

## Environment Information

### OS

```
yw@yw-virtual-machine:~/hw1_2016147550/module$ cat /etc/os-release
PRETTY_NAME="Ubuntu 22.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.3 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=jammy
```

### CPU

```
yw@yw-virtual-machine:~/hw1_2016147550/module$ grep -c processor /proc/cpuinfo
2
```

### CPU Details

```
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 154
model name     : 12th Gen Intel(R) Core(TM) i7-12700H
stepping       : 3
microcode      : 0x41c
cpu MHz        : 2688.006
cache size     : 24576 KB
physical id    : 0
siblings       : 1
core id        : 0
cpu cores      : 1
apicid         : 0
initial apicid : 0
fpu            : yes
fpu_exception  : yes
cpuid level    : 32
wp             : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm constant_tsc
arch_perfmon rep_good noopl xtopology tsc_reliable nonstop_tsc cpuid tsc_known_f
req_pni pclmulqdq sse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_dead
line_timer aes xsave avx f16c rdrand hypervisor lahf_lm abm 3dnowprefetch invpci
d_single ssbd ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 avx2 smep b
mi2 erms invpcid rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1
xsaves avx_vnni arat umip pku ospke gfni vaes vpclmulqdq rdpid movdiri movdir64b
fstrm md_clear serialize flush_lid arch_capabilities
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs itlb_multihit e
ibrs_pbrsb
bogomips       : 5376.01
clflush size   : 64
cache_alignmen : 64
address sizes   : 45 bits physical, 48 bits virtual
power management:
```

```

processor      : 1
vendor_id     : GenuineIntel
cpu family    : 6
model         : 154
model name    : 12th Gen Intel(R) Core(TM) i7-12700H
stepping      : 3
microcode     : 0x41c
cpu MHz       : 2688.006
cache size    : 24576 KB
physical id   : 2
siblings      : 1
core id       : 0
cpu cores     : 1
apicid        : 2
initial apicid : 2
fpu           : yes
fpu_exception : yes
cpuid level   : 32
wp            : yes
flags         : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm constant_tsc
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mi2 erms invpcid rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1
xsave avx_vnni arat umip pku ospke gfni vaes vpclmulqdq rdpid movdiri movdir64b
fsmr md_clear serialize flush_lid arch_capabilities
bugs          : spectre_v1 spectre_v2 spec_store_bypass swapgs itlb_multihit e
ibrs_pbrsb
bogomips      : 5376.01
clflush size   : 64
cache alignment : 64
address sizes  : 45 bits physical, 48 bits virtual
power management:

```

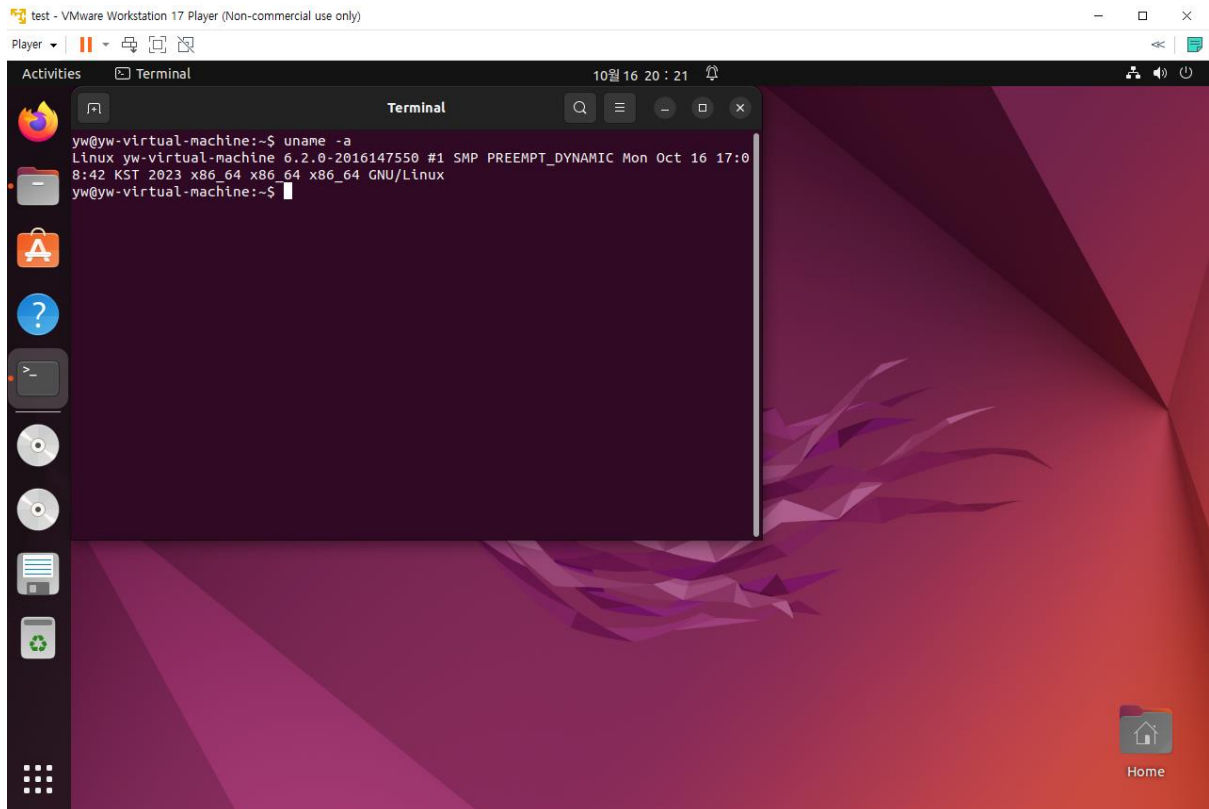
## Memory

```

yw@yw-virtual-machine:~/hw1_2016147550/module$ cat /proc/meminfo
MemTotal:      3982152 kB
MemFree:       916644 kB
MemAvailable:  2578264 kB
Buffers:       77836 kB
Cached:        1768384 kB
SwapCached:    0 kB
Active:        598744 kB
Inactive:      1886044 kB
Active(anon):  2420 kB
Inactive(anon): 672528 kB
Active(file):  596324 kB
Inactive(file): 1213516 kB
Unevictable:   0 kB
Mlocked:       0 kB
SwapTotal:     3991548 kB
SwapFree:      3991548 kB
Zswap:         0 kB
Zswapped:      0 kB
Dirty:         0 kB
Writeback:     0 kB
AnonPages:     638584 kB
Mapped:        304944 kB
Shmem:         42804 kB
KReclaimable:  112468 kB
Slab:          213572 kB
SReclaimable:  112468 kB
SUnreclaim:    101104 kB

```

uname -a



The screenshot shows a VMware Workstation 17 Player window titled "test - VMware Workstation 17 Player (Non-commercial use only)". Inside the player, a Linux virtual machine desktop is visible with a red and purple geometric background. A terminal window is open, showing the command "uname -a" and its output:

```
yw@yw-virtual-machine:~$ uname -a
Linux yw-virtual-machine 6.2.0-2016147550 #1 SMP PREEMPT_DYNAMIC Mon Oct 16 17:0
8:42 KST 2023 x86_64 x86_64 x86_64 GNU/Linux
yw@yw-virtual-machine:~$
```

The terminal window has a title bar that says "Terminal" and includes search, menu, and window control icons. The desktop also features a sidebar with application icons and a "Home" button in the bottom right corner.

## Result

Ubuntu 64-bit - VMware Workstation 17 Player (Non-commercial use only)

```
Player ▾ | [Icons] | 12월 4 20 : 50

Activities | Terminal

yw@yw-virtual-machine: ~/hw2_2016147550/module

- start (virtual): 0x7ffc449e1f20
- start (physical): 0xe90ec49e1f20
- end (virtual): 0x7ffc449e1f41
- end (physical): 0xe90ec49e1f41
[Trace #4]
uptime(s): 17481
Command: gedit
PID: 6900
Start time (s): 17468
PGD base address: 0xffff96ee14d0a000
Code Area
- start (virtual): 0x56403686b000
- start (PGD): 0xffff96ee14d0a560, 0x80000000292de067
- start (PUD): 0xffff96eda92de800, 0x292dd067
- start (PMD): 0xffff96eda92ddda0, 0x71f08067
- start (PTE): 0xffff96edf1f08358, 0x8f304025
- start (physical): 0x8f304000
- end (virtual): 0x56403686b4e9
- end (PGD): 0xffff96ee14d0a560, 0x80000000292de067
- end (PUD): 0xffff96eda92de800, 0x292dd067
- end (PMD): 0xffff96eda92ddda0, 0x71f08067
- end (PTE): 0xffff96edf1f08358, 0x8f304025
- end (physical): 0x8f3044e9
Data Area
- start (virtual): 0x56403686dcf0
- start (physical): 0xbf52b686dcf0
- end (virtual): 0x56403686e010
- end (physical): 0xbf52b686e010
Heap Area
- start (virtual): 0x564038724000
- start (physical): 0xbf52b8724000
- end (virtual): 0x564039166000
- end (physical): 0xbf52b9166000
Stack Area
- start (virtual): 0x7ffc449e1f20
- start (physical): 0xe90ec49e1f20
- end (virtual): 0x7ffc449e1f41
- end (physical): 0xe90ec49e1f41
yw@yw-virtual-machine:~/hw2_2016147550/module$ cat /proc/6900/maps
56403686a000-56403686b000 r--p 00000000 08:03 917888 /usr/bin/gedit
56403686b000-56403686c000 r-xp 00001000 08:03 917888 /usr/bin/gedit
56403686c000-56403686d000 r--p 00002000 08:03 917888 /usr/bin/gedit
56403686d000-56403686e000 r--p 00002000 08:03 917888 /usr/bin/gedit
56403686e000-56403686f000 rw-p 00003000 08:03 917888 /usr/bin/gedit
564038724000-564039166000 rw-p 00000000 00:00 0 [heap]
7f9e64000000-7f9e64021000 rw-p 00000000 00:00 0
7f9e64021000-7f9e68000000 ---p 00000000 00:00 0
7f9e68000000-7f9e68021000 rw-p 00000000 00:00 0
7f9e68021000-7f9e6c000000 ---p 00000000 00:00 0
7f9e6c000000-7f9e6c021000 rw-p 00000000 00:00 0
7f9e6c021000-7f9e70000000 ---p 00000000 00:00 0
7f9e71518000-7f9e717ff000 rw-s 00000000 00:01 1505 /memfd:
gdk-wayland (deleted)
```