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Kelas : B

Laporan Modul 3

- Masuk ke direktori C:/OS, lakukan setpath dan masuk ke direktori lab/lab3

```
Bochs for Windows - Console
Microsoft Windows [Version 10.0.17763.805]
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C:\OS\OS>setpath

C:\OS\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows;c:\Windows\System32
C:\OS\OS>cd LAB/LAB3
```

- Ketik 'type s.bat'

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

- Lakukan debugging dengan cara ketik 's'

```
Bochs for Windows - Console
Microsoft Windows [Version 10.0.17763.805]
(c) 2018 Microsoft Corporation. All rights reserved.

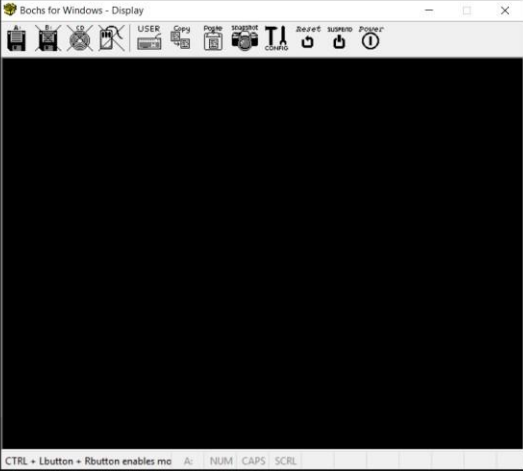
C:\OS\OS>setpath

C:\OS\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows;c:\Windows\System32
C:\OS\OS>cd LAB/LAB3

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

C:\OS\OS\LAB\LAB3>s

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



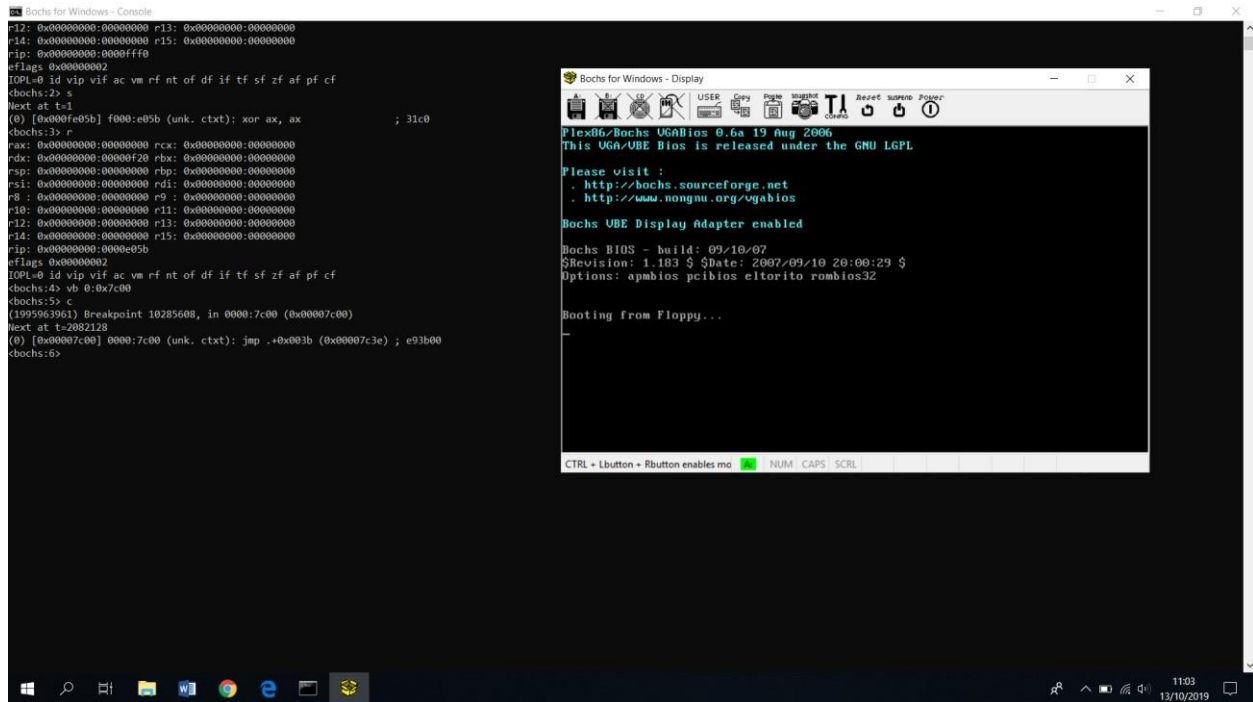
- Ketikkan 'r' untuk melihat isi register CS dan IP

```
Bochs for Windows - Console
C:\OS\OS\LAB\LAB3\...\bochs-2.3.5\bochsdhg -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:ffff (unk. ctx): jmp far f000:e05b ; ea5be00f0
<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> _
```

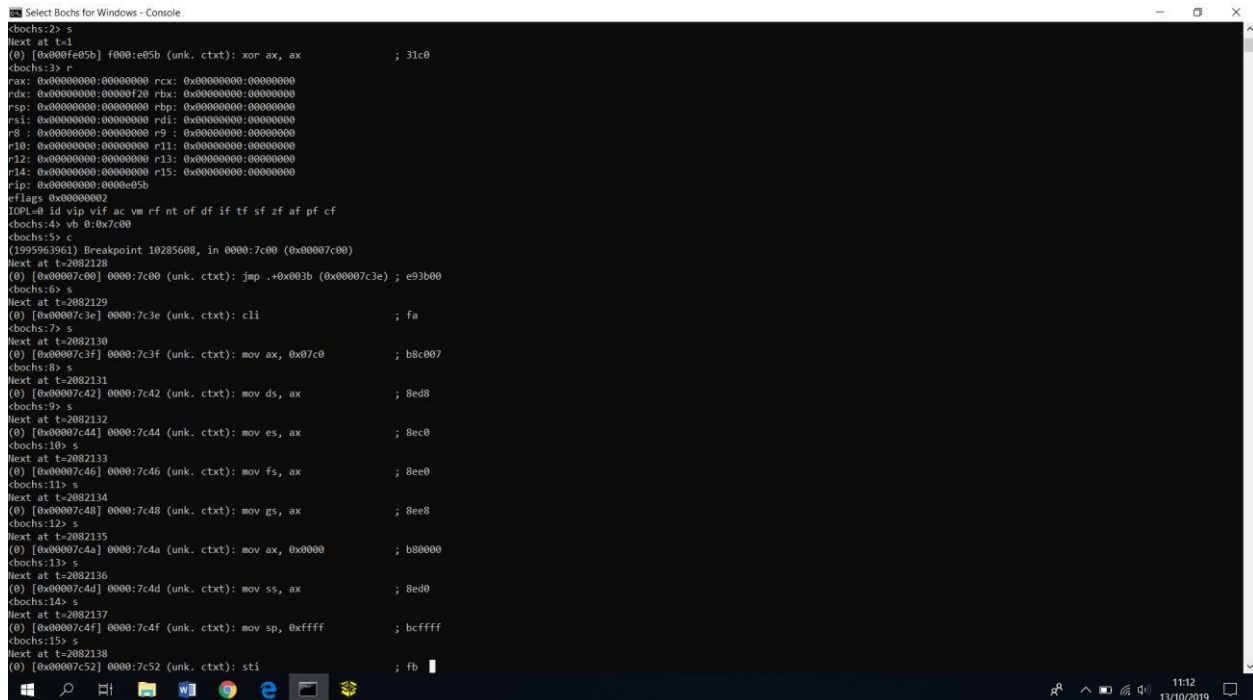
- Mengeksekusi perintah selanjutnya, ketikkan 's' <ENTER> lalu ketikkan 'r' <ENTER>

```
Bochs for Windows - Console
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
r11: 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> s
Next at t=1
(0) [0x000fe05b] f000:e05b (unk. ctx): xor ax, ax ; 31c0
<bochs:3> 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: 0x00000000:0000e05b
eflags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:4> _
```

- Kemudian masukkan perintah 'vb 0:0x7C00' untuk membuat pemberhentian di alamat tersebut



- Ketikkan 'c' untuk continue / melanjutkan. Lalu ketikkan 's' berulang sebanyak 10 kali, dan lakukan pengecekan dengan file boot.asm



- Ketikkan 'q' untuk menghentikan debugging. Kemudian lakukan debugging lagi dengan cara ketikkan 's', kemudian ketikkan 'vb 0x0100:0x0000' untuk menghentikan langkah saat PC mulai mengeksekusi instruksi dari program 'kernel.bin', lalu ketikkan 'c'

```

Bochs for Windows - Console
kbochs:17> q
# In bx_win32_gui.c::exit(void)!
Bochs is exiting. Press ENTER when you're ready to close this window.

C:\OS\OS\LAB\LAB3> s
C:\OS\OS\LAB\LAB3> .\..\bochs-2.3.5\bochsrc -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) [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b ; ea5be00f0
kbochs:1> vb 0x0100:0x0000
kbochs:2> c
(10264512) Breakpoint 10285608, in 0100:0000 (0x00001000)
Next at t=2945013
(0) [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100 ; b80001
kbochs:3>

Bochs for Windows - Display
FlexROM/Bochs UGABios 0.6a 19 Aug 2006
This UGA/UBE Bios is released under the GNU LGPL

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

Bochs UBE Display Adapter enabled

Bochs BIOS - build: 09/10/07
$Revision: 1.103 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...

Loading kernel ver 0.01
=====
..
..
CTRL + Lbutton + Rbutton enables mo NUM CAPS SCRL

```

- Kemudian ketikkan 's' minimal 10x. Lalu bandingkan hasilnya dengan isi file kernel.asm

```

Bochs for Windows - Console
(10264512) Breakpoint 10285608, in 0100:0000 (0x00001000)
Next at t=2945013
(0) [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100 ; b80001
kbochs:3> s
Next at t=2945014
(0) [0x00001003] 0100:0003 (unk. ctxt): mov ds, ax ; 8ed8
kbochs:4> s
Next at t=2945015
(0) [0x00001005] 0100:0005 (unk. ctxt): mov es, ax ; 8ec0
kbochs:5> s
Next at t=2945016
(0) [0x00001007] 0100:0007 (unk. ctxt): cli ; fa
kbochs:6> s
Next at t=2945017
(0) [0x00001008] 0100:0008 (unk. ctxt): mov ss, ax ; 8ed0
kbochs:7> s
Next at t=2945018
(0) [0x0000100a] 0100:000a (unk. ctxt): mov sp, 0xffff ; bcffff
kbochs:8> s
Next at t=2945019
(0) [0x0000100d] 0100:000d (unk. ctxt): sti ; fb
kbochs:9> s
Next at t=2945020
(0) [0x0000100e] 0100:000e (unk. ctxt): push dx ; 52
kbochs:10> s
Next at t=2945021
(0) [0x0000100f] 0100:000f (unk. ctxt): push es ; 06
kbochs:11> s
Next at t=2945022
(0) [0x00001010] 0100:0010 (unk. ctxt): xor ax, ax ; 31c0
kbochs:12> s
Next at t=2945023
(0) [0x00001012] 0100:0012 (unk. ctxt): mov es, ax ; 8ec0
kbochs:13>

```