Create Ubuntu System & Image for EFI32 BIOS via QEMU

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1, Thoughts

In sometimes, we need boot ubuntu system on a native UEFI 32-bit BIOS machine, **but all existing OS including window/linux only provides EFI64-bit ISO image**, the only exception is apple Mac OS. So it almost impossible to install any OS on a pure native UEFI 32-bit BIOS based system.

This document introduces how to make that image based on Qemu environment. The core idea is:

- Create a raw qemu image and use GPT as its partition

- Install ubuntu 12.04 server i386 in qemu legacy BIOS mode.

- Install grub-efi32 in installed ubuntu system.

- Build OVMF 32bit UEFI BIOS image

- Boot qemu via OVMF 32bit BIOS image

2, Prerequisite

- Ubuntu 12.04 server iso in i386 arch downloaded from
  http://releases.ubuntu.com/precise/ubuntu-12.04.3-server-i386.iso
- Ubuntu develop machine
    - Install GCC4.6 as default compiler
    - Install qemu by "sudo apt-get install qemu"
    - Install iasl by "sudo apt-get install iasl"
    - Install build tools by "sudo apt-get install build-essential bison flex uuid-dev"

3, Steps

3.1 Create RAW GPT image and partitions
- Create a 2G RAW image file
> *"qemu-img create -f raw gpt.raw 2G"*
- Create GPT partition table in disk:
> *"sudo parted gpt.raw mklabel gpt"*
- Create BiosGrub partition in disk, **since legacy boot need this partition in a GPT disk (MBR no need)**.
> *"sudo parted gpt.raw mkpart primary fat32 0% 100M"*
- Create ESP(EFI System Partition), since UEFI boot need this partition for bootia32.efi file
> *"sudo parted gpt.raw mkpart primary fat32 100M 200M"*
> *"sudo parted gpt.raw mkfs 2 fat32"*
- Create rootfs
> *"sudo parted gpt.raw mkpart primary ext2 200M 75%"*
> *"sudo parted gpt.raw mkfs 3 ext2"*
- Create swap partition
> *"sudo parted gpt.raw mkpart primary linux-swap 75% 100%"*
> *"sudo parted gpt.raw mkfs 4 linux-swap"*

3.2 Install ubuntu server i386 via Qemu on Default Legacy BIOS
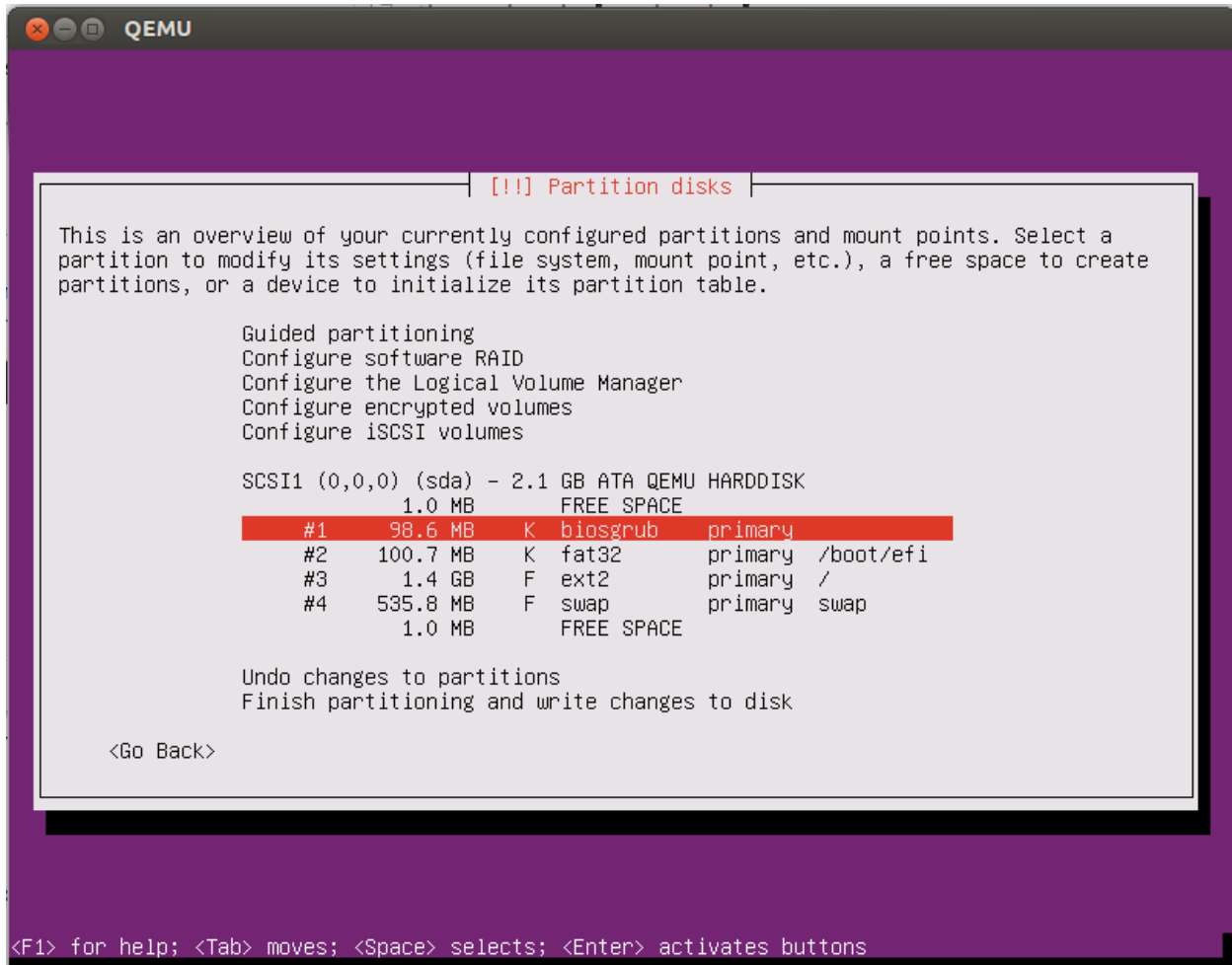After above image created, now install ubuntu server i386 on GPT disk by following command:
> *"qemu-system-i386 -hda gpt.raw -m 1024 -cdrom ubuntu-12.04.3-server-i386.iso -serial file:log_ia32.txt -boot d"*

Note:
- By default, the BIOS used by qemu is legacy BIOS. Because the
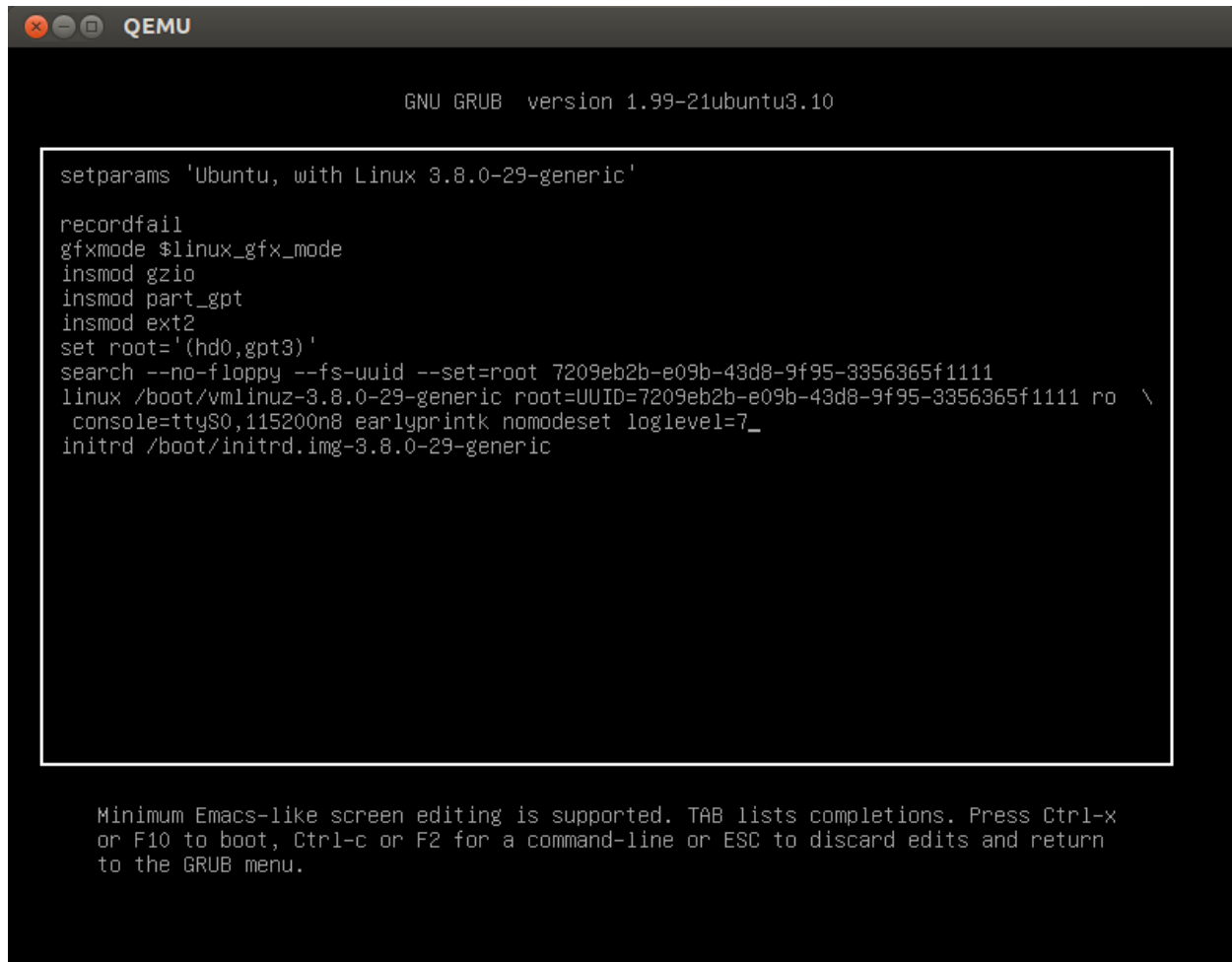
ubuntu-12.04.3-server-i386 only support legacy boot.
- "-boot d" means boot from cdrom.
- When installing,
  - Set the partition 1 as "biosgrub" type.
  - Mount the partition 2 to /boot/efi.

```
⊗⊖⊡  QEMU

                    ┤ [!!] Partition disks ├

 This is an overview of your currently configured partitions and mount points. Select a
 partition to modify its settings (file system, mount point, etc.), a free space to create
 partitions, or a device to initialize its partition table.

              Guided partitioning
              Configure software RAID
              Configure the Logical Volume Manager
              Configure encrypted volumes
              Configure iSCSI volumes

              SCSI1 (0,0,0) (sda) - 2.1 GB ATA QEMU HARDDISK
                      1.0 MB     FREE SPACE
                #1   98.6 MB   K  biosgrub    primary
                #2  100.7 MB   K  fat32       primary  /boot/efi
                #3    1.4 GB   F  ext2        primary  /
                #4  535.8 MB   F  swap        primary  swap
                      1.0 MB     FREE SPACE

              Undo changes to partitions
              Finish partitioning and write changes to disk

      <Go Back>

 <F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

After installation, booting into ubuntu i386 server still via legacy boot:
- Remove "-boot d" from qemu startup script. So system would boot via hard disk instead of CDRom.
- Press "e" in grub menu
- Add boot parameters "console=ttyS0,115200n2 earlyprintk nomodeset loglevel=7"
- Press F10 to continue boot

Note, you can see the whole boot log by "tail -f log_ia32.txt", which is specified by above qemu start up command.

```
GNU GRUB  version 1.99-21ubuntu3.10

setparams 'Ubuntu, with Linux 3.8.0-29-generic'

recordfail
gfxmode $linux_gfx_mode
insmod gzio
insmod part_gpt
insmod ext2
set root='(hd0,gpt3)'
search --no-floppy --fs-uuid --set=root 7209eb2b-e09b-43d8-9f95-3356365f1111
linux /boot/vmlinuz-3.8.0-29-generic root=UUID=7209eb2b-e09b-43d8-9f95-3356365f1111 ro  \
 console=ttyS0,115200n8 earlyprintk nomodeset loglevel=7_
initrd /boot/initrd.img-3.8.0-29-generic




   Minimum Emacs-like screen editing is supported. TAB lists completions. Press Ctrl-x
   or F10 to boot, Ctrl-c or F2 for a command-line or ESC to discard edits and return
   to the GRUB menu.
```

After first boot into ubuntu via legacy BIOS, then:
- Add above additional boot parameter into grub:
  - vim /etc/default/grub
  - add "console=ttyS0,115200n8 earlyprintk nomodeset loglevel=7" in GRUB_CMDLINE_LINUX_DEFAULT macro.
  - sudo update-grub

-

3.3 Build UEFI 32bit BIOS for QEMU
- Get the Source code from https://github.com/tianocore/edk2 by following GIT command:
  - *"git clone https://github.com/tianocore/edk2.git"*
- Build edk2 Linux Tool:
  - *cd <edk2>*
  - *source edksetup.sh*
  - *cd <edk2>/BaseTools*
  - *make*

- Build IA32 BIOS:
  - *cd <edk2>*
  - *source edksetup.sh*
  - *build -p OvmfPkg/OvmfPkgIa32.dsc -D DEBUG_ON_SERIAL_PORT -b DEBUG -a IA32 -t GCC46*

  Note:
    - DEBUG_ON_SERIAL_PORT macro is used to output the BIOS debug info to serial file, so you can get log file on qemu via "-serial file:log.txt"
- Get OVMF.fd file at <edk2>/Build/OvmfIa32/DEBUG_GCC46/FV/OVMF.fd
- Test the new EFI IA32 BIOS image in qemu:

  "qemu-system-i386 -bios <edk2>/Build/OvmfIa32/DEBUG_GCC46/FV/OVMF.fd" -serial file:uefi_log.txt"

  see the UEFI BIOS output by "tail -f uefi_log.txt"

3.4 Convert ubuntu boot from legacy BIOS to UEFI 32bit BIOS

- Refer 3.2, Boot ubuntu via Legacy BIOS first
- In ubuntu terminal, install "grub-efi-ia32" package by

  "sudo apt-get install grub-efi-ia32"

- Then, install grub-efi to /dev/sda disk by:

  "sudo grub-install /dev/sda"

  Note:
  - the grub.efi and grub.cfg will be installed into the second partition ESP(EFI System Partition) which has been mounted into /boot/efi node.
  - By default, ubuntu will *not* create efi/boot/bootia32.efi file, but only create efi/ubuntu/ folder for grubia32.efi and boot.efi. Then use set variable to save them as default boot loader. But now the action of saving variable will be falied, because current OS is not EFI system.

- Turn off qemu and restart qemu in UEFI mode via following command line:
  "qemu-system-i386 -bios <edk2>/Build/OvmfIa32/DEBUG_GCC46/FV/OVMF.fd -serial file:uefi_log.txt -hda gpt.raw"
  Note:
  - Use OVMF binaries built from above 3.3
  - Use gpt.raw system image from above 3.2

- After reboot, you may find system can not boot ubuntu, but jump into EFI shell like below
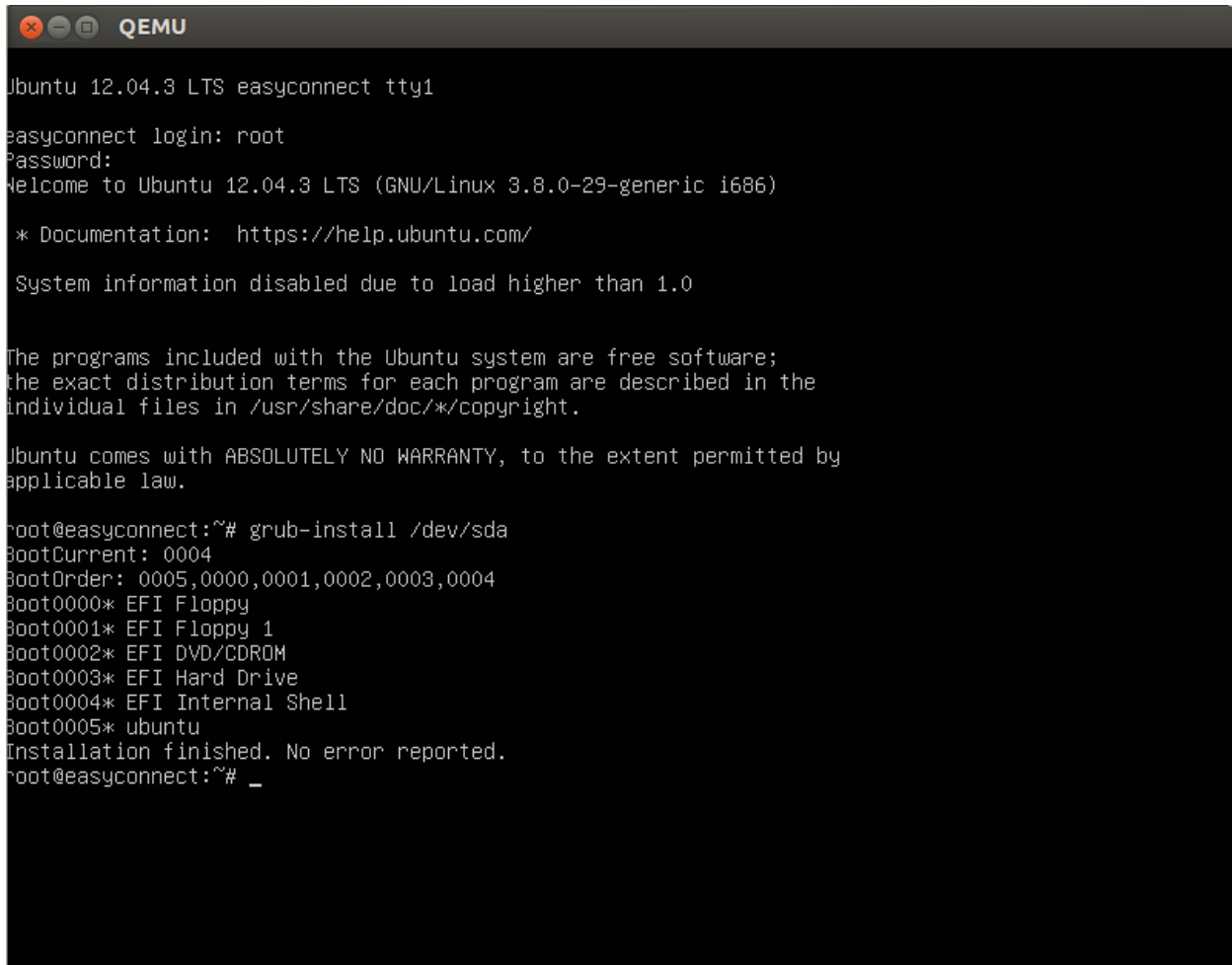
The reason is:
- In above step of "grub-install /dev/sda", ubuntu will not create default EFI boot file like "efi/boot/bootia32.efi", but only create efi/ubuntu/grubia32.efi" file. So EFI BIOS can not find the default boot file for continuing boot.
- Also in previous steps, ubuntu can not save EFI boot option via runtime variable service, because original boot environment is legacy boot but not EFI boot.

The solution is:
- In EFI shell, for fs0: disk:
        - Create EFI/boot folder
        - type "cp fs0:\efi\ubuntu\grubia32.efi fs0:\efi\boot\bootia32.efi

- After reboot, system can boot into original ubuntu server via EFI 32 OVMF bios now~~~~
- After boot, you can run "grub-install /dev/sda" again to save boot variable "ubuntu" into UEFI BIOS variable for future default boot as follows:

```
Ubuntu 12.04.3 LTS easyconnect tty1

easyconnect login: root
Password:
Welcome to Ubuntu 12.04.3 LTS (GNU/Linux 3.8.0-29-generic i686)

 * Documentation:  https://help.ubuntu.com/

 System information disabled due to load higher than 1.0


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@easyconnect:~# grub-install /dev/sda
BootCurrent: 0004
BootOrder: 0005,0000,0001,0002,0003,0004
Boot0000* EFI Floppy
Boot0001* EFI Floppy 1
Boot0002* EFI DVD/CDROM
Boot0003* EFI Hard Drive
Boot0004* EFI Internal Shell
Boot0005* ubuntu
Installation finished. No error reported.
root@easyconnect:~# _
```

3.5 Create bootable USB device

Now we can create bootable USB device from the gpt.img with ubuntu system now.

- Plug the USB disk in your work machine

  "sudo dd if=gpt.raw of=/dev/sdb"

- Verify the USB disk by qemu:

  "qemu-system-i386 -bios <edk2>/Build/OvmfIa32/DEBUG_GCC46/FV/OVMF.fd -serial file:uefi_log.txt -hda /dev/sdb"

3.6 Full Debug Output from BIOS to Ubuntu

Because the built-out EFI 32 BIOS and Linux all redirect debug output to serial, and qemu launcher command will redirect the serial to uefi_log.txt, so you can get full debug log from BIOS

to OS as below:

```
SecCoreStartupWithStack(0xFFFCC000, 0x80000)
File->Type: 0xB
Section->Type: 0x2
Section->Type: 0x19
Section->Type (0x19) != SectionType (0x17)
Section->Type: 0x17
File->Type: 0x2
File->Type (0x2) != FileType (0x4)
File->Type: 0xF0
File->Type (0xF0) != FileType (0x4)
File->Type: 0x4
Section->Type: 0x19
Section->Type (0x19) != SectionType (0x10)
Section->Type: 0x10
Register PPI Notify: DCD0BE23-9586-40F4-B643-06522CED4EDE
Install PPI: 8C8CE578-8A3D-4F1C-9935-896185C32DD3
Install PPI: 5473C07A-3DCB-4DCA-BD6F-1E9689E7349A
The 0th FV start address is 0x00000800000, size is 0x00800000, handle is 0x0
Register PPI Notify: 49EDB1C1-BF21-4761-BB12-EB0031AABB39
Register PPI Notify: EA7CA24B-DED5-4DAD-A389-BF827E8F9B38
Install PPI: B9E0ABFE-5979-4914-977F-6DEE78C278A6
Install PPI: DBE23AA9-A345-4B97-85B6-B226F1617389
Loading PEIM at 0x0000080CC80 EntryPoint=0x0000080CEC0 PcdPeim.efi
Install PPI: 06E81C58-4AD7-44BC-8390-F10265F72480
Install PPI: 01F34D25-4DE2-23AD-3FF3-36353FF323F1
Loading PEIM at 0x00000811D20 EntryPoint=0x00000811F60 StatusCodePei.efi
Install PPI: 229832D3-7A30-4B36-B827-F40CB7D45436
Loading PEIM at 0x00000815320 EntryPoint=0x00000815560 PlatformPei.efi
Platform PEIM Loaded
CMOS:
00: 01 00 08 00 08 00 07 23 11 13 26 02 00 80 00 00
10: 40 00 F0 00 07 80 02 FF FF 2F 00 41 10 10 FF FF
20: C8 41 10 3F 00 00 00 00 00 00 00 00 00 00 00 00
30: FF FF 20 00 00 3F 00 20 30 02 00 00 00 12 00 00
40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
MemDetect called
PeiInstallPeiMemory MemoryBegin 0x3C000000, MemoryLength 0x4000000
Reserved variable store memory: 0x3FFD0000; size: 128kb
Platform PEI Firmware Volume Initialization
Firmware Volume HOB: 0x800000 0x800000
Install PPI: 7408D748-FC8C-4EE6-9288-C4BEC092A410
Temp Stack : BaseAddress=0x78000 Length=0x8000
Temp Heap  : BaseAddress=0x70000 Length=0x7B8
Total temporary memory:     65536 bytes.
  temporary memory stack ever used: 32768 bytes.
  temporary memory heap used:        1976 bytes.
Old Stack size 32768, New stack size 131072
Heap Offset = 0x0 Stack Offset = 0x3BFA0000
Stack Hob: BaseAddress=0x3C000000 Length=0x20000
TemporaryRamMigration(0x70000, 0x3C018000, 0x10000)
Loading PEIM at 0x0003FFC2000 EntryPoint=0x0003FFC2240 PeiCore.efi
Reinstall PPI: 8C8CE578-8A3D-4F1C-9935-896185C32DD3
Reinstall PPI: 5473C07A-3DCB-4DCA-BD6F-1E9689E7349A
Reinstall PPI: B9E0ABFE-5979-4914-977F-6DEE78C278A6
Install PPI: F894643D-C449-42D1-8EA8-85BDD8C65BDE
Loading PEIM at 0x0003FFBB000 EntryPoint=0x0003FFBB240 DxeIpl.efi
Install PPI: 0AE8CE5D-E448-4437-A8D7-EBF5F194F731
Install PPI: 1A36E4E7-FAB6-476A-8E75-695A0576FDD7
Install PPI: EA7CA24B-DED5-4DAD-A389-BF827E8F9B38
Notify: PPI Guid: EA7CA24B-DED5-4DAD-A389-BF827E8F9B38, Peim notify entry point: 8033A2
The 1th FV start address is 0x0003FC8A000, size is 0x00330000, handle is 0x3FC8A000
```

```
DXE IPL Entry
Loading PEIM at 0x0003FC6A000 EntryPoint=0x0003FC6A240 DxeCore.efi
Loading DXE CORE at 0x0003FC6A000 EntryPoint=0x0003FC6A240
Install PPI: 605EA650-C65C-42E1-BA80-91A52AB618C6
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FC81920
HOBLIST address in DXE = 0x3FA62010
Memory Allocation 0x00000006 0x3FFD0000 - 0x3FFFFFFF
Memory Allocation 0x00000004 0x800000 - 0xFFFFFF
Memory Allocation 0x00000004 0x3FC4A000 - 0x3FC69FFF
Memory Allocation 0x00000004 0x3FFCF000 - 0x3FFCFFFF
Memory Allocation 0x00000004 0x3FFC2000 - 0x3FFCEFFF
Memory Allocation 0x00000004 0x3FFBB000 - 0x3FFC1FFF
Memory Allocation 0x00000004 0x3FC89000 - 0x3FFBAFFF
Memory Allocation 0x00000004 0x3FC6A000 - 0x3FC88FFF
Memory Allocation 0x00000003 0x3FC6A000 - 0x3FC88FFF
Memory Allocation 0x00000004 0x3FC4A000 - 0x3FC69FFF
Memory Allocation 0x00000004 0x3C000000 - 0x3C01FFFF
FV Hob            0x800000 - 0xFFFFFF
FV Hob            0x3FC8A000 - 0x3FFB9FFF
FV2 Hob           0x3FC8A000 - 0x3FFB9FFF
InstallProtocolInterface: D8117CFE-94A6-11D4-9A3A-0090273FC14D 3FC810F0
InstallProtocolInterface: 8F644FA9-E850-4DB1-9CE2-0B44698E8DA4 3FA5E49C
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FA5E410
InstallProtocolInterface: 8F644FA9-E850-4DB1-9CE2-0B44698E8DA4 3FA5E11C
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FA5E090
InstallProtocolInterface: 220E73B6-6BDB-4413-8405-B974B108619A 3FA5BC9C
InstallProtocolInterface: 220E73B6-6BDB-4413-8405-B974B108619A 3FA5B51C
InstallProtocolInterface: EE4E5898-3914-4259-9D6E-DC7BD79403CF 3FC81540
Loading driver 9B680FCE-AD6B-4F3A-B60B-F59899003443
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63C28
Loading driver at 0x0003FBDB000 EntryPoint=0x0003FBDB273 DevicePathDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9FBB10
InstallProtocolInterface: 0379BE4E-D706-437D-B037-EDB82FB772A4 3FBE1620
InstallProtocolInterface: 8B843E20-8132-4852-90CC-551A4E4A7F1C 3FBE1618
InstallProtocolInterface: 05C99A21-C70F-4AD2-8A5F-35DF3343F51E 3FBE1610
Loading driver 80CF7257-87AB-47F9-A3FE-D50B76D89541
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63AA8
Loading driver at 0x0003FBD4000 EntryPoint=0x0003FBD4273 PcdDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9FB310
InstallProtocolInterface: 11B34006-D85B-4D0A-A290-D5A571310EF7 3FBD87B8
InstallProtocolInterface: 13A3F0F6-264A-3EF0-F2E0-DEC512342F34 3FBD8770
Loading driver 733CBAC2-B23F-4B92-BC8E-FB01CE5907B7
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63928
Loading driver at 0x0003FC0F000 EntryPoint=0x0003FC0F273 FvbServicesRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9FAB90
QEMU Flash: Attempting flash detection at FFE00010
QemuFlashDetected => FD behaves as FLASH
QemuFlashDetected => Yes
Installing QEMU flash FVB
InstallProtocolInterface: 8F644FA9-E850-4DB1-9CE2-0B44698E8DA4 3FC38D1C
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3F9FA990
Loading driver FEDE0A1B-BCA2-4A9F-BB2B-D9FD7DEC2E9F
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA637A8
Loading driver at 0x0003FC09000 EntryPoint=0x0003FC09273 StatusCodeRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9FA390
InstallProtocolInterface: D2B2B828-0826-48A7-B3DF-983C006024F0 3FC0CA44
Loading driver B601F8C4-43B7-4784-95B1-F4226CB40CEE
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63628
Loading driver at 0x0003FC04000 EntryPoint=0x0003FC04273 RuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9D1E10
InstallProtocolInterface: B7DFB4E1-052F-449F-87BE-9818FC91B733 3FC06980
Loading driver F80697E9-7FD6-4665-8646-88E33EF71DFC
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA634A8
Loading driver at 0x0003FBD0000 EntryPoint=0x0003FBD0273 SecurityStubDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9D1910
InstallProtocolInterface: 94AB2F58-1438-4EF1-9152-18941A3A0E68 3FBD2574
```

```
InstallProtocolInterface: A46423E3-4617-49F1-B9FF-D1BFA9115839 3FBD2578
Loading driver 13AC6DD0-73D0-11D4-B06B-00AA00BD6DE7
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63328
Loading driver at 0x0003FBC9000 EntryPoint=0x0003FBC9273 EbcDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9D1390
InstallProtocolInterface: 13AC6DD1-73D0-11D4-B06B-00AA00BD6DE7 3F9D1190
InstallProtocolInterface: 2755590C-6F3C-42FA-9EA4-A3BA543CDA25 3F9D1010
InstallProtocolInterface: AAEACCFD-F27B-4C17-B610-75CA1F2DFB52 3F9D0E90
Loading driver 79CA4208-BBA1-4A9A-8456-E1E66A81484E
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA631A8
Loading driver at 0x0003FBC6000 EntryPoint=0x0003FBC6273 Legacy8259.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9D0A90
InstallProtocolInterface: 38321DBA-4FE0-4E17-8AEC-413055EAEDC1 3FBC7DB8
Loading driver A19B1FE7-C1BC-49F8-875F-54A5D542443F
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3FA63028
Loading driver at 0x0003FBC2000 EntryPoint=0x0003FBC2273 CpuIo2Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9D0510
InstallProtocolInterface: AD61F191-AE5F-4C0E-B9FA-E869D288C64F 3FBC4124
Loading driver 1A1E4886-9517-440E-9FDE-3BE44CEE2136
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CFDA8
Loading driver at 0x0003FBB9000 EntryPoint=0x0003FBB9273 CpuDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9CEF90
InstallProtocolInterface: 26BACCB1-6F42-11D4-BCE7-0080C73C8881 3FBBEF98
Loading driver 6F0198AA-1F1D-426D-AE3E-39AB633FCC28
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CFC28
Loading driver at 0x0003FC00000 EntryPoint=0x0003FC00273 KbcReset.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9CEA90
InstallProtocolInterface: 27CFAC88-46CC-11D4-9A38-0090273FC14D 0
Loading driver C8339973-A563-4561-B858-D8476F9DEFC4
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CFAA8
Loading driver at 0x0003FBB6000 EntryPoint=0x0003FBB6273 Metronome.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9CE590
InstallProtocolInterface: 26BACCB2-6F42-11D4-BCE7-0080C73C8881 3FBB7F8C
Loading driver 22DC2B60-FE40-42AC-B01F-3AB1FAD9AAD8
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF928
Loading driver at 0x0003FBFB000 EntryPoint=0x0003FBFB273 EmuVariableFvbRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9CE090
EMU Variable FVB Started
Disabling EMU Variable FVB since flash variables appear to be supported.
Error: Image at 0003FBFB000 start failed: Aborted
Loading driver FE5CEA76-4F72-49E8-986F-2CD899DFFE5D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF928
Loading driver at 0x0003FBAF000 EntryPoint=0x0003FBAF273 FaultTolerantWriteDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9CE110
Ftw: Remaining work space size - FE0
InstallProtocolInterface: 3EBD9E82-2C78-4DE6-9786-8D4BFCB7C881 3F9A5018
Loading driver CBD2E4D5-7068-4FF5-B462-9822B4AD8D60
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF7A8
Loading driver at 0x0003FBF6000 EntryPoint=0x0003FBF6273 VariableRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9BCA90
InstallProtocolInterface: CD3D0A05-9E24-437C-A891-1EE053DB7638 3FBFCC74
InstallProtocolInterface: 1E5668E2-8481-11D4-BCF1-0080C73C8881 0
InstallProtocolInterface: 6441F818-6362-4E44-B570-7DBA31DD2453 0
Loading driver 79E4A61C-ED73-4312-94FE-E3E7563362A9
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF628
Loading driver at 0x0003FBAC000 EntryPoint=0x0003FBAC273 PrintDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9BC310
InstallProtocolInterface: F05976EF-83F1-4F3D-8619-F7595D41E538 3FBADDE8
Loading driver 348C4D62-BFBD-4882-9ECE-C80BB1C4783B
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF4A8
Loading driver at 0x0003FB97000 EntryPoint=0x0003FB97273 HiiDatabase.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9A4D90
InstallProtocolInterface: E9CA4775-8657-47FC-97E7-7ED65A084324 3FBA8AE0
InstallProtocolInterface: 0FD96974-23AA-4CDC-B9CB-98D17750322A 3FBA8B04
InstallProtocolInterface: EF9FC172-A1B2-4693-B327-6D32FC416042 3FBA8B18
InstallProtocolInterface: 587E72D7-CC50-4F79-8209-CA291FC1A10F 3FBA8B44
```

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InstallProtocolInterface: 31A6406A-6BDF-4E46-B2A2-EBAA89C40920 3FBA8AF0
Loading driver 96B5C032-DF4C-4B6E-8232-438DCF448D0E
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF328
Loading driver at 0x0003FB93000 EntryPoint=0x0003FB93273 NullMemoryTestDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F9A4410
InstallProtocolInterface: 309DE7F1-7F5E-4ACE-B49C-531BE5AA95EF 3FB94F48
Loading driver F9D88642-0737-49BC-81B5-6889CD57D9EA
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF1A8
Loading driver at 0x0003FB8E000 EntryPoint=0x0003FB8E273 SmbiosDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F982E90
InstallProtocolInterface: 03583FF6-CB36-4940-947E-B9B39F4AFAF7 3FB91144
Loading driver 9622E42C-8E38-4A08-9E8F-54F784652F6B
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9CF028
Loading driver at 0x0003FB85000 EntryPoint=0x0003FB85273 AcpiTableDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F982910
InstallProtocolInterface: FFE06BDD-6107-46A6-7BB2-5A9C7EC5275C 3F981F58
Loading driver A210F973-229D-4F4D-AA37-9895E6C9EABA
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980DA8
Loading driver at 0x0003FB81000 EntryPoint=0x0003FB81273 DpcDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F982390
InstallProtocolInterface: 480F8AE9-0C46-4AA9-BC89-DB9FBA619806 3FB82E78
Loading driver F2765DEC-6B41-11D5-8E71-00902707B35E
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980C28
Loading driver at 0x0003FB7E000 EntryPoint=0x0003FB7E273 Timer.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95FE10
InstallProtocolInterface: 26BACCB3-6F42-11D4-BCE7-0080C73C8881 3FB7FE60
Loading driver 2383608E-C6D0-4E3E-858D-45DFAC3543D5
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980AA8
Loading driver at 0x0003FB77000 EntryPoint=0x0003FB77273 PciHostBridge.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95F910
InstallProtocolInterface: CF8034BE-6768-4D8B-B739-7CCE683A9FBE 3F95F728
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FB7BA88
InstallProtocolInterface: 2F707EBB-4A1A-11D4-9A38-0090273FC14D 3FA5CD64
Loading driver 378D7B65-8DA9-4773-B6E4-A47826A833E1
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980928
Loading driver at 0x0003FBF0000 EntryPoint=0x0003FBF0273 PcRtc.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95F010
InstallProtocolInterface: 27CFAC87-46CC-11D4-9A38-0090273FC14D 0
Loading driver AD608272-D07F-4964-801E-7BD3B7888652
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9807A8
Loading driver at 0x0003FBEC000 EntryPoint=0x0003FBEC273 MonotonicCounterRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95EB10
InstallProtocolInterface: 1DA97072-BDDC-4B30-99F1-72A0B56FFF2A 0
Loading driver 42857F0A-13F2-4B21-8A23-53D3F714B840
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980628
Loading driver at 0x0003FBE8000 EntryPoint=0x0003FBE8273 CapsuleRuntimeDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95E610
InstallProtocolInterface: 5053697E-2CBC-4819-90D9-0580DEEE5754 0
Loading driver FC5C7020-1A48-4198-9BE2-EAD5ABC8CF2F
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9804A8
Loading driver at 0x0003FB4A000 EntryPoint=0x0003FB4A273 BdsDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95E090
Select Item: 0x0
FW CFG Signature: 0x554D4551
Select Item: 0x1
FW CFG Revision: 0x1
QemuFwCfg interface is supported.
InstallProtocolInterface: 665E3FF6-46CC-11D4-9A38-0090273FC14D 3FB6CA60
Loading driver EBF342FE-B1D3-4EF8-957C-8048606FF671
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F9801A8
Loading driver at 0x0003FB34000 EntryPoint=0x0003FB34273 SetupBrowser.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F95D810
InstallProtocolInterface: B9D4C360-BCFB-4F9B-9298-53C136982258 3FB45D3C
InstallProtocolInterface: A770C357-B693-4E6D-A6CF-D21C728E550B 3FB45D54
InstallProtocolInterface: 1F73B18D-4630-43C1-A1DE-6F80855D7DA4 3FB45D44
Loading driver 4110465D-5FF3-4F4B-B580-24ED0D06747A
```

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InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F980028
Loading driver at 0x0003FB30000 EntryPoint=0x0003FB30273 SmbiosPlatformDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F907F10
Loading driver 49970331-E3FA-4637-9ABC-3B7868676970
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89DDA8
Loading driver at 0x0003FB2B000 EntryPoint=0x0003FB2B273 AcpiPlatform.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F907B10
Select Item: 0x0
FW CFG Signature: 0x554D4551
Select Item: 0x1
FW CFG Revision: 0x1
QemuFwCfg interface is supported.
Select Item: 0x5
Select Item: 0x19
Select Item: 0x22
ACPI S3 value: 1
ACPI S4 value: 2
ACPI PciWindow32: Base=0x40000000 End=0xFEEFFFFF Length=0xBEF00000
ACPI PciWindow64: Base=0x00000000 End=0x00000000 Length=0x00000000
Loading driver F099D67F-71AE-4C36-B2A3-DCEB0EB2B7D8
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89DC28
Loading driver at 0x0003FB28000 EntryPoint=0x0003FB28273 WatchdogTimer.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F907290
InstallProtocolInterface: 665E3FF5-46CC-11D4-9A38-0090273FC14D 3FB29E08
Loading driver E660EA85-058E-4B55-A54B-F02F83A24707
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89DAA8
Loading driver at 0x0003FB17000 EntryPoint=0x0003FB17273 DisplayEngine.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F86AD10
InstallProtocolInterface: 9BBE29E9-FDA1-41EC-AD52-452213742D2E 3FB245B4
Loading driver 93B80004-9FB3-11D4-9A3A-0090273FC14D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D928
Loading driver at 0x0003FB06000 EntryPoint=0x0003FB06273 PciBusDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F866D10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FB1433C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FB14480
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FB14474
InstallProtocolInterface: 19CB87AB-2CB9-4665-8360-DDCF6054F79D 3FB1431C
Loading driver 33CB97AF-6C33-4C42-986B-07581FA366D4
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D7A8
Loading driver at 0x0003FB02000 EntryPoint=0x0003FB02273 BlockMmioToBlockIoDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F866410
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FB0479C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FB04818
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FB0480C
Loading driver 11D92DFB-3CA9-4F93-BA2E-4780ED3E03B5
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D628
Loading driver at 0x0003FAFD000 EntryPoint=0x0003FAFD273 VirtioBlkDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F844F10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAFFF94
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAFFF50
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAFFFAC
Loading driver FAB5D4F4-83C0-4AAF-8480-442D11DF6CEA
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D4A8
Loading driver at 0x0003FAF8000 EntryPoint=0x0003FAF8273 VirtioScsiDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F844990
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAFB394
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAFB348
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAFB3AC
Loading driver 51CCF399-4FDF-4E55-A45B-E123F84D456A
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D328
Loading driver at 0x0003FAF3000 EntryPoint=0x0003FAF3273 ConPlatformDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F844410
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF5D90
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF5E18
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF5E0C
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF5D78
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InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF5E18
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF5E0C
Loading driver 408EDCEC-CF6D-477C-A5A8-B4844E3DE281
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3F89D1A8
Loading driver at 0x0003FAEA000 EntryPoint=0x0003FAEA273 ConSplitterDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F843B90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF04F0
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF09E8
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF09DC
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF04A8
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF09D0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF09C4
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF0490
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF09B8
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF09AC
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF04D8
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF09A0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF0994
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAF04C0
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAF0988
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAF097C
InstallProtocolInterface: 387477C1-69C7-11D2-8E39-00A0C969723B 3FAF0674
InstallProtocolInterface: DD9E7534-7762-4698-8C14-F58517A625AA 3FAF068C
InstallProtocolInterface: 31878C87-0B75-11D5-9A4F-0090273FC14D 3FAF06B8
InstallProtocolInterface: 8D59D32B-C655-4AE9-9B15-F25904992A43 3FAF06F4
InstallProtocolInterface: 387477C2-69C7-11D2-8E39-00A0C969723B 3FAF05B4
InstallProtocolInterface: 387477C2-69C7-11D2-8E39-00A0C969723B 3FAF0514
Loading driver CCCB0C28-4B24-11D5-9A5A-0090273FC14D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6C28
Loading driver at 0x0003FAE2000 EntryPoint=0x0003FAE2273 GraphicsConsoleDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3F841210
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAE5FC0
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAE6144
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAE6138
Loading driver 9E863906-A40F-4875-977F-5B93FF237FC6
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6AA8
Loading driver at 0x0003FAD9000 EntryPoint=0x0003FAD9273 TerminalDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC1A90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FADF654
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FADF70C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FADF700
Loading driver 6B38F7B4-AD98-40E9-9093-ACA2B5A253C4
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6928
Loading driver at 0x0003FAD3000 EntryPoint=0x0003FAD3273 DiskIoDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC1510
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAD7080
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAD70F0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAD70E4
Loading driver 1FA1F39E-FEFF-4AAE-BD7B-38A070A3B609
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC67A8
Loading driver at 0x0003FACC000 EntryPoint=0x0003FACC273 PartitionDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC5F90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAD0E14
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAD0E9C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAD0E90
Loading driver CD3BAFB6-50FB-4FE8-8E4E-AB74D2C1A600
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6628
Loading driver at 0x0003FAC8000 EntryPoint=0x0003FAC8273 EnglishDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC5A10
InstallProtocolInterface: 1D85CD7F-F43D-11D2-9A0C-0090273FC14D 3FAC9E14
InstallProtocolInterface: A4C751FC-23AE-4C3E-92E9-4964CF63F349 3FAC9DF8
Loading driver 0167CCC4-D0F7-4F21-A3EF-9E64B7CDCE8B
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC64A8
Loading driver at 0x0003FAC2000 EntryPoint=0x0003FAC2273 ScsiBus.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC5390
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAC5B20
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InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAC5B84
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAC5B78
Loading driver 0A66E322-3740-4CCE-AD62-BD172CECCA35
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6328
Loading driver at 0x0003FABA000 EntryPoint=0x0003FABA273 ScsiDisk.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC4E90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FABF92C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FABFA84
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FABFA78
Loading driver 69FD8E47-A161-4550-B01A-5594CEB2B2B2
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC61A8
Loading driver at 0x0003FAAE000 EntryPoint=0x0003FAAE273 IdeBusDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC4910
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAB7094
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAB7248
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAB723C
InstallProtocolInterface: 0784924F-E296-11D4-9A49-0090273FC14D 3FAB715C
InstallProtocolInterface: 4D330321-025F-4AAC-90D8-5ED900173B63 3FAB7154
Loading driver 99549F44-49BB-4820-B9D2-901329412D67
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC6028
Loading driver at 0x0003FAAA000 EntryPoint=0x0003FAAA273 IdeController.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC4190
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAAC364
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAAC414
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAAC408
Loading driver 38A0EC22-FBE7-4911-8BC1-176E0D6C1DBD
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2DA8
Loading driver at 0x0003FAA6000 EntryPoint=0x0003FAA6273 IsaAcpi.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC3C10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAA841C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAA8634
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAA8640
Loading driver 240612B5-A063-11D4-9A3A-0090273FC14D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2C28
Loading driver at 0x0003FAA0000 EntryPoint=0x0003FAA0273 IsaBusDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC3690
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FAA3A68
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FAA3AC8
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FAA3ABC
Loading driver 93B80003-9FB3-11D4-9A3A-0090273FC14D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2AA8
Loading driver at 0x0003FA99000 EntryPoint=0x0003FA99273 IsaSerialDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECC3110
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA9D8E0
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA9D9BC
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA9D9B0
Loading driver 3DC82376-637B-40A6-A8FC-A565417F2C38
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2928
Loading driver at 0x0003FA92000 EntryPoint=0x0003FA92273 Ps2KeyboardDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECBEB90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA96EF8
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA96FB0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA96FA4
Loading driver 0ABD8284-6DA3-4616-971A-83A5148067BA
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC27A8
Loading driver at 0x0003FA8B000 EntryPoint=0x0003FA8B273 IsaFloppyDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECBE610
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA8F880
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA8F964
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA8F958
Loading driver 961578FE-B6B7-44C3-AF35-6BC705CD2B1F
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2628
Loading driver at 0x0003FA86000 EntryPoint=0x0003FA86463
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3ECBE090
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA86364
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA8637C
```

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InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA86388
Loading driver A2F436EA-A127-4EF8-957C-8048606FF670
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC24A8
Loading driver at 0x0003FA7D000 EntryPoint=0x0003FA7D273 SnpDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC96B10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA83308
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA83924
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA83918
Loading driver 025BBFC7-E6A9-4B8B-82AD-6815A1AEAF4A
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2328
Loading driver at 0x0003FA71000 EntryPoint=0x0003FA71273 MnpDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC96590
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA79510
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA7A35C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA7A350
Loading driver E4F61863-FE2C-4B56-A8F4-08519BC439DF
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC21A8
Loading driver at 0x0003FA69000 EntryPoint=0x0003FA69273 VlanConfigDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC96010
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3FA6E78C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3FA6EC14
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3FA6EC08
Loading driver 529D3F93-E8E9-4E73-B1E1-BDF6A9D50113
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3ECC2028
Loading driver at 0x0003E84E000 EntryPoint=0x0003E84E273 ArpDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC95A90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E853578
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E85361C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E853610
Loading driver 94734718-0BBC-47FB-96A5-EE7A5AE6A2AD
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94DA8
Loading driver at 0x0003E842000 EntryPoint=0x0003E842273 Dhcp4Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC95510
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E84A18C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E84A730
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E84A724
Loading driver 26841BDE-920A-4E7A-9FBE-637F477143A6
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94C28
Loading driver at 0x0003E838000 EntryPoint=0x0003E838273 Ip4ConfigDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC93F90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E83E918
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E83ED0C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E83ED00
Loading driver 9FB1A1F3-3B71-4324-B39A-745CBB015FFF
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94AA8
Loading driver at 0x0003E81A000 EntryPoint=0x0003E81A273 Ip4Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC93A10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E8255CC
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E825CD0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E825CC4
Loading driver DC3641B8-2FA8-4ED3-BC1F-F9962A03454B
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94928
Loading driver at 0x0003E82D000 EntryPoint=0x0003E82D273 Mtftp4Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC93490
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E8348EC
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E8349BC
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E8349B0
Loading driver 6D6963AB-906D-4A65-A7CA-BD40E5D6AF4D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC947A8
Loading driver at 0x0003E7F4000 EntryPoint=0x0003E7F4273 Tcp4Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC92F10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E801890
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E802834
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E802828
Loading driver 6D6963AB-906D-4A65-A7CA-BD40E5D6AF2B
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94628
```

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Loading driver at 0x0003E80F000 EntryPoint=0x0003E80F273 Udp4Dxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC92990
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E81726C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E817350
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E817344
Loading driver 3B1DEAB5-C75D-442E-9238-8E2FFB62B0BB
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC944A8
Loading driver at 0x0003E7E9000 EntryPoint=0x0003E7E9273 UefiPxeBcDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC92410
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7F13F4
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7F1498
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7F148C
Loading driver 4579B72D-7EC4-4DD4-8486-083C86B182A7
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94328
Loading driver at 0x0003E7C5000 EntryPoint=0x0003E7C5273 IScsiDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC91E90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7D2D08
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7D2D8C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7D2D80
InstallProtocolInterface: 59324945-EC44-4C0D-B1CD-9DB139DF070C 3E7D3600
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E7D327C
InstallProtocolInterface: 330D4706-F2A0-4E4F-A369-B66FA8D54385 3EC91A18
Loading driver A92CDB4B-82F1-4E0B-A516-8A655D371524
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC941A8
Loading driver at 0x0003E809000 EntryPoint=0x0003E809273 VirtioNetDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC91010
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E80CF0C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E80CDFC
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E80CDF0
Loading driver 2FB92EFA-2EE0-4BAE-9EB6-7464125E1EF7
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC94028
Loading driver at 0x0003E7E0000 EntryPoint=0x0003E7E0273 UhciDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC90A90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7E613C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7E61D8
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7E61CC
Loading driver BDFE430E-8F2A-4DB0-9991-6F856594777E
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC8EDA8
Loading driver at 0x0003E7BB000 EntryPoint=0x0003E7BB273 EhciDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC90510
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7C2548
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7C319C
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7C3190
Loading driver 240612B7-A063-11D4-9A3A-0090273FC14D
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC8EC28
Loading driver at 0x0003E7B0000 EntryPoint=0x0003E7B0273 UsbBusDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC8DF90
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7B7680
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7B7BF0
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7B7BE4
Loading driver 2D2E62CF-9ECF-43B7-8219-94E7FC713DFE
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC8EAA8
Loading driver at 0x0003E7D8000 EntryPoint=0x0003E7D8273 UsbKbDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC8DA10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7DD4D4
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7DDED4
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7DDEC8
Loading driver 9FB4B4A7-42C0-4BCD-8540-9BCC6711F83E
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC8E928
Loading driver at 0x0003E7A9000 EntryPoint=0x0003E7A9273 UsbMassStorageDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC8D490
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7ADD1C
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7AE254
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7AE248
Loading driver E3752948-B9A1-4770-90C4-DF41C38986BE
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3EC8E7A8
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Loading driver at 0x0003E79E000 EntryPoint=0x0003E79E273 QemuVideoDxe.efi
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EC8CF10
InstallProtocolInterface: 18A031AB-B443-4D1A-A5C0-0C09261E9F71 3E7A27C8
InstallProtocolInterface: 107A772C-D5E1-11D4-9A46-0090273FC14D 3E7A2AA8
InstallProtocolInterface: 6A7A5CFF-E8D9-4F70-BADA-75AB3025CE14 3E7A2A9C
InstallProtocolInterface: 5C198761-16A8-4E69-972C-89D67954F81D 3E7A27E0
[BdsDxe] Locate Variable Lock protocol - Success
[Variable] Lock: 8BE4DF61-93CA-11D2-AA0D-00E098032B8C:PlatformLangCodes
[Variable] Lock: 8BE4DF61-93CA-11D2-AA0D-00E098032B8C:LangCodes
[Variable] Lock: 8BE4DF61-93CA-11D2-AA0D-00E098032B8C:BootOptionSupport
[Variable] Lock: 8BE4DF61-93CA-11D2-AA0D-00E098032B8C:HwErrRecSupport
[Variable] Lock: 8BE4DF61-93CA-11D2-AA0D-00E098032B8C:OsIndicationsSupported
Variable Driver Auto Update Lang, Lang:eng, PlatformLang:en
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FB6E364
InstallProtocolInterface: 330D4706-F2A0-4E4F-A369-B66FA8D54385 3FB6E394
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FB6E34C
InstallProtocolInterface: 330D4706-F2A0-4E4F-A369-B66FA8D54385 3FB6E3A0
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FB6E588
InstallProtocolInterface: 330D4706-F2A0-4E4F-A369-B66FA8D54385 3FB6E57C
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3FB6DFC4
InstallProtocolInterface: 330D4706-F2A0-4E4F-A369-B66FA8D54385 3FB6DFEC
PlatformBdsInit
Registered NotifyDevPath Event
PlatformBdsPolicyBehavior
PCI Bus First Scanning
PciBus: Discovered PCI @ [00|00|00]

PciBus: Discovered PCI @ [00|01|00]

PciBus: Discovered PCI @ [00|01|01]
   BAR[4]: Type =   Io32; Alignment = 0xF;      Length = 0x10;  Offset = 0x20

PciBus: Discovered PCI @ [00|01|03]

PciBus: Discovered PCI @ [00|02|00]
   BAR[0]: Type = PMem32; Alignment = 0x1FFFFFF;       Length = 0x2000000;    Offset = 0x10
   BAR[1]: Type =  Mem32; Alignment = 0xFFF;   Length = 0x1000;       Offset = 0x14

PciBus: Discovered PCI @ [00|03|00]
   BAR[0]: Type =  Mem32; Alignment = 0x1FFFF; Length = 0x20000;       Offset = 0x10
   BAR[1]: Type =   Io32; Alignment = 0x3F;    Length = 0x40;  Offset = 0x14

PciBus: Discovered PCI @ [00|00|00]

PciBus: Discovered PCI @ [00|01|00]

PciBus: Discovered PCI @ [00|01|01]
   BAR[4]: Type =   Io32; Alignment = 0xF;      Length = 0x10;  Offset = 0x20

PciBus: Discovered PCI @ [00|01|03]

PciBus: Discovered PCI @ [00|02|00]
   BAR[0]: Type = PMem32; Alignment = 0x1FFFFFF;       Length = 0x2000000;    Offset = 0x10
   BAR[1]: Type =  Mem32; Alignment = 0xFFF;   Length = 0x1000;       Offset = 0x14

PciBus: Discovered PCI @ [00|03|00]
   BAR[0]: Type =  Mem32; Alignment = 0x1FFFF; Length = 0x20000;       Offset = 0x10
   BAR[1]: Type =   Io32; Alignment = 0x3F;    Length = 0x40;  Offset = 0x14

PciBus: HostBridge->SubmitResources() - Success
PciBus: HostBridge->NotifyPhase(AllocateResources) - Success
PciBus: Resource Map for Root Bridge PciRoot(0x0)
Type =   Io16; Base = 0xC000;   Length = 0x1000;        Alignment = 0xFFF
 Base = 0xC000; Length = 0x40;  Alignment = 0x3F;       Owner = PCI  [00|03|00:14]
 Base = 0xC040; Length = 0x10;  Alignment = 0xF;        Owner = PCI  [00|01|01:20]
Type =  Mem32; Base = 0x80000000;       Length = 0x2100000;     Alignment = 0x1FFFFFF
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 Base = 0x80000000;     Length = 0x2000000;    Alignment = 0x1FFFFFF;  Owner = PCI  [00|02|00:10]
 Base = 0x82000000;     Length = 0x20000;      Alignment = 0x1FFFF;    Owner = PCI  [00|03|00:10]
 Base = 0x82020000;     Length = 0x1000;       Alignment = 0xFFF;      Owner = PCI  [00|02|00:14]

InstallProtocolInterface: 30CFE3E7-3DE1-4586-BE20-DEABA1B3B793 0
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70390
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EC8F018
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70410
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EC8F318
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70490
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EC8F618
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70510
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EB75C18
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70590
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EB75918
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB70210
InstallProtocolInterface: 4CF5B200-68B8-4CA5-9EEC-B23E3F50029A 3EB75618
PlatformBdsPolicyBehavior: not restoring NvVars from disk since flash variables appear to be supported.
PlatformBdsGetDriverOption
Boot Mode:0
Found LPC Bridge device
BdsPlatform.c+219: COM1 DevPath: PciRoot(0x0)/Pci(0x1,0x0)/Serial(0x0)/Uart(115200,8,N,1)/VenPcAnsi()
BdsPlatform.c+248: COM2 DevPath: PciRoot(0x0)/Pci(0x1,0x0)/Serial(0x1)/Uart(115200,8,N,1)/VenPcAnsi()
Found PCI VGA device
QemuVideo: Cirrus 5446 detected
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6D610
Adding Cirrus Video Mode 0: 640x480, 32-bit, 60 Hz
Adding Cirrus Video Mode 1: 800x600, 32-bit, 60 Hz
Adding Cirrus Video Mode 2: 1024x768, 24-bit, 60 Hz
PixelBlueGreenRedReserved8BitPerColor
FrameBufferBase: 0x80000000, FrameBufferSize: 0x0
0: shl:0 shr:0 mask:FF0000
1: shl:0 shr:0 mask:FF00
2: shl:0 shr:0 mask:FF
Bytes per pixel: 4
InstallProtocolInterface: 9042A9DE-23DC-4A38-96FB-7ADED080516A 3EB6D7A8
InstallProtocolInterface: 64A892DC-5561-4536-92C7-799BFC183355 3EB6BD98
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6B910
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6BA18
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6B510
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6B618
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6B190
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6B298
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6AE10
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6AF18
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6AA90
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6AB98
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB6A710
InstallProtocolInterface: 7EE2BD44-3DA0-11D4-9A38-0090273FC14D 3EB6A818
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3EB69F10
InstallProtocolInterface: BB25CF6F-F1D4-11D2-9A0C-0090273FC1FD 3F842D18
InstallProtocolInterface: 9E863906-A40F-4875-977F-5B93FF237FC6 3EB69990
Terminal - Mode 0, Column = 80, Row = 25
Terminal - Mode 1, Column = 80, Row = 50
Terminal - Mode 2, Column = 100, Row = 31
[2J[01;01H[=3h[2J[01;01H[2J[01;01H[=3h[2J[01;01HInstallProtocolInterface:
09576E91-6D3F-11D2-8E39-00A0C969723B 3EB69490
[2J[01;01H[=3h[2J[01;01H[2J[01;01H[=3h[2J[01;01HInstallProtocolInterface:
387477C1-69C7-11D2-8E39-00A0C969723B 3F842B24
InstallProtocolInterface: DD9E7534-7762-4698-8C14-F58517A625AA 3F842B9C
InstallProtocolInterface: 387477C2-69C7-11D2-8E39-00A0C969723B 3F842B30
InstallProtocolInterface: D3B36F2B-D551-11D4-9A46-0090273FC14D 0
InstallProtocolInterface: D3B36F2C-D551-11D4-9A46-0090273FC14D 0
InstallProtocolInterface: D3B36F2D-D551-11D4-9A46-0090273FC14D 0
[2J[01;01H[=3h[2J[01;01H[2J[01;01H[=3h[2J[01;01H[0m[35m[40mPixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
```

```
PixelBlueGreenRedReserved8BitPerColor
FrameBufferBase: 0x80000000, FrameBufferSize: 0x0
0: shl:0 shr:0 mask:FF0000
1: shl:0 shr:0 mask:FF00
2: shl:0 shr:0 mask:FF
Bytes per pixel: 4
GraphicsConsole video resolution 800 x 600
Graphics - Mode 0, Column = 80, Row = 25
Graphics - Mode 1, Column = 0, Row = 0
Graphics - Mode 2, Column = 100, Row = 31
InstallProtocolInterface: 387477C2-69C7-11D2-8E39-00A0C969723B 3EB6829C
InstallProtocolInterface: D3B36F2C-D551-11D4-9A46-0090273FC14D 0
PixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
InstallProtocolInterface: 9042A9DE-23DC-4A38-96FB-7ADED080516A 3FAF0610
[2J[01;01H[=3h[2J[01;01H[0m[37m[40mInstallProtocolInterface: 387477C1-69C7-11D2-8E39-00A0C969723B
3E82A018
InstallProtocolInterface: DD9E7534-7762-4698-8C14-F58517A625AA 3E82A024
InstallProtocolInterface: D3B36F2B-D551-11D4-9A46-0090273FC14D 0
PlatformBdsDiagnostics
PlatformBdsConnectSequence
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3F842518
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E808998
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3F842218
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E808098
InstallProtocolInterface: A1E37052-80D9-4E65-A317-3E9A55C43EC9 3FAAC348
InstallProtocolInterface: 69FD8E47-A161-4550-B01A-5594CEB2B2B2 3E7D7A90
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E7D7810
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3EC8E318
InstallProtocolInterface: D432A67F-14DC-484B-B3BB-3F0291849327 3EC8E368
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E7D7710
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3EC8E198
InstallProtocolInterface: D432A67F-14DC-484B-B3BB-3F0291849327 3EC8E1E8
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77C898
 BlockSize : 512
 LastBlock : 3FFFFF
 Valid efi partition table header
 Valid efi partition table header
 Valid primary and Valid backup partition table
 Partition entries read block success
 Number of partition entries: 128
 start check partition entries
 End check partition entries
 Index : 0
 Start LBA : 800
 End LBA : 2F7FF
 Partition size: 2F000
 Start : 100000 End : 5EFFE00
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E77C410
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3E807E20
 Index : 1
 Start LBA : 2F800
 End LBA : 5F7FF
 Partition size: 30000
 Start : 5F00000 End : BEFFE00
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E77C190
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3E807B20
 Index : 2
 Start LBA : 5F800
 End LBA : 2FFFFF
 Partition size: 2A0800
 Start : BF00000 End : 5FFFFE00
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E77BE90
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3E807A20
 Index : 3
 Start LBA : 300000
```

```
 End LBA : 3FF7FF
 Partition size: FF800
 Start : 60000000 End : 7FEFFE00
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E77BB90
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3E807920
Prepare to Free Pool
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77B718
 BlockSize : 512
 LastBlock : 2EFFF
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77B218
 BlockSize : 512
 LastBlock : 2FFFF
InstallProtocolInterface: 964E5B22-6459-11D2-8E39-00A0C969723B 3E779020
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77AB98
 BlockSize : 512
 LastBlock : 2A07FF
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77A698
 BlockSize : 512
 LastBlock : FF7FF
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77A218
 BlockSize : 2048
 LastBlock : 0
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E77A118
 BlockSize : 2048
 LastBlock : 50FFF
InstallProtocolInterface: 09576E91-6D3F-11D2-8E39-00A0C969723B 3E29BE10
InstallProtocolInterface: 964E5B21-6459-11D2-8E39-00A0C969723B 3E807C20
InstallProtocolInterface: CE345171-BA0B-11D2-8E4F-00A0C969723B 3E29B918
 BlockSize : 2048
 LastBlock : 3
 BlockSize : 2048
 LastBlock : 3
 BlockSize : 512
 LastBlock : 3FFFFF
 Valid efi partition table header
 Valid efi partition table header
 Valid primary and Valid backup partition table
 Partition entries read block success
 Number of partition entries: 128
 start check partition entries
 End check partition entries
 Index : 0
 Start LBA : 800
 End LBA : 2F7FF
 Partition size: 2F000
 Start : 100000 End : 5EFFE00
 Index : 1
 Start LBA : 2F800
 End LBA : 5F7FF
 Partition size: 30000
 Start : 5F00000 End : BEFFE00
 Index : 2
 Start LBA : 5F800
 End LBA : 2FFFFF
 Partition size: 2A0800
 Start : BF00000 End : 5FFFFE00
 Index : 3
 Start LBA : 300000
 End LBA : 3FF7FF
 Partition size: FF800
 Start : 60000000 End : 7FEFFE00
Prepare to Free Pool
 BlockSize : 512
 LastBlock : 2EFFF
 BlockSize : 512
 LastBlock : 2A07FF
```

```
 BlockSize : 512
 LastBlock : FF7FF
 BlockSize : 2048
 LastBlock : 50FFF
 BlockSize : 2048
 LastBlock : 3
[2J[01;01HSelect Item: 0x8
Select Item: 0x17
qemu -kernel was not used.
BdsLibConnectAll
 BlockSize : 512
 LastBlock : 3FFFFF
 Valid efi partition table header
 Valid efi partition table header
 Valid primary and Valid backup partition table
 Partition entries read block success
 Number of partition entries: 128
 start check partition entries
 End check partition entries
 Index : 0
 Start LBA : 800
 End LBA : 2F7FF
 Partition size: 2F000
 Start : 100000 End : 5EFFE00
 Index : 1
 Start LBA : 2F800
 End LBA : 5F7FF
 Partition size: 30000
 Start : 5F00000 End : BEFFE00
 Index : 2
 Start LBA : 5F800
 End LBA : 2FFFFF
 Partition size: 2A0800
 Start : BF00000 End : 5FFFFE00
 Index : 3
 Start LBA : 300000
 End LBA : 3FF7FF
 Partition size: FF800
 Start : 60000000 End : 7FEFFE00
Prepare to Free Pool
 BlockSize : 512
 LastBlock : 2EFFF
 BlockSize : 512
 LastBlock : 2A07FF
 BlockSize : 512
 LastBlock : FF7FF
 BlockSize : 2048
 LastBlock : 50FFF
 BlockSize : 2048
 LastBlock : 3
 BlockSize : 512
 LastBlock : 3FFFFF
 Valid efi partition table header
 Valid efi partition table header
 Valid primary and Valid backup partition table
 Partition entries read block success
 Number of partition entries: 128
 start check partition entries
 End check partition entries
 Index : 0
 Start LBA : 800
 End LBA : 2F7FF
 Partition size: 2F000
 Start : 100000 End : 5EFFE00
 Index : 1
 Start LBA : 2F800
```

```
End LBA : 5F7FF
Partition size: 30000
Start : 5F00000 End : BEFFE00
Index : 2
Start LBA : 5F800
End LBA : 2FFFFF
Partition size: 2A0800
Start : BF00000 End : 5FFFFE00
Index : 3
Start LBA : 300000
End LBA : 3FF7FF
Partition size: FF800
Start : 60000000 End : 7FEFFE00
Prepare to Free Pool
BlockSize : 512
LastBlock : 2EFFF
BlockSize : 512
LastBlock : 2A07FF
BlockSize : 512
LastBlock : FF7FF
BlockSize : 2048
LastBlock : 50FFF
BlockSize : 2048
LastBlock : 3
BlockSize : 512
LastBlock : 3FFFFF
Valid efi partition table header
Valid efi partition table header
Valid primary and Valid backup partition table
Partition entries read block success
Number of partition entries: 128
start check partition entries
End check partition entries
Index : 0
Start LBA : 800
End LBA : 2F7FF
Partition size: 2F000
Start : 100000 End : 5EFFE00
Index : 1
Start LBA : 2F800
End LBA : 5F7FF
Partition size: 30000
Start : 5F00000 End : BEFFE00
Index : 2
Start LBA : 5F800
End LBA : 2FFFFF
Partition size: 2A0800
Start : BF00000 End : 5FFFFE00
Index : 3
Start LBA : 300000
End LBA : 3FF7FF
Partition size: FF800
Start : 60000000 End : 7FEFFE00
Prepare to Free Pool
BlockSize : 512
LastBlock : 2EFFF
BlockSize : 512
LastBlock : 2A07FF
BlockSize : 512
LastBlock : FF7FF
BlockSize : 2048
LastBlock : 50FFF
BlockSize : 2048
LastBlock : 3
BlockSize : 512
LastBlock : 2EFFF
```

```
 BlockSize : 512
 LastBlock : 2A07FF
 BlockSize : 512
 LastBlock : FF7FF
 BlockSize : 2048
 LastBlock : 3
Buffer: EFI DVD/CDROM
Buffer: EFI Hard Drive
Select Item: 0x19
PixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
Memory  Previous  Current   Next
 Type    Pages     Pages     Pages
======  ========  ========  ========
  0A     00000004  00000001  00000004
  09     00000008  00000006  00000008
  00     00000004  00000003  00000004
  06     00000024  0000002E  00000039
  05     00000030  0000002D  00000030
  03     00000180  0000022D  000002B8
  04     00000F00  00001732  00001CFE
Booting EFI Floppy
PlatformBdsBootFail
Boot Failed. EFI Floppy

PixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
Memory  Previous  Current   Next
 Type    Pages     Pages     Pages
======  ========  ========  ========
  0A     00000004  00000001  00000004
  09     00000008  00000006  00000008
  00     00000004  00000003  00000004
  06     00000039  0000002E  00000039
  05     00000030  0000002D  00000030
  03     000002B8  0000022D  000002B8
  04     00001CFE  00001732  00001CFE
Booting EFI Floppy 1
PlatformBdsBootFail
Boot Failed. EFI Floppy 1

PixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
Memory  Previous  Current   Next
 Type    Pages     Pages     Pages
======  ========  =======  ========
  0A     00000004  00000001  00000004
  09     00000008  00000006  00000008
  00     00000004  00000003  00000004
  06     00000039  0000002E  00000039
  05     00000030  0000002D  00000030
  03     000002B8  0000022D  000002B8
  04     00001CFE  00001732  00001CFE
Booting EFI DVD/CDROM
 BlockSize : 2048
 LastBlock : 50FFF
 BlockSize : 2048
 LastBlock : 3
PlatformBdsBootFail
Boot Failed. EFI DVD/CDROM

PixelBlueGreenRedReserved8BitPerColor
PixelBlueGreenRedReserved8BitPerColor
Memory  Previous  Current   Next
 Type    Pages     Pages     Pages
======  ========  ========  ========
```

```
   0A    00000004  00000001  00000004
   09    00000008  00000006  00000008
   00    00000004  00000003  00000004
   06    00000039  0000002E  00000039
   05    00000030  0000002D  00000030
   03    000002B8  0000022D  000002B8
   04    00001CFE  00001732  00001CFE
Booting EFI Hard Drive
 BlockSize : 512
 LastBlock : 3FFFFF
 Valid efi partition table header
 Valid efi partition table header
 Valid primary and Valid backup partition table
 Partition entries read block success
 Number of partition entries: 128
 start check partition entries
 End check partition entries
 Index : 0
 Start LBA : 800
 End LBA : 2F7FF
 Partition size: 2F000
 Start : 100000 End : 5EFFE00
 Index : 1
 Start LBA : 2F800
 End LBA : 5F7FF
 Partition size: 30000
 Start : 5F00000 End : BEFFE00
 Index : 2
 Start LBA : 5F800
 End LBA : 2FFFFF
 Partition size: 2A0800
 Start : BF00000 End : 5FFFFE00
 Index : 3
 Start LBA : 300000
 End LBA : 3FF7FF
 Partition size: FF800
 Start : 60000000 End : 7FEFFE00
Prepare to Free Pool
 BlockSize : 512
 LastBlock : 2EFFF
 BlockSize : 512
 LastBlock : 2A07FF
 BlockSize : 512
 LastBlock : FF7FF
InstallProtocolInterface: 5B1B31A1-9562-11D2-8E3F-00A0C969723B 3E255DA8
Loading driver at 0x0003E23F000 EntryPoint=0x0003E23F400
InstallProtocolInterface: BC62157E-3E33-4FEC-9920-2D3B36D750DF 3EB75F10
[1m[37m[40merror: file not found.

error: file not found.

[    0.000000] Initializing cgroup subsys cpuset
[    0.000000] Initializing cgroup subsys cpu
[    0.000000] Linux version 3.8.0-29-generic (buildd@akateko) (gcc version 4.6.3 (Ubuntu/Linaro
4.6.3-1ubuntu5) ) #42~precise1-Ubuntu SMP Wed Aug 14 15:31:16 UTC 2013 (Ubuntu
3.8.0-29.42~precise1-generic 3.8.13.5)
[    0.000000] KERNEL supported cpus:
[    0.000000]   Intel GenuineIntel
[    0.000000]   AMD AuthenticAMD
[    0.000000]   NSC Geode by NSC
[    0.000000]   Cyrix CyrixInstead
[    0.000000]   Centaur CentaurHauls
[    0.000000]   Transmeta GenuineTMx86
[    0.000000]   Transmeta TransmetaCPU
[    0.000000]   UMC UMC UMC UMC
[    0.000000] e820: BIOS-provided physical RAM map:
```

```
[    0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009ffff] usable
[    0.000000] BIOS-e820: [mem 0x0000000000100000-0x000000003e855fff] usable
[    0.000000] BIOS-e820: [mem 0x000000003e856000-0x000000003e864fff] reserved
[    0.000000] BIOS-e820: [mem 0x000000003e865000-0x000000003fbe4fff] usable
[    0.000000] BIOS-e820: [mem 0x000000003fbe5000-0x000000003fc3cfff] reserved
[    0.000000] BIOS-e820: [mem 0x000000003fc3d000-0x000000003fc44fff] ACPI data
[    0.000000] BIOS-e820: [mem 0x000000003fc45000-0x000000003fc48fff] ACPI NVS
[    0.000000] BIOS-e820: [mem 0x000000003fc49000-0x000000003ffcffff] usable
[    0.000000] BIOS-e820: [mem 0x000000003ffd0000-0x000000003fffffff] reserved
[    0.000000] BIOS-e820: [mem 0x00000000ffe00000-0x00000000ffffffff] reserved
[    0.000000] Notice: NX (Execute Disable) protection missing in CPU!
[    0.000000] efi: EFI v2.40 by EDK II
[    0.000000] efi:  ACPI=0x3fc44000  ACPI 2.0=0x3fc44014
[    0.000000] efi: mem00: type=7, attr=0xf, range=[0x0000000000000000-0x00000000000a0000) (0MB)
[    0.000000] efi: mem01: type=2, attr=0xf, range=[0x0000000000100000-0x000000000062c000) (5MB)
[    0.000000] efi: mem02: type=7, attr=0xf, range=[0x000000000062c000-0x0000000000800000) (1MB)
[    0.000000] efi: mem03: type=4, attr=0xf, range=[0x0000000000800000-0x0000000001000000) (8MB)
[    0.000000] efi: mem04: type=7, attr=0xf, range=[0x0000000001000000-0x000000002c9b4000) (697MB)
[    0.000000] efi: mem05: type=2, attr=0xf, range=[0x000000002c9b4000-0x000000003c000000) (246MB)
[    0.000000] efi: mem06: type=4, attr=0xf, range=[0x000000003c000000-0x000000003c020000) (0MB)
[    0.000000] efi: mem07: type=7, attr=0xf, range=[0x000000003c020000-0x000000003e23f000) (34MB)
[    0.000000] efi: mem08: type=1, attr=0xf, range=[0x000000003e23f000-0x000000003e255000) (0MB)
[    0.000000] efi: mem09: type=4, attr=0xf, range=[0x000000003e255000-0x000000003e256000) (0MB)
[    0.000000] efi: mem10: type=7, attr=0xf, range=[0x000000003e256000-0x000000003e26b000) (0MB)
[    0.000000] efi: mem11: type=4, attr=0xf, range=[0x000000003e26b000-0x000000003e79e000) (5MB)
[    0.000000] efi: mem12: type=3, attr=0xf, range=[0x000000003e79e000-0x000000003e7d7000) (0MB)
[    0.000000] efi: mem13: type=4, attr=0xf, range=[0x000000003e7d7000-0x000000003e7d8000) (0MB)
[    0.000000] efi: mem14: type=3, attr=0xf, range=[0x000000003e7d8000-0x000000003e807000) (0MB)
[    0.000000] efi: mem15: type=4, attr=0xf, range=[0x000000003e807000-0x000000003e809000) (0MB)
[    0.000000] efi: mem16: type=3, attr=0xf, range=[0x000000003e809000-0x000000003e829000) (0MB)
[    0.000000] efi: mem17: type=4, attr=0xf, range=[0x000000003e829000-0x000000003e82d000) (0MB)
[    0.000000] efi: mem18: type=3, attr=0xf, range=[0x000000003e82d000-0x000000003e856000) (0MB)
[    0.000000] efi: mem19: type=6, attr=0x800000000000000f,
range=[0x000000003e856000-0x000000003e865000) (0MB)
[    0.000000] efi: mem20: type=4, attr=0xf, range=[0x000000003e865000-0x000000003fa65000) (18MB)
[    0.000000] efi: mem21: type=2, attr=0xf, range=[0x000000003fa65000-0x000000003fa69000) (0MB)
[    0.000000] efi: mem22: type=3, attr=0xf, range=[0x000000003fa69000-0x000000003fbe5000) (1MB)
[    0.000000] efi: mem23: type=5, attr=0x800000000000000f,
range=[0x000000003fbe5000-0x000000003fc15000) (0MB)
[    0.000000] efi: mem24: type=6, attr=0x800000000000000f,
range=[0x000000003fc15000-0x000000003fc39000) (0MB)
[    0.000000] efi: mem25: type=0, attr=0xf, range=[0x000000003fc39000-0x000000003fc3d000) (0MB)
[    0.000000] efi: mem26: type=9, attr=0xf, range=[0x000000003fc3d000-0x000000003fc45000) (0MB)
[    0.000000] efi: mem27: type=10, attr=0xf, range=[0x000000003fc45000-0x000000003fc49000) (0MB)
[    0.000000] efi: mem28: type=4, attr=0xf, range=[0x000000003fc49000-0x000000003ffd0000) (3MB)
[    0.000000] efi: mem29: type=6, attr=0x800000000000000f,
range=[0x000000003ffd0000-0x0000000040000000) (0MB)
[    0.000000] efi: mem30: type=6, attr=0x8000000000000001,
range=[0x00000000ffe00000-0x0000000100000000) (2MB)
[    0.000000] DMI not present or invalid.
[    0.000000] e820: last_pfn = 0x3ffd0 max_arch_pfn = 0x1000000
[    0.000000] init_memory_mapping: [mem 0x00000000-0x37bfdfff]
[    0.000000] RAMDISK: [mem 0x361b6000-0x370d2fff]
[    0.000000] ACPI: RSDP 3fc44014 00024 (v02 OVMF  )
[    0.000000] ACPI: XSDT 3fc430e8 0003C (v01 OVMF   OVMFEDK2 20130221      01000013)
[    0.000000] ACPI: FACP 3fc42000 000F4 (v03 OVMF   OVMFEDK2 20130221 OVMF 00000099)
[    0.000000] ACPI: DSDT 3fc40000 00D57 (v01 INTEL  OVMF     00000004 INTL 20100528)
[    0.000000] ACPI: FACS 3fc48000 00040
[    0.000000] ACPI: APIC 3fc41000 00078 (v01 OVMF   OVMFEDK2 20130221 OVMF 00000099)
[    0.000000] ACPI: SSDT 3fc3f000 00057 (v01 REDHAT OVMF     00000001 INTL 20100528)
[    0.000000] ACPI: no DMI BIOS year, acpi=force is required to enable ACPI
[    0.000000] ACPI: Disabling ACPI support
[    0.000000] 131MB HIGHMEM available.
[    0.000000] 891MB LOWMEM available.
[    0.000000]   mapped low ram: 0 - 37bfe000
[    0.000000]   low ram: 0 - 37bfe000
```

```
[    0.000000] Zone ranges:
[    0.000000]   DMA      [mem 0x00010000-0x00ffffff]
[    0.000000]   Normal   [mem 0x01000000-0x37bfdfff]
[    0.000000]   HighMem  [mem 0x37bfe000-0x3ffcffff]
[    0.000000] Movable zone start for each node
[    0.000000] Early memory node ranges
[    0.000000]   node   0: [mem 0x00010000-0x0009ffff]
[    0.000000]   node   0: [mem 0x00100000-0x3e855fff]
[    0.000000]   node   0: [mem 0x3e865000-0x3fbe4fff]
[    0.000000]   node   0: [mem 0x3fc49000-0x3ffcffff]
[    0.000000] Using APIC driver default
[    0.000000] SFI: Simple Firmware Interface v0.81 http://simplefirmware.org
[    0.000000] smpboot: Allowing 1 CPUs, 0 hotplug CPUs
[    0.000000] Found and enabled local APIC!
[    0.000000] PM: Registered nosave memory: 00000000000a0000 - 0000000000100000
[    0.000000] e820: [mem 0x40000000-0xffdfffff] available for PCI devices
[    0.000000] Booting paravirtualized kernel on bare hardware
[    0.000000] setup_percpu: NR_CPUS:8 nr_cpumask_bits:8 nr_cpu_ids:1 nr_node_ids:1
[    0.000000] PERCPU: Embedded 14 pages/cpu @f73e8000 s35008 r0 d22336 u57344
[    0.000000] Built 1 zonelists in Zone order, mobility grouping on.  Total pages: 259821
[    0.000000] Kernel command line: BOOT_IMAGE=/boot/vmlinuz-3.8.0-29-generic
root=UUID=7209eb2b-e09b-43d8-9f95-3356365f1111 ro console=ttyS0,115200n8 nomodeset loglevel=7
earlyprintk
[    0.000000] PID hash table entries: 4096 (order: 2, 16384 bytes)
[    0.000000] Dentry cache hash table entries: 131072 (order: 7, 524288 bytes)
[    0.000000] Inode-cache hash table entries: 65536 (order: 6, 262144 bytes)
[    0.000000] __ex_table already sorted, skipping sort
[    0.000000] Initializing CPU#0
[    0.000000] allocated 2096640 bytes of page_cgroup
[    0.000000] please try 'cgroup_disable=memory' option if you don't want memory cgroups
[    0.000000] Initializing HighMem for node 0 (00037bfe:0003ffd0)
[    0.000000] Memory: 979948k/1048384k available (6359k kernel code, 37772k reserved, 3033k data, 796k
init, 104768k highmem)
[    0.000000] virtual kernel memory layout:
[    0.000000]     fixmap  : 0xfff14000 - 0xfffff000   ( 940 kB)
[    0.000000]     pkmap   : 0xffc00000 - 0xffe00000   (2048 kB)
[    0.000000]     vmalloc : 0xf83fe000 - 0xffbfe000   ( 120 MB)
[    0.000000]     lowmem  : 0xc0000000 - 0xf7bfe000   ( 891 MB)
[    0.000000]       .init : 0xc192d000 - 0xc19f4000   ( 796 kB)
[    0.000000]       .data : 0xc1635dad - 0xc192c280   (3033 kB)
[    0.000000]       .text : 0xc1000000 - 0xc1635dad   (6359 kB)
[    0.000000] Checking if this processor honours the WP bit even in supervisor mode...Ok.
[    0.000000] SLUB: Genslabs=15, HWalign=32, Order=0-3, MinObjects=0, CPUs=1, Nodes=1
[    0.000000] Hierarchical RCU implementation.
[    0.000000]  RCU dyntick-idle grace-period acceleration is enabled.
[    0.000000]  RCU restricting CPUs from NR_CPUS=8 to nr_cpu_ids=1.
[    0.000000] NR_IRQS:2304 nr_irqs:256 16
[    0.000000] Console: colour dummy device 80x25
[    0.000000] console [ttyS0] enabled
[    0.000000] tsc: Fast TSC calibration using PIT
[    0.000000] tsc: Detected 3392.285 MHz processor
[    0.008248] Calibrating delay loop (skipped), value calculated using timer frequency.. 6784.57
BogoMIPS (lpj=13569140)
[    0.008711] pid_max: default: 32768 minimum: 301
[    0.012820] ------------[ cut here ]------------
[    0.013314] WARNING: at /build/buildd/linux-lts-raring-3.8.0/arch/x86/mm/ioremap.c:102
__ioremap_caller+0x430/0x460()
[    0.013597] Modules linked in:
[    0.013845] Pid: 0, comm: swapper/0 Not tainted 3.8.0-29-generic #42~precise1-Ubuntu
[    0.014051] Call Trace:
[    0.014327]  [<c104b7f2>] warn_slowpath_common+0x72/0xa0
[    0.014498]  [<c103f280>] ? __ioremap_caller+0x430/0x460
[    0.014640]  [<c103f280>] ? __ioremap_caller+0x430/0x460
[    0.014782]  [<c104b842>] warn_slowpath_null+0x22/0x30
[    0.014923]  [<c103f280>] __ioremap_caller+0x430/0x460
[    0.015079]  [<c1153fa5>] ? __kmalloc_track_caller+0x1d5/0x1e0
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[    0.015236] [<c1944552>] ? efi_enter_virtual_mode+0x17e/0x3d4
[    0.015389] [<c103f2ff>] ioremap_cache+0x1f/0x30
[    0.015520] [<c1944552>] ? efi_enter_virtual_mode+0x17e/0x3d4
[    0.015672] [<c1944552>] efi_enter_virtual_mode+0x17e/0x3d4
[    0.015820] [<c104f318>] ? put_online_cpus+0x48/0x70
[    0.016039] [<c112e608>] ? kmem_cache_create_memcg+0x68/0x1e0
[    0.016239] [<c192d98b>] start_kernel+0x2ec/0x37d
[    0.016378] [<c192d620>] ? pass_bootoption.constprop.3+0xaf/0xaf
[    0.016535] [<c192d303>] i386_start_kernel+0xa6/0xad
[    0.018504] ---[ end trace a7919e7f17c0a725 ]---
[    0.037390] Security Framework initialized
[    0.041271] AppArmor: AppArmor initialized
[    0.041398] Yama: becoming mindful.
[    0.043429] Mount-cache hash table entries: 512
[    0.049804] Initializing cgroup subsys cpuacct
[    0.050022] Initializing cgroup subsys memory
[    0.050468] Initializing cgroup subsys devices
[    0.050615] Initializing cgroup subsys freezer
[    0.050789] Initializing cgroup subsys blkio
[    0.050918] Initializing cgroup subsys perf_event
[    0.051075] Initializing cgroup subsys hugetlb
[    0.053277] Last level iTLB entries: 4KB 0, 2MB 0, 4MB 0
[    0.053277] Last level dTLB entries: 4KB 0, 2MB 0, 4MB 0
[    0.053277] tlb_flushall_shift: 6
[    0.141769] Freeing SMP alternatives: 24k freed
[    0.161994] ftrace: allocating 28848 entries in 57 pages
[    0.244438] smpboot: weird, boot CPU (#0) not listed by the BIOS
[    0.244753] smpboot: SMP motherboard not detected
[    0.244963] Enabling APIC mode:  Flat.  Using 0 I/O APICs
[    0.352651] smpboot: SMP disabled
[    0.352823] Performance Events: Broken PMU hardware detected, using software events only.
[    0.353230] Failed to access perfctr msr (MSR c1 is 0)
[    0.364326] Brought up 1 CPUs
[    0.364460] smpboot: Total of 1 processors activated (6784.57 BogoMIPS)
[    0.367329] NMI watchdog: disabled (cpu0): hardware events not enabled
[    0.374045] devtmpfs: initialized
[    0.378072] EVM: security.selinux
[    0.378156] EVM: security.SMACK64
[    0.378230] EVM: security.capability
[    0.379089] PM: Registering ACPI NVS region [mem 0x3fc45000-0x3fc48fff] (16384 bytes)
[    0.389784] regulator-dummy: no parameters
[    0.391591] NET: Registered protocol family 16
[    0.394134] EISA bus registered
[    0.396412] PCI: Using configuration type 1 for base access
[    0.408172] bio: create slab <bio-0> at 0
[    0.409910] ACPI: Interpreter disabled.
[    0.412510] vgaarb: loaded
[    0.415295] SCSI subsystem initialized
[    0.416555] usbcore: registered new interface driver usbfs
[    0.416886] usbcore: registered new interface driver hub
[    0.417242] usbcore: registered new device driver usb
[    0.418918] PCI: Probing PCI hardware
[    0.419564] PCI host bridge to bus 0000:00
[    0.420000] pci_bus 0000:00: root bus resource [io  0x0000-0xffff]
[    0.420000] pci_bus 0000:00: root bus resource [mem 0x00000000-0xffffffff]
[    0.420000] pci_bus 0000:00: No busn resource found for root bus, will use [bus 00-ff]
[    0.429228] pci 0000:00:01.3: quirk: [io  0xb000-0xb03f] claimed by PIIX4 ACPI
[    0.429412] pci 0000:00:01.3: quirk: [io  0xb100-0xb10f] claimed by PIIX4 SMB
[    0.471099] vgaarb: device added: PCI:0000:00:02.0,decodes=io+mem,owns=io+mem,locks=none
[    0.473807] NetLabel: Initializing
[    0.473900] NetLabel:  domain hash size = 128
[    0.473998] NetLabel:  protocols = UNLABELED CIPSOv4
[    0.474748] NetLabel:  unlabeled traffic allowed by default
[    0.475756] Switching to clocksource refined-jiffies
[    0.553439] AppArmor: AppArmor Filesystem Enabled
[    0.553853] pnp: PnP ACPI: disabled
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[    0.553973] PnPBIOS: Scanning system for PnP BIOS support...
[    0.554119] PnPBIOS: PnP BIOS support was not detected.
[    0.569397] pci 0000:00:02.0: address space collision: [mem 0xffff0000-0xffffffff pref] conflicts
with reserved [mem 0xffe00000-0xffffffff]
[    0.569684] pci 0000:00:03.0: address space collision: [mem 0xfffe0000-0xffffffff pref] conflicts
with reserved [mem 0xffe00000-0xffffffff]
[    0.570891] pci 0000:00:03.0: BAR 6: assigned [mem 0x40000000-0x4001ffff pref]
[    0.571224] pci 0000:00:02.0: BAR 6: assigned [mem 0x40020000-0x4002ffff pref]
[    0.572071] NET: Registered protocol family 2
[    0.575129] TCP established hash table entries: 8192 (order: 4, 65536 bytes)
[    0.575451] TCP bind hash table entries: 8192 (order: 4, 65536 bytes)
[    0.575777] TCP: Hash tables configured (established 8192 bind 8192)
[    0.576225] TCP: reno registered
[    0.576403] UDP hash table entries: 512 (order: 2, 16384 bytes)
[    0.576621] UDP-Lite hash table entries: 512 (order: 2, 16384 bytes)
[    0.578150] NET: Registered protocol family 1
[    0.578467] pci 0000:00:00.0: Limiting direct PCI/PCI transfers
[    0.578657] pci 0000:00:01.0: PIIX3: Enabling Passive Release
[    0.578901] pci 0000:00:01.0: Activating ISA DMA hang workarounds
[    0.581954] Trying to unpack rootfs image as initramfs...
[    1.981643] Freeing initrd memory: 15476k freed
[    1.998004] platform rtc_cmos: registered platform RTC device (no PNP device found)
[    2.000919] Initialise module verification
[    2.002016] audit: initializing netlink socket (disabled)
[    2.002641] type=2000 audit(1385194101.000:1): initialized
[    2.087887] bounce pool size: 64 pages
[    2.088424] HugeTLB registered 2 MB page size, pre-allocated 0 pages
[    2.100762] VFS: Disk quotas dquot_6.5.2
[    2.101235] Dquot-cache hash table entries: 1024 (order 0, 4096 bytes)
[    2.107932] fuse init (API version 7.20)
[    2.108951] msgmni has been set to 1797
[    2.114662] Key type asymmetric registered
[    2.114803] Asymmetric key parser 'x509' registered
[    2.115232] Block layer SCSI generic (bsg) driver version 0.4 loaded (major 252)
[    2.115706] io scheduler noop registered
[    2.115834] io scheduler deadline registered (default)
[    2.116221] io scheduler cfq registered
[    2.117720] pci_hotplug: PCI Hot Plug PCI Core version: 0.5
[    2.118453] pciehp: PCI Express Hot Plug Controller Driver version: 0.4
[    2.119431] efifb: probing for efifb
[    2.120683] efifb: framebuffer at 0x80000000, mapped to 0xfa580000, using 1408k, total 1408k
[    2.120869] efifb: mode is 800x600x24, linelength=2400, pages=1
[    2.121000] efifb: scrolling: redraw
[    2.121117] efifb: Truecolor: size=0:8:8:8, shift=0:16:8:0
[    2.138993] Console: switching to colour frame buffer device 100x37
[    2.153450] fb0: EFI VGA frame buffer device
[    2.155526] Serial: 8250/16550 driver, 32 ports, IRQ sharing enabled
[    2.160105] serial8250: ttyS0 at I/O 0x3f8 (irq = 4) is a 16550A
[    2.160105] isapnp: Scanning for PnP cards...
[    2.219438] Linux agpgart interface v0.103
[    2.231672] brd: module loaded
[    2.280936] loop: module loaded
[    2.287501] scsi0 : ata_piix
[    2.288441] scsi1 : ata_piix
[    2.288993] ata1: PATA max MWDMA2 cmd 0x1f0 ctl 0x3f6 bmdma 0xc040 irq 14
[    2.289166] ata2: PATA max MWDMA2 cmd 0x170 ctl 0x376 bmdma 0xc048 irq 15
[    2.295005] libphy: Fixed MDIO Bus: probed
[    2.295910] tun: Universal TUN/TAP device driver, 1.6
[    2.296027] tun: (C) 1999-2004 Max Krasnyansky <maxk@qualcomm.com>
[    2.296113] PPP generic driver version 2.4.2
[    2.296113] ehci_hcd: USB 2.0 'Enhanced' Host Controller (EHCI) Driver
[    2.296113] ehci-pci: EHCI PCI platform driver
[    2.296113] ehci-platform: EHCI generic platform driver
[    2.296113] ohci_hcd: USB 1.1 'Open' Host Controller (OHCI) Driver
[    2.296113] uhci_hcd: USB Universal Host Controller Interface driver
[    2.296113] i8042: PNP: No PS/2 controller found. Probing ports directly.
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[    2.300908] serio: i8042 KBD port at 0x60,0x64 irq 1
[    2.301161] serio: i8042 AUX port at 0x60,0x64 irq 12
[    2.302430] mousedev: PS/2 mouse device common for all mice
[    2.305234] input: AT Translated Set 2 keyboard as /devices/platform/i8042/serio0/input/input0
[    2.308541] rtc_cmos rtc_cmos: rtc core: registered rtc_cmos as rtc0
[    2.308955] rtc0: alarms up to one day, 114 bytes nvram
[    2.309718] device-mapper: uevent: version 1.0.3
[    2.310401] device-mapper: ioctl: 4.23.1-ioctl (2012-12-18) initialised: dm-devel@redhat.com
[    2.310778] EISA: Probing bus 0 at eisa.0
[    2.311228] EISA: Detected 0 cards.
[    2.311654] cpufreq-nforce2: No nForce2 chipset.
[    2.311850] cpuidle: using governor ladder
[    2.311989] cpuidle: using governor menu
[    2.312114] ledtrig-cpu: registered to indicate activity on CPUs
[    2.312114] EFI Variables Facility v0.08 2004-May-17
[    2.312847] ashmem: initialized
[    2.314151] TCP: cubic registered
[    2.315043] NET: Registered protocol family 10
[    2.319096] NET: Registered protocol family 17
[    2.319448] Key type dns_resolver registered
[    2.320178] Using IPI No-Shortcut mode
[    2.321185] Loading module verification certificates
[    2.388343] MODSIGN: Loaded cert 'Magrathea: Glacier signing key:
760b08a5a1de9684ced1bfd52640b05fe41b6ca5'
[    2.388749] registered taskstats version 1
[    2.463282] ata2.00: ATAPI: QEMU DVD-ROM, 1.5.0, max UDMA/100
[    2.464589] ata2.00: configured for MWDMA2
[    2.481977] ata1.00: ATA-7: QEMU HARDDISK, 1.5.0, max UDMA/100
[    2.482142] ata1.00: 4194304 sectors, multi 16: LBA48
[    2.482615] ata1.00: configured for MWDMA2
[    2.630200] Key type trusted registered
[    2.723604] isapnp: No Plug & Play device found
[    2.733063] scsi 0:0:0:0: Direct-Access     ATA      QEMU HARDDISK    1.5. PQ: 0 ANSI: 5
[    2.734854] sd 0:0:0:0: Attached scsi generic sg0 type 0
[    2.736626] scsi 1:0:0:0: CD-ROM            QEMU     QEMU DVD-ROM     1.5. PQ: 0 ANSI: 5
[    2.738871] sr0: scsi3-mmc drive: 4x/4x cd/rw xa/form2 tray
[    2.739137] cdrom: Uniform CD-ROM driver Revision: 3.20
[    2.746183] sr 1:0:0:0: Attached scsi generic sg1 type 5
[    2.746880] sd 0:0:0:0: [sda] 4194304 512-byte logical blocks: (2.14 GB/2.00 GiB)
[    2.749208] sd 0:0:0:0: [sda] Write Protect is off
[    2.749720] sd 0:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPO or FUA
[    2.770299]  sda: sda1 sda2 sda3 sda4
[    2.781197] sd 0:0:0:0: [sda] Attached SCSI disk
[    2.817305] Key type encrypted registered
[    2.883417] rtc_cmos rtc_cmos: setting system clock to 2013-11-23 08:08:22 UTC (1385194102)
[    2.883978] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found
[    2.884150] EDD information not available.
[    2.888258] Freeing unused kernel memory: 796k freed
[    2.905213] Write protecting the kernel text: 6360k
[    2.905842] Write protecting the kernel read-only data: 2496k
[    2.996559] Switching to clocksource tsc
Loading, please wait...
[    3.548082] udevd[94]: starting version 175
Begin: Loading essential drivers ... done.
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... Begin: Running /scripts/local-top ... done.
[    5.732537] Disabling lock debugging due to kernel taint
[    5.818667] e1000: Intel(R) PRO/1000 Network Driver - version 7.3.21-k8-NAPI
[    5.818862] e1000: Copyright (c) 1999-2006 Intel Corporation.
[    6.218158] e1000 0000:00:03.0 eth0: (PCI:33MHz:32-bit) 52:54:00:12:34:56
[    6.218482] e1000 0000:00:03.0 eth0: Intel(R) PRO/1000 Network Connection
Begin: Running /scripts/local-premount ... done.
Begin: Running /scripts/local-bottom ... done.
done.
Begin: Running /scripts/init-bottom ... done.
[    8.874480] init: ureadahead main process (210) terminated with status 5
```

[13.455611] Adding 523260k swap on /dev/sda4. Priority:-1 extents:1 across:523260k
fsck from util-linux 2.20.1

fsck from util-linux 2.20.1

dosfsck 3.0.12, 29 Oct 2011, FAT32, LFN

/dev/sda3 was not cleanly unmounted, check forced.

/dev/sda2: 6 files, 262/97523 clusters

Checking disk drives for errors. This may take several minutes.

Press C to cancel all checks in progress

/dev/sda3: 55810/689520 files (1.6% non-contiguous), 821662/1377280 blocks

mountall: fsck / [227] terminated with status 1

Skipping profile in /etc/apparmor.d/disable: usr.sbin.rsyslogd

 * Starting AppArmor profiles   [80G
[74G[OK]

 * Stopping System V initialisation compatibility[74G[OK]

 * Starting System V runlevel compatibility[74G[OK]

 * Starting save kernel messages[74G[OK]

 * Starting regular background program processing daemon[74G[OK]

 * Starting deferred execution scheduler[74G[OK]

 * Starting automatic crash report generation[74G[OK]

 * Starting CPU interrupts balancing daemon[74G[OK]

 * Starting ACPI daemon[74G[OK]

 * Starting crash report submission daemon[74G[OK]

 * Stopping save kernel messages[74G[OK]

 * Stopping System V runlevel compatibility[74G[OK]