



### <Super Block>

```
root@ubuntu:/home/Changmin/lab3_filesystem# xxd -g 4 -l 0x400 -s 0x400 /dev/ramdisk
00000400: 00000000 00000200 99190000 8ff70100 ..... .
00000410: f57f0000 00000000 02000000 02000000 ..... .
00000420: 00000000 00000000 00200000 c057d75e ..... W.^
00000430: c057d75e 0100ffff 53ef0000 01000000 ..... W.^
00000440: b257d75e 0000ffff 00000000 01000000 ..... W.^
00000450: 00000000 00000000 00010000 38000000 ..... .8...
00000460: 02000000 03000000 8f57f3df 8d7d4951 ..... W.IQ
00000470: 94841fdf f10d38cf 00000000 00000000 ..... .8...
00000480: 00000000 00000000 2f686f6d 652f6368 ..... /home/ch
00000490: 616e676d 696e2f6c 6162335f 66696c65 angmin/lab3_file
000004a0: 73797374 656d2f6d 6e740000 00000000 system/mnt...
000004b0: 00000000 00000000 00000000 00000000 ..... .
000004c0: 00000000 00000000 00000000 00001f00 ..... .
000004d0: 00000000 00000000 00000000 00000000 ..... .
000004e0: 00000000 00000000 00000000 532cb4fb ..... S...
000004f0: 33eb4e7d b489a970 c1038848 01000000 3.N)....P...H...
00000500: 0c000000 00000000 b257d75e 00000000 ..... W.^...
```

00	inode count	block count	res block count	free block count
10	free inode count	first data block	log block size	log frag size
20	block per group	frag per group	inode per group	mtime
30	wtime	mount count	max mount size	magic state errors minor version
40	last check	check interval	creator OS	major version
50	def_res uid def_res gid	first non-reserved inode	inode size block grp num	compatible feature flag
60	incompatible feature flag	feature read only compat	uuid (16 byte)	
70			volume name (16 byte)	
80				
90				prealloc dir block
a0			last mounted (64 byte)	
b0				prealloc block
c0			algorithm usage bitmap	padding
d0			journal uuid	
e0	journal inode number	journal device	last orphan	
f0		hash seed (16 byte)		pad padding
100	default mount option	first meta block		default hash version

$$\text{log block size} = \text{블록크기} = 0x2000$$

$$\text{inode per group} = \text{각 블록그룹에 속한 inode 수} = 0xef53$$

$$\text{block per group} = \text{각 블록그룹에 속한 block 수} = 0x8000$$

### <Group Descriptor Table>

첫 번째 Group Descriptor Table은 램디스크의 1 블록 이후 위치 시작  
(1 블록 = 4 KB = 0x1000)

Group 0  
Group 1  
Group 2  
Group 3

```
root@ubuntu:/home/Changmin/lab3_filesystem# xxd -g 4 -l 0x1000 -s 0x1000 /dev/ramdisk
00001000: 21000000 22000000 23000000 d47dc61e !....#...}...
00001010: 050000400 00000000 00000000 00000000 ..... .
00001020: 21800000 22800000 23800000 227a361f !....#...}...76
00001030: 020000400 00000000 00000000 00000000 ..... .
00001040: 000000100 01000100 020000100 fb77361f ..... w6.
00001050: 020000400 00000000 00000000 00000000 ..... .
00001060: 218000100 228000100 238000100 da7bd11e !....#...}{...
00001070: 030000400 00000000 00000000 00000000 ..... .
00001080: 000000000 000000000 000000000 00000000 ..... .
00001090: 000000000 000000000 000000000 00000000 ..... .
000010a0: 000000000 000000000 000000000 00000000 ..... .
000010b0: 000000000 000000000 000000000 00000000 ..... .
000010c0: 000000000 000000000 000000000 00000000 ..... .
000010d0: 000000000 000000000 000000000 00000000 ..... .
000010e0: 000000000 000000000 000000000 00000000 ..... .
000010f0: 000000000 000000000 000000000 00000000 ..... .
```

00	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00	block bitmap			inode bitmap			inode table			free blk cnt			free ino cnt			
10	used dir cnt			padding			reserved (padding)									

inode table = 각 Group의 inode table 시작 위치 (단위: 블록)

Group 0 = 0x23 → 0x23000

Group 1 = 0x8023 → 0x8023000

Group 2 = 0x10002 → 0x10002000

Group 3 = 0x18023 → 0x18023000

< Group 0 inode Table >

```
root@ubuntu:/home/changmin/Lab3_filesystem# xxd -g 4 -l 0x1000 -s 0x23000 /dev/ramdisk
00023000: 00000000 00000000 b257d75e b257d75e .....W.^W.^
00023010: b257d75e 00000000 00000000 00000000 ..W.^.....
00023020: 00000000 00000000 00000000 00000000 .....
00023030: 00000000 00000000 00000000 00000000 .....
00023040: 00000000 00000000 00000000 00000000 .....
00023050: 00000000 00000000 00000000 00000000 .....
00023060: 00000000 00000000 00000000 00000000 .....
00023070: 00000000 00000000 00000000 00000000 .....
00023080: 00000000 00000000 00000000 00000000 .....
00023090: 00000000 00000000 00000000 00000000 .....
000230a0: 00000000 00000000 00000000 00000000 .....
000230b0: 00000000 00000000 00000000 00000000 .....
000230c0: 00000000 00000000 00000000 00000000 .....
000230d0: 00000000 00000000 00000000 00000000 .....
000230e0: 00000000 00000000 00000000 00000000 .....
000230f0: 00000000 00000000 00000000 00000000 .....
00023100: ed410000 00100000 2a58d75e 0f58d75e .A.....*X.^X.^
00023110: 0f58d75e 00000000 00000000 08000000 ..X.^.....
00023120: 00000000 0a000000 23020000 00000000 ....#.....
00023130: 00000000 00000000 00000000 00000000 .....
00023140: 00000000 00000000 00000000 00000000 .....
00023150: 00000000 00000000 00000000 00000000 .....
00023160: 00000000 00000000 00000000 00000000 .....
00023170: 00000000 00000000 00000000 00000000 .....
00023180: 20000000 58fea620 58fea620 ace3f22f ...X.. X..../
00023190: b257d75e 00000000 00000000 00000000 ..W.^.....
000231a0: 00000000 00000000 00000000 00000000 .....
000231b0: 00000000 00000000 00000000 00000000 .....
000231c0: 00000000 00000000 00000000 00000000 .....
000231d0: 00000000 00000000 00000000 00000000 .....
000231e0: 00000000 00000000 00000000 00000000 .....
000231f0: 00000000 00000000 00000000 00000000 .....
```

↑ index 0  
↓ index 1.

⇒ inode 371 = 0x160 byte

Root가 속한 Block Group은

0x2002 Index는 1임

Ext2의 Root inode

Number = 2, index per Group  
= 0x2000

(2-1)/0x2000 = 0

⇒ Group = 0.

(2-1) % 0x2000 = 1

⇒ index = 1.

	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f																								
00	mode	uid		size			access time			change time																														
10	modification time			deletion time			gid		link count		blocks																													
20	flags			OS description 1																																				
block pointer (60 byte)																																								
50																	Indirect Pointer																							
60					generation			file access control list			dir access control list																													
70	fragmentation blk addr					OS description 2																																		

Block(60) pointer = 0x223000

inode

< Data 영역 >

271:12

file name.

271:20

```
root@ubuntu:/home/changmin/lab3_filesystem# xxd -g 4 -l 0x1000 -s 0x223000 /dev/ramdisk
00223000: 02000000 0c000102 2e000000 02000000 ..... .
00223010: 0c000202 2e2e0000 0b000000 14000a02 ..... .
00223020: 6c6f7374 2b666f75 6e640000 01400000 lost+found...@..
00223030: 0c000102 30000000 01600000 0c000102 ..... .
00223040: 31000000 01200000 0c000102 32000000 1.....2.
00223050: 0c000000 0c000102 33000000 71000000 .....3..4...
00223060: 0c000102 34000000 66200000 0c000102 .....4..f..
00223070: 35000000 66600000 0c000102 36000000 5...f....6.
00223080: 66400000 0c000102 37000000 cb600000 f@.....7....
00223090: 0c000102 38000000 d6000000 680f0102 .....8....h...
002230a0: 39000000 00000000 00000000 00000000 9.....
002230b0: 00000000 00000000 00000000 00000000 ..... .
002230c0: 00000000 00000000 00000000 00000000 ..... .
```

	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00	inode			record len		name len	file type	name (~255 byte)								

현재 디렉토리에 드리 3기.

Constant Name	Value	Description
EXT2_FT_UNKNOWN	0	Unknown File Type
EXT2_FT_REG_FILE	1	Regular File
EXT2_FT_DIR	2	Directory File
EXT2_FT_CHRDEV	3	Character Device
EXT2_FT_BLKDEV	4	Block Device
EXT2_FT_FIFO	5	Buffer File
EXT2_FT_SOCKET	6	Socket File
EXT2_FT_SYMLINK	7	Symbolic Link

6660000 0c00 0102 36000000

6번 디렉토리 inode number = 0x6066

file type = 0x02 => directory file

속한 블록 Group = (0x6066-1) / 0x2000 = 3

inode Table Index = (0x6066-1) % 0x2000 = 101

```
root@ubuntu:/home/changmin/lab3_filesystem# xxd -g 4 -l 0x100 -s 0x223000 /dev/ramdisk
00001000: 21000000 22000000 23000000 d47dc61e !...#....}..
00001010: 05000400 00000000 00000000 00000000 ..... .
00001020: 21800000 22800000 23800000 227a361f !...#...."z6.
00001030: 02000400 00000000 00000000 00000000 ..... .
00001040: 00000100 01000100 02000100 fb77361f .....w6.
00001050: 02000400 00000000 00000000 00000000 ..... .
00001060: 21800100 22800100 23800100 da7bd11e .....#....{.
00001070: 03000400 00000000 00000000 00000000 ..... .
00001080: 00000000 00000000 00000000 00000000 ..... .
00001090: 00000000 00000000 00000000 00000000 ..... .
000010a0: 00000000 00000000 00000000 00000000 ..... .
000010b0: 00000000 00000000 00000000 00000000 ..... .
000010c0: 00000000 00000000 00000000 00000000 ..... .
000010d0: 00000000 00000000 00000000 00000000 ..... .
000010e0: 00000000 00000000 00000000 00000000 ..... .
000010f0: 00000000 00000000 00000000 00000000 .....
```

$\Rightarrow 0x18023000 = \text{Group 3의 inode table}$

16Byte 2217 inode 를 이동.

```
root@ubuntu:/home/changmin/lab3_filesystem# xxd -g 4 -l 0x200 -s 0x18029600 /dev/ramdisk
18029600: a4810000 06200000 0f58d75e 1858d75e ..... .X.^X.^
18029610: 1858d75e 00000000 00000100 18000000 .X.^..... .
18029620: 00000000 01000000 58840000 0c090100 ..... X. .....
18029630: 3d090100 00000000 00000000 00000000 =..... .
18029640: 00000000 00000000 00000000 00000000 ..... .
18029650: 00000000 00000000 00000000 00000000 ..... .
18029660: 00000000 b06fb5f3 00000000 00000000 ..... o. .....
18029670: 00000000 00000000 00000000 00000000 ..... .
18029680: 20000000 780e6778 780e6778 d84ddb07 ...x.gxx.gx.M..
18029690: 0f58d75e d84ddb07 00000000 00000000 .X.^M. .....
180296a0: 00000000 00000000 00000000 00000000 ..... .
180296b0: 00000000 00000000 00000000 00000000 ..... .
180296c0: 00000000 00000000 00000000 00000000 ..... .
180296d0: 00000000 00000000 00000000 00000000 ..... .
180296e0: 00000000 00000000 00000000 00000000 ..... .
180296f0: 00000000 00000000 00000000 00000000 .....
```

	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f																					
00	mode		uid		size			access time			change time																										
10	modification time			deletion time			gid		link count		blocks																										
20	flags			OS description 1																																	
30																																					
40																																					
50																																					
60				generation			file access control list			dir access control list																											
70	fragmentation blk addr			OS description 2																																	

$\rightarrow 0x8458000$

```
root@ubuntu:/home/changmin/lab3_filesystem# xxd -g 4 -l 0x100 -s 0x8458000 /dev/ramdisk
08458000: 362f302d 310a0000 00000000 00000000 6/0-1. .....
08458010: 00000000 00000000 00000000 00000000 ..... .
08458020: 00000000 00000000 00000000 00000000 ..... .
08458030: 00000000 00000000 00000000 00000000 ..... .
08458040: 00000000 00000000 00000000 00000000 ..... .
08458050: 00000000 00000000 00000000 00000000 ..... .
08458060: 00000000 00000000 00000000 00000000 ..... .
08458070: 00000000 00000000 00000000 00000000 ..... .
08458080: 00000000 00000000 00000000 00000000 ..... .
08458090: 00000000 00000000 00000000 00000000 ..... .
084580a0: 00000000 00000000 00000000 00000000 ..... .
084580b0: 00000000 00000000 00000000 00000000 ..... .
084580c0: 00000000 00000000 00000000 00000000 ..... .
084580d0: 00000000 00000000 00000000 00000000 ..... .
084580e0: 00000000 00000000 00000000 00000000 ..... .
084580f0: 00000000 00000000 00000000 00000000 .....
```

⇒ 학번의 끝이 682-1으로 82번 뒤로 이동 ( $0x100 * 8$ )

$0x18029600$   
+  $\underline{5200 \rightarrow 82}$   
 $0x1802e800 \rightarrow 0152$

root@ubuntu:/home/changmin/lab3\_filesystem# xxd -g 4 -l 0x100 -s 0x1802e800 /dev/ramdisk  
1802e800: a4810000 08c00000 0f58d75e 5058d75e .....X.^PX.^  
1802e810: 5058d75e 00000000 00000100 28000000 PX.^.....(....  
1802e820: 00000000 01000000 aa840000 ba070100 .....  
1802e830: **d2070100** 00000000 00000000 00000000 .....  
1802e840: 00000000 00000000 00000000 00000000 .....  
1802e850: 00000000 000020100 00000000 .....  
1802e860: 00000000 36bdb0fc 00000000 00000000 .....6.....  
1802e870: 00000000 00000000 00000000 00000000 .....  
1802e880: 20000000 90f943a6 90f943a6 d4bab70a .....C...C..  
1802e890: 0f58d75e d4bab70a 00000000 00000000 .X.^.....  
1802e8a0: 00000000 00000000 00000000 00000000 .....  
1802e8b0: 00000000 00000000 00000000 00000000 .....  
1802e8c0: 00000000 00000000 00000000 00000000 .....  
1802e8d0: 00000000 00000000 00000000 00000000 .....  
1802e8e0: 00000000 00000000 00000000 00000000 .....  
1802e8f0: 00000000 00000000 00000000 00000000 .....

	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f																				
00	mode	uid		size				access time				change time																								
10	modification time				deletion time				gid	link count		blocks																								
20	flags				OS description 1																															
30																																				
40																																				
50																																				
60					generation				file access control list				dir access control list																							
70	fragmentation blk addr				OS description 2																															

### Indirect Pointer



```

root@ubuntu:/home/changmin/Desktop/lab3_filesystem/os_ext2# make - Super.c 수정 후 make
make -C /lib/modules/5.4.0-33-generic/build M=/home/changmin/Desktop/lab3_filesystem/os_ext2 modules
make[1]: 디렉터리 '/usr/src/linux-headers-5.4.0-33-generic' 들어감
  CC [M]  /home/changmin/Desktop/lab3_filesystem/os_ext2/super.o
  LD [M]  /home/changmin/Desktop/lab3_filesystem/os_ext2/os_ext2.o
Building modules, stage 2.
MODPOST 1 modules
  CC [M]  /home/changmin/Desktop/lab3_filesystem/os_ext2/os_ext2.mod.o
  LD [M]  /home/changmin/Desktop/lab3_filesystem/os_ext2/os_ext2.ko
make[1]: 디렉터리 '/usr/src/linux-headers-5.4.0-33-generic' 나감
root@ubuntu:/home/changmin/Desktop/lab3_filesystem/os_ext2# insmod os_ext2.ko OS_ext2.ko 모듈 삽입
root@ubuntu:/home/changmin/Desktop/lab3_filesystem/os_ext2# cd ..
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# insmod ramdisk.ko ramdisk.ko 모듈 삽입
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# lsmod | grep -e ramdisk -e os_ext2 => OS_ext2 와 ramdisk가
ramdisk                                         삽입된 것 확인
os_ext2                                         16384  0
                                         73728  0
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# mkfs.ext2 /dev/ramdisk ext2로 포맷.
mke2fs 1.45.5 (07-Jan-2020)
Creating filesystem with 131072 4k blocks and 32768 inodes
Filesystem UUID: 44d4b9dd-5c4d-4991-be17-907c31eedc5e
Superblock backups stored on blocks:
            32768, 98304

Allocating group tables: done
Writing inode tables: done
Writing superblocks and filesystem accounting information: done

```

-로 OS\_ext2를 주어 OS\_ext2로 마운트.

---

```

root@ubuntu:/home/changmin/Desktop/lab3_filesystem# mount -t os_ext2 /dev/ramdisk ./mnt => OS_ext2로 마운트.
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg | grep os_ext2
[ 242.664177] os_ext2: loading out-of-tree module taints kernel.
[ 242.664257] os_ext2: module verification failed: signature and/or required key missing - tainting kernel
[ 337.273982] //os_ext2 : Your Name OS Lab3
[ 337.274046] os_ext2 : Lee Changmin OS Lab3
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg | grep Changmin
[ 337.274046] os_ext2 : Lee Changmin OS Lab3
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# █

```

```

915         set_opt(opts.s_mount_opt, POSIX_ACL);
916 #endif
917
918     if (le16_to_cpu(sbi->s_es->s_errors) == EXT2_ERRORS_PANIC)
919         set_opt(opts.s_mount_opt, ERRORS_PANIC);
920     else if (le16_to_cpu(sbi->s_es->s_errors) == EXT2_ERRORS_CONTINUE)
921         set_opt(opts.s_mount_opt, ERRORS_CONT);
922     else
923         set_opt(opts.s_mount_opt, ERRORS_RO);
924
925     opts.s_resuid = make_kuid(&init_user_ns, le16_to_cpu(es->s_def_resuid));
926     opts.s_resgid = make_kgid(&init_user_ns, le16_to_cpu(es->s_def_resgid));
927
928     set_opt(opts.s_mount_opt, RESERVATION);
929     printk(KERN_ALERT "os_ext2 : Lee Changmin OS Lab3\n");
930     if (!parse_options((char *) data, sb, &opts))
931         goto failed_mount;
932
933     sbi->s_mount_opt = opts.s_mount_opt;
934     sbi->s_resuid = opts.s_resuid;
935     sbi->s_resgid = opts.s_resgid;
936
937     sb->s_flags = (sb->s_flags & ~SB_POSIXACL) |
938         ((EXT2_SB(sb)->s_mount_opt & EXT2_MOUNT_POSIX_ACL) ?
939          SB_POSIXACL : 0);
940     sb->s_iflags |= SB_I_CGROUPWB;
941
942     if (le32_to_cpu(es->s_rev_level) == EXT2_GOOD_OLD_REV &&
943         (EXT2_HAS_COMPAT_FEATURE(sb, ~0U) ||
944          EXT2_HAS_RO_COMPAT_FEATURE(sb, ~0U) ||
945          EXT2_HAS_TNCOMPAT_FEATURE(ch ..aiii))

```

```

        set_opt(opts.s_mount_opt, ERRORS_KO);

opts.s_resuid = make_kuid(&init_user_ns, le16_to_cpu(es->s_def_resuid)
opts.s_resgid = make_kgid(&init_user_ns, le16_to_cpu(es->s_def_resgid)

set_opt(opts.s_mount_opt, RESERVATION);
printk("os_ext2 : Lee Changmin OS Lab3 - 1\n");
if (!parse_options((char *) data, sb, &opts))
    goto failed_mount;

sbi->s_mount_opt = opts.s_mount_opt;
sbi->s_resuid = opts.s_resuid;
sbi->s_resgid = opts.s_resgid;

sb->s_flags = (sb->s_flags & ~SB_POSIXACL) |
    ((EXT2_SB(sb)->s_mount_opt & EXT2_MOUNT_POSIX_ACL) ?
     SB_POSIXACL : 0);
sb->s_iflags |= SB_I_CGROUPWB;

if (le32_to_cpu(es->s_rev_level) == EXT2_GOOD_OLD_REV &&
    (EXT2_HAS_COMPAT_FEATURE(sb, ~0U) ||
     EXT2_HAS_RO_COMPAT_FEATURE(sb, ~0U)) ||

```

```

root@ubuntu: /home/changmin/Desktop/lab3_filesystem
Creating filesystem with 131072 4k blocks and 32768 inodes
Filesystem UUID: 45fa7288-08e6-419b-8b07-811971d2a23c
Superblock backups stored on blocks:
      32768, 98304

Allocating group tables: done
Writing inode tables: done
Writing superblocks and filesystem accounting information: done

root@ubuntu:/home/changmin/Desktop/lab3_filesystem# mount -t os_ext2 /dev/ramdisk ./mnt
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg | grep os_ext2
[ 242.664177] os_ext2: loading out-of-tree module taints kernel.
[ 242.664257] os_ext2: module verification failed: signature and/or required key missing - tainting kernel
[ 337.273982] //os_ext2 : Your Name OS Lab3
[ 337.274046] os_ext2 : Lee Changmin OS Lab3
[ 1123.862372] //os_ext2 : Your Name OS Lab3
[ 1123.862438] os_ext2 : Lee Changmin OS Lab3
[ 1214.373038] os_ext2 : Lee Changmin OS Lab3
[ 1374.049958] os_ext2 : Lee Changmin OS Lab3
[ 1421.717426] os_ext2 : Lee Changmin OS Lab3
[ 1570.618858] os_ext2 : Lee Changmin OS Lab3 - 1
root@ubuntu:/home/changmin/Desktop/lab3_filesystem#

```

여기면 mount 시,  
=> /var/log/dmesg.out 파일 추가  
기록되는 것을 알 수 있음

```
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# cat /proc/sys/kernel/printk  
4 4 1 7
```

Console log level

Default message log level

Minimum console log level

Default console log level

로그레벨	명령어	의미
"<0>"	KERN_EMERG	시스템이 동작하지 않는다.
"<1>"	KERN_ALERT	항상 출력
"<2>"	KERN_CRIT	치명적인 정보
"<3>"	KERN_ERR	오류 정보
"<4>"	KERN_WARNING	경고 정보
"<5>"	KERN_NOTICE	정상적인 정보
"<6>"	KERN_INFO	시스템 정보
"<7>"	KERN_DEBUG	디버깅 정보

printf를 minimum에 맞추어 KERN\_ALERT로 설정함

But, printf는 커널 로그를 출력.

모든 메세지 삭제 후 새롭게  
... 111

```
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg -c way to do
[    0.000000] Linux version 5.4.0-33-generic (buildd@lcy01-amd64-022) (gcc version 9.
37-Ubuntu SMP Thu May 21 12:53:59 UTC 2020 (Ubuntu 5.4.0-33.37-generic 5.4.34)
[    0.000000] Command line: BOOT_IMAGE=/boot/vmlinuz-5.4.0-33-generic root=UUID=f7652
ro find_preseed=/preseed.cfg auto noprompt priority=critical locale=en_US quiet
[    0.000000] KERNEL supported cpus:
[    0.000000]   Intel GenuineIntel
[    0.000000]   AMD AuthenticAMD
[    0.000000]   Hygon HygonGenuine
[    0.000000]   Centaur CentaurHauls
[    0.000000]   zhaoxin Shanghai
[    0.000000] Disabled fast string operations
[    0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[    0.000000] x86/fpu: Supporting XSAVF feature 0x002: 'SSE registers'
```

메세지를 지워 보이지 않음

```
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg | grep os_ext2
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# umount /dev/ramdisk
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# mount -t os_ext2 /dev/ramdisk ./mnt
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# dmesg | grep os_ext2
[ 2072.406856] os_ext2 : Lee Changmin OS Lab3 - 1
root@ubuntu:/home/changmin/Desktop/lab3_filesystem# →다시한번 mount 후 메세지가 표기되어 보임,
```