000000:00000000
r10: 0x00000000:00000000 r11: 0x00000000:00000000
r12: 0x00000000:00000000 r13: 0x00000000:00000000
r14: 0x00000000:00000000 r15: 0x00000000:00000000
rip: 0x00000000:0000e05b
eflags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:4> vb 0 : 0x7c00

```



```

eflags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:4> vb 0 : 0x7c00
<bochs:5> c
<0> [0x000fe05b] f000:e05b (unk. ctxt): xor ax, ax ; 31c0

```

6. Samakan proses debugging dengan file boot.asm

```

Bochs for Windows - Console
# In bx_win32_gui.c::exit(void)?
Bochs is exiting. Press ENTER when you're ready to close this window.

C:\OS\LAB\LAB3>s
C:\OS\LAB\LAB3>..\bochs-2.3.5\bochsdbg -q -f bochsre.bxrc
00000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000000i[    ] reading configuration from bochsre.bxrc
00000000000i[    ] installing win32 module as the Bochs GUI
00000000000i[    ] using log file bochs.log
Next at t=0
<0> [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b    ; ea5be00f0
<bochs:1> s
<bochs:2> s
Next at t=1
<0> [0x000fe05b] f000:e05b (unk. ctxt): xor ax, ax          ; 31c0
<bochs:3> c
<0> Breakpoint 2683464, in 0100:0000 <0x00001000>
Next at t=2945013
<0> [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100      ; b80001
<bochs:4> s
Next at t=2945014
<0> [0x00001003] 0100:0003 (unk. ctxt): mov ds, ax          ; 8ed8
<bochs:5> s
Next at t=2945015
<0> [0x00001005] 0100:0005 (unk. ctxt): mov es, ax          ; 8ec0
<bochs:6> s
Next at t=2945016
<0> [0x00001007] 0100:0007 (unk. ctxt): cli                  ; fa
<bochs:7> s
Next at t=2945017
<0> [0x00001008] 0100:0008 (unk. ctxt): mov ss, ax          ; 8ed0
<bochs:8> s
Next at t=2945018
<0> [0x0000100a] 0100:000a (unk. ctxt): mov sp, 0xffff       ; bcffff
<bochs:9> s
Next at t=2945019
<0> [0x0000100d] 0100:000d (unk. ctxt): sti                  ; fb
<bochs:10> s
Next at t=2945020
<0> [0x0000100e] 0100:000e (unk. ctxt): push dx              ; 52
<bochs:11> s
Next at t=2945021
<0> [0x0000100f] 0100:000f (unk. ctxt): push es              ; 06
<bochs:12> s
Next at t=2945022
<0> [0x00001010] 0100:0010 (unk. ctxt): xor ax, ax           ; 31c0
<bochs:13> s
Next at t=2945023
<0> [0x00001012] 0100:0012 (unk. ctxt): mov es, ax           ; 8ec0
<bochs:14>

```

```

kernel - Notepad
File Edit Format View Help
;
; Prototype SIMPLE KERNEL ver 0.01
; LAB-INFORMATIKA
;
;=====
[org 0x000]
[bits 16]

[SEGMENT .text]

; START #####
mov ax, 0x0100      ; Lokasi memori untuk menempatkan kernel
mov ds, ax
mov es, ax

cli                ; set interrupt OFF
mov ss, ax          ; atur stack segment
mov sp, 0xFFFF      ; atur stack pointer maksimum 64k
sti                ; set interrupt ON

push dx
push es
xor ax, ax
mov es, ax
cli
mov word [es:0x21*4], _int0x21 ; setup interrupt service
mov [es:0x21*4+2], cs          ; untuk menampilkan karakter di
sti
pop es
pop dx

mov si, strwelcomeMsg ; Tampilkan informasi proses
mov al, 0x01           ; request service 0x01
int 0x21               ; int 0x21

call _shell            ; call the shell

int 0x19               ; reboot
; END #####

_int0x21:
_int0x21_ser0x01:      ; service 0x01
cmp al, 0x01           ; periksa apakah service 0x01 yang diinginkan
jne _int0x21_end        ; jika bukan service no 0x01 EXIT

_int0x21_ser0x01_start:
lodsb                 ; ambil karakter berikutnya
or al, al              ; cek apakah berupa karakter NULL (0x00)
jz _int0x21_ser0x01_end

```

7. Ketikan perintah 's' untuk kembali masuk ke PC simulator

```
Bochs for Windows - Console
C:\OS\LAB\LAB3>s
C:\OS\LAB\LAB3>..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
000000000000i[APIC?] local apic in initializing
=====
                Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
000000000000i[      ] reading configuration from bochsrc.bxrc
000000000000i[      ] installing win32 module as the Bochs GUI
000000000000i[      ] using log file bochs.log
Next at t=0
<0> [0xffffffff] f000:fff0 <unk. ctxt>: jmp far f000:e05b          ; ea5be000f0
<bochs:1>
```

```
Bochs for Windows - Display
Plex86/Bochs VGABios 0.6a 19 Aug 2006
This VGA/VBE Bios is released under the GNU LGPL

Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/vgabios

Bochs VBE Display Adapter enabled

Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...

Loading kernel ver 0.01
.....
.....
..
-

CTRL + 3rd button enables mouse  A: NUM CAPS SCRL
```

```
<bochs:5> c
<0> Breakpoint 2683464, in 0100:0000 <0x00001000>
Next at t=2945013
<0> [0x00001000] 0100:0000 <unk. ctxt>: mov ax, 0x0100          ; b80001
<bochs:6>
```