

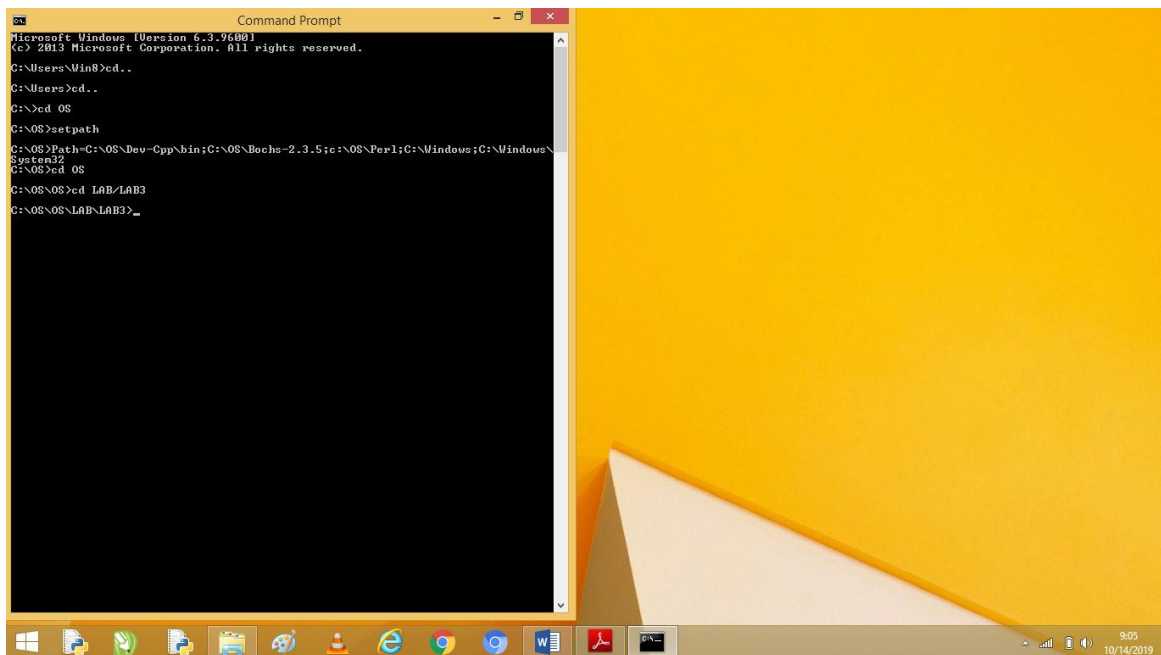
## MODUL KE 3

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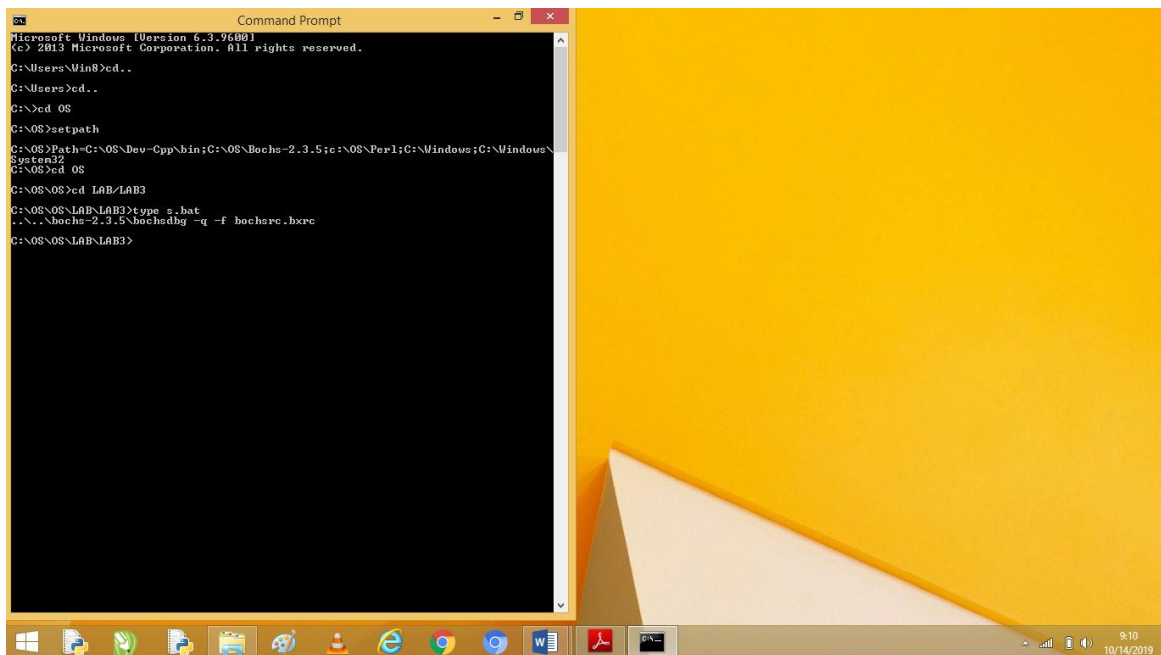
1. Masuk ke direktori OS, mengetik perintah 'setpath', kemudian masuk ke direktori LAB/LAB3



```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Min8>cd..
C:\Users>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 OS
C:\OS\OS>cd LAB/LAB3
C:\OS\OS\LAB\LAB3>_
```

2. Masukkan perintah 'type s.bat'



```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

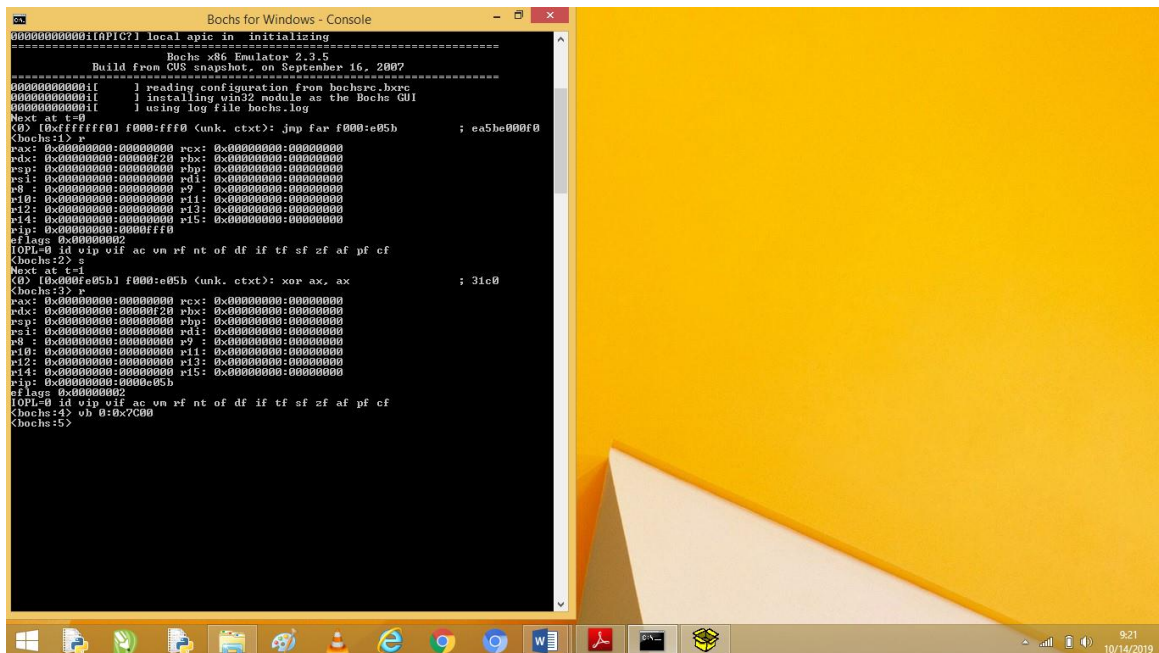
C:\Users\Min8>cd..
C:\Users>cd..
C:\>cd OS
C:\OS>setpath
C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\
System32
C:\OS>cd OS
C:\OS\OS>cd LAB/LAB3
C:\OS\OS\LAB\LAB3>type s.bat
..\..\bochs-2.3.5\bochdbg -q -f bochsre.hxc
C:\OS\OS\LAB\LAB3>
```

```

C:\Program Files\Bochs> local apic io initializing...
=====
Build From CVS snapshot, on September 16, 2007
=====
0000000000000000:      | reading configuration from bochsrc.borg
0000000000000000:      | installing vlns2 module as the Bochs GUI
0000000000000000:      | using log file bochs.log
log file <-
<0> [0xffffffff] f00d:f0f0 (unk. ctx): jmp far f00d:e05h       ; ea5be000f0
[bochs i2] e
rax: 0-00000000: 00000000 rcx: 0-00000000: 00000000
rbx: 0-00000000: 00000020 ebx: 0-00000000: 00000000
rcp: 0-00000000: 00000000 rbp: 0-00000000: 00000000
r-i: 0-00000000: 00000000 edi: 0-00000000: 00000000
e-j: 0-00000000: 00000000 esi: 0-00000000: 00000000
pi0: 0-00000000: 00000000 pii: 0-00000000: 00000000
p12: 0-00000000: 00000000 p13: 0-00000000: 00000000
pi4: 0-00000000: 00000000 pi5: 0-00000000: 00000000
ip: 0-00000000: 000000ff id
flags 0-000000002
[0]-> id vip wif ac on pf nt of de if tf sf zf af pf cf
[bochs i2] e
<0> [0x0000e05h] f00d:e05h (unk. ctx): xor ax, ax              ; 31c0
[bochs i2] e
rax: 0-00000000: 00000000 rcx: 0-00000000: 00000000
rbx: 0-00000000: 00000020 ebx: 0-00000000: 00000000
rcp: 0-00000000: 00000000 rbp: 0-00000000: 00000000
r-i: 0-00000000: 00000000 edi: 0-00000000: 00000000
e-j: 0-00000000: 00000000 esi: 0-00000000: 00000000
pi0: 0-00000000: 00000000 pii: 0-00000000: 00000000
p12: 0-00000000: 00000000 p13: 0-00000000: 00000000
pi4: 0-00000000: 00000000 pi5: 0-00000000: 00000000
ip: 0-00000000: 0000e05h
flags 0-000000002
[0]-> id vip wif ac on pf nt of de if tf sf zf af pf cf
[bochs i2] e

```

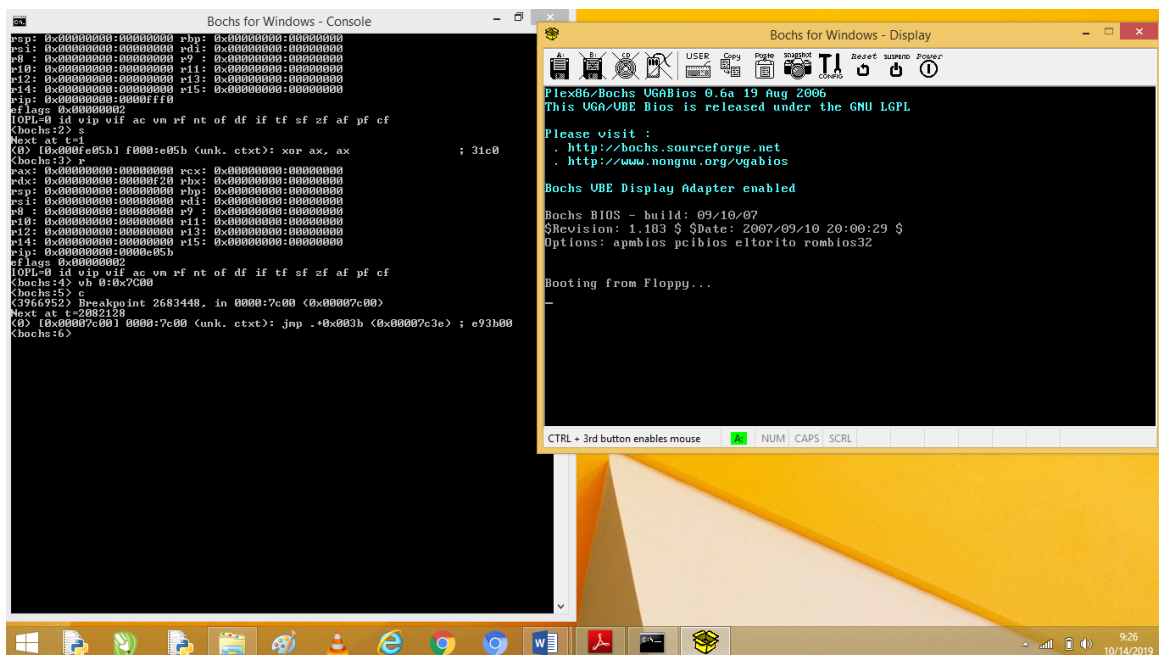
6. Untuk membuat titik pemberhentian pada alamat, masukkan perintah 'vb 0:0x7C00' <ENTER>



The screenshot shows the Bochs for Windows - Console window. The console output displays the following assembly code and register values:

```
0000000000000000: local apic in initializing
=====
Build from CUS snapshot, on September 16, 2007
=====
0000000000000000: 1 reading configuration from bochsrc.bxrc
0000000000000000: 1 installing win32 module as the Bochs GUI
0000000000000000: 1 using log file bochs.log
Next at t=0
(0) [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b ; ea5he00ff0
<bochs:1> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000020 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
r1: 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 um rf nt of df if tf sf zf af pf cf
<bochs:2> s
Next at t=1
(0) [0x000005b1] f000:e05b (unk. ctxt): xor ax, ax ; 31c0
<bochs:3> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000020 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
r1: 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 um rf nt of df if tf sf zf af pf cf
<bochs:4> vb 0:0x7C00
<bochs:5>
```

- Untuk meneruskan prosesnya sampai ke titik pemberhentian, masukkan perintah 'c' <ENTER>



The screenshot shows the Bochs for Windows - Console and Display windows. The console output displays the following assembly code and register values:

```
0000000000000000: 1 reading configuration from bochsrc.bxrc
0000000000000000: 1 installing win32 module as the Bochs GUI
0000000000000000: 1 using log file bochs.log
Next at t=0
(0) [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b ; ea5he00ff0
<bochs:1> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000020 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
r1: 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 um rf nt of df if tf sf zf af pf cf
<bochs:2> s
Next at t=1
(0) [0x000005b1] f000:e05b (unk. ctxt): xor ax, ax ; 31c0
<bochs:3> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000020 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
r1: 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 um rf nt of df if tf sf zf af pf cf
<bochs:4> vb 0:0x7C00
<bochs:5> c
(3966952) Breakpoint 2683448, in 0000:7c00 (0x00007c00)
Next at t=2082128
(0) [0x00007c00] 0000:7c00 (unk. ctxt): jmp .+0x003b (0x00007c3e) ; e93b00
<bochs:6>
```

The Display window shows the BIOS boot process:

```
Plex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/VBE Bios is released under the GNU LGPL

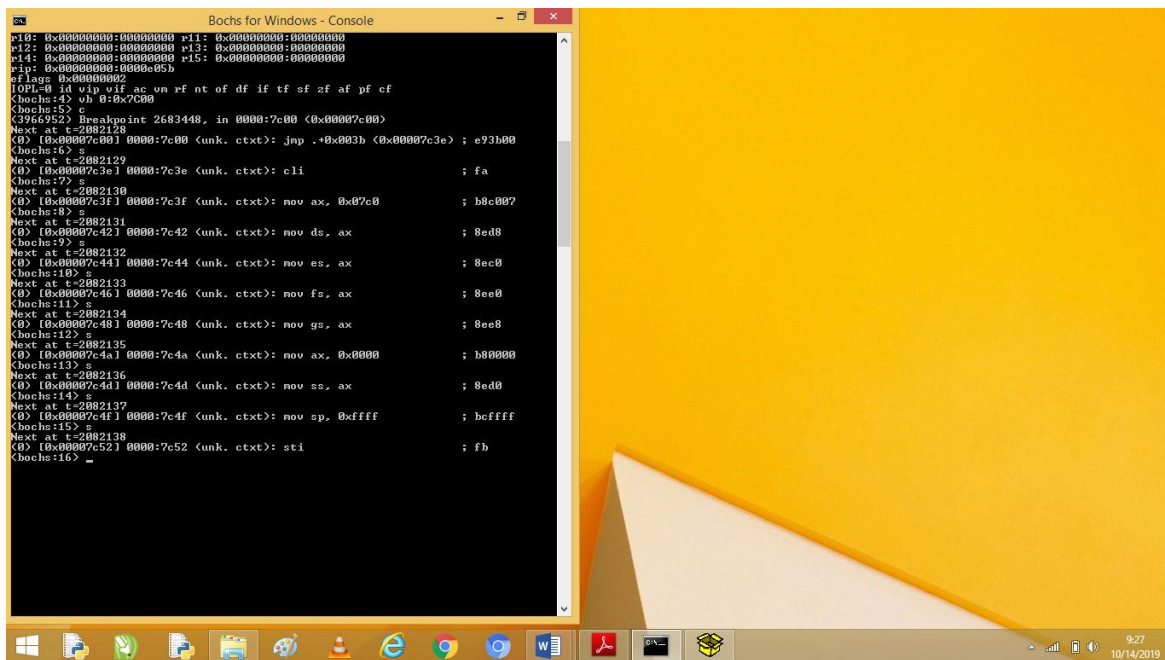
Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/vgabios

Bochs VBE Display Adapter enabled

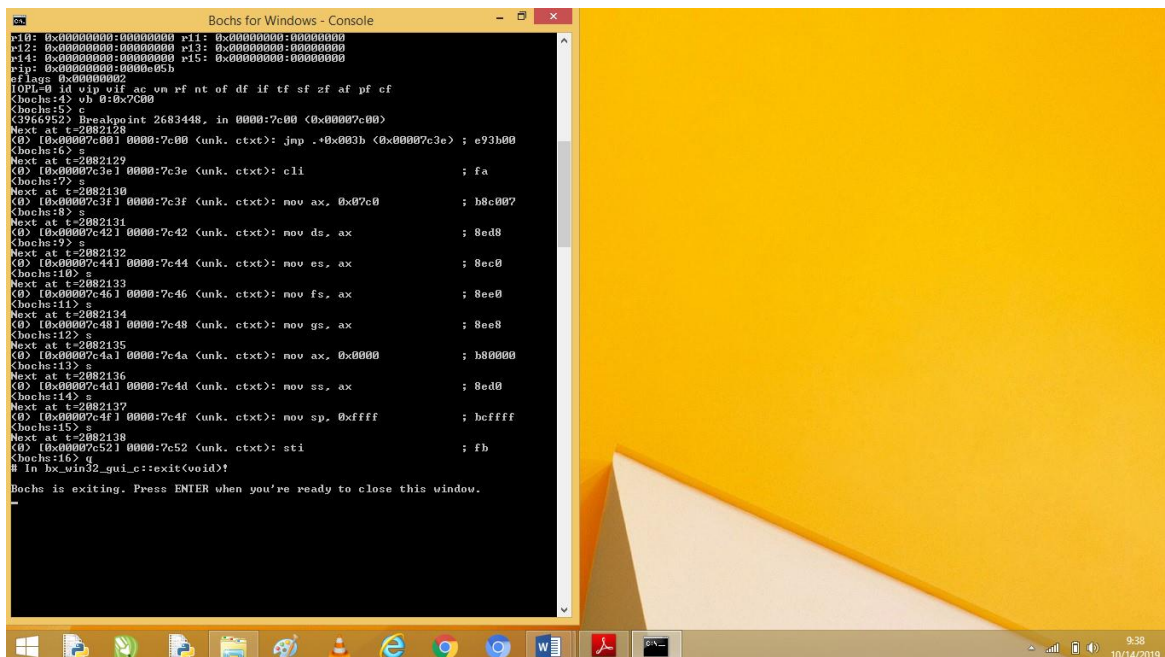
Bochs BIOS - build: 09/10/07
$Revision: 1.103 $ $Date: 2007-09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...
```

7. Masukkan perintah 's' <ENTER> sebanyak 10 kali



8. Perintahkan PC untuk melanjutkan pekerjaannya dengan memasukkan perintah 'c', atau menghentikan proses dengan perintah 'q'.





- The image shows a Windows 7 desktop environment. Two windows are open. The left window, titled "Bochs for Windows - Console", displays the command-line output of a Bochs emulator. It shows the execution of a BIOS image, including memory addresses, instructions, and the state of various registers. The output indicates that the BIOS is initializing and that the Bochs GUI is being used. The right window, titled "Bochs for Windows - Display", shows the BIOS display output. It includes a title bar, a menu bar with options like "USER", "Copy", "Paste", "Straight", "Z-Reset", "Supreme", and "Power", and a main display area. The display area shows the BIOS version (0.6a), the date (19 Aug 2006), and the license (GNU LGPL). It also provides links to the source code and a website. The desktop background is a blue and white abstract pattern. The taskbar at the bottom shows various application icons, including the Start menu button, Windows Explorer, Google Chrome, and the Start menu button.

- The image shows a Windows desktop environment. In the foreground, a large, semi-transparent yellow arrow points from the bottom right towards the center. Behind it, a console window titled "Bochs for Windows - Console" is open, displaying the output of the Bochs x86 Emulator 2.3.5. The console text shows the emulator's build information, configuration file loading, and a series of assembly instructions being executed, such as "jmp far f000:e05h", "mov ax, 0x0100", "mov ds, ax", "mov es, ax", "cli", "mov ss, ax", "sti", "push dx", "push es", "xor ax, ax", and "mov es, ax". The taskbar at the bottom contains icons for various applications including File Explorer, Edge, Chrome, and several utility programs. The system clock in the bottom right corner shows the date as 10/14/2017 and the time as 9:43.