

ME mini ?? SRIOV ????

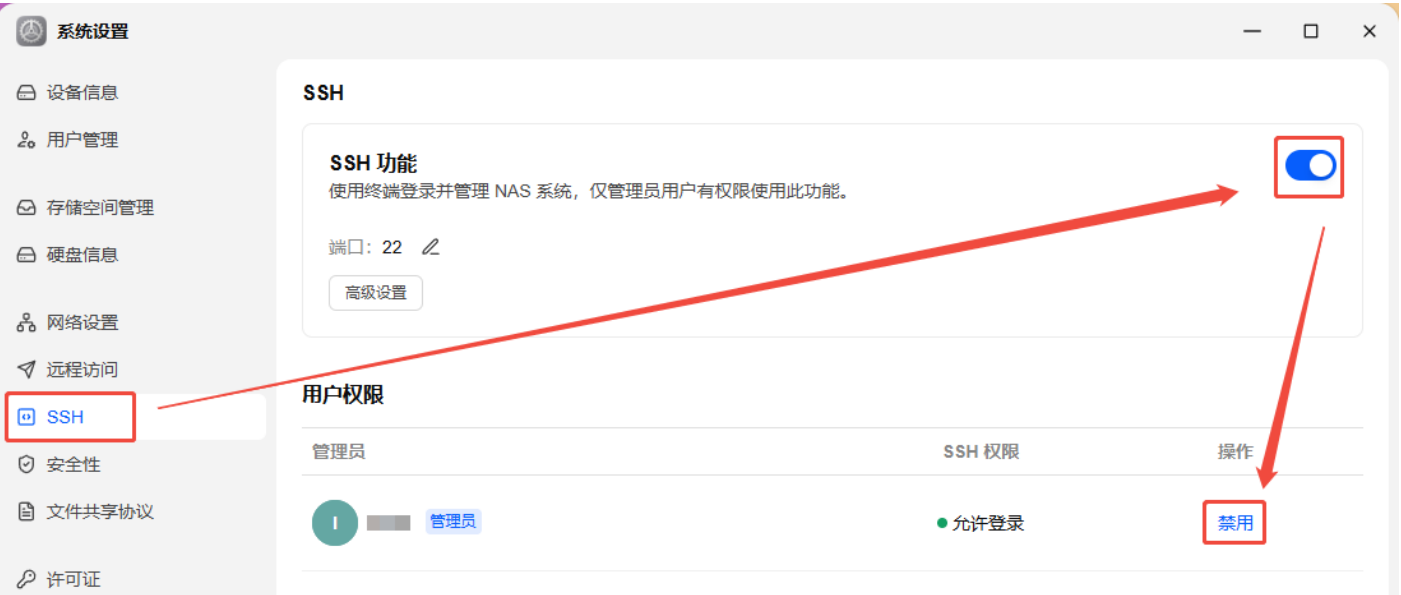
?? ME mini BIOS ????????IOMMU???????????????? ME mini ??????????????????

???

- ?????????????????
- ?????????????????????????????

???

1. ??? SSH ????????? SSH ???????



2. ?? SSH ?????? ?? SSH ????? Windows PowerShell??????????

```
sudo -i
```

?? root ??

????????????????????

```
uname -r
```



```
nano /etc/default/grub
```

```
?? GRUB_CMDLINE_LINUX_DEFAULT ????????????
```

```
intel_iommu=on i915.enable_guc=3 i915.max_vfs=7 module_blacklist=x
```

```
“ AMD ??? intel ?? amd
```

```
????? GRUB ??????????????????????
```

```
Windows PowerShell
GNU nano 7.2 /etc/default/grub *
# If you change this file, run 'update-grub' afterwards to update
# /boot/grub/grub.cfg.
# For full documentation of the options in this file, see:
# info -f grub -n 'Simple configuration'

GRUB_DEFAULT="gnulinux-6.12.18-trim-advanced-4f22d11e-dfd2-44f9-8366-4bbf92926ba2"
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="FNOS"
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash intel_iommu=on i915.enable_guc=3 i915.max_vfs=7 module_blacklist=x"
GRUB_CMDLINE_LINUX="modprobe.blacklist=pcspkr pcie_aspm=off"

# If your computer has multiple operating systems installed, then you
# probably want to run os-prober. However, if your computer is a host
# for guest OSes installed via LVM or raw disk devices, running
# os-prober can cause damage to those guest OSes as it mounts
# filesystems to look for things.
#GRUB_DISABLE_OS_PROBER=false

# Uncomment to enable BadRAM filtering, modify to suit your needs
# This works with Linux (no patch required) and with any kernel that obtains
# the memory map information from GRUB (GNU Mach, kernel of FreeBSD ...)
#GRUB_BADRAM="0x01234567,0xfefefefe,0x89abcdef,0xefefefef"

# Uncomment to disable graphical terminal
GRUB_TERMINAL=console
GRUB_GFXPAYLOAD_LINUX=text

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo     M-A Set Mark
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo     M-G Copy
```

5. ??? ? Ctrl+X ?? y ????

6. ?????? ???

```
update-grub
update-initramfs -u -k all
reboot
```

```

root@lk:~# nano /etc/default/grub
root@lk:~# update-grub
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-6.18.18-trim
Found initrd image: /boot/initrd.img-6.18.18-trim
Found linux image: /boot/vmlinuz-6.12.18-trim
Found initrd image: /boot/initrd.img-6.12.18-trim
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
Adding boot menu entry for UEFI Firmware Settings ...
done
root@lk:~# update-initramfs -u -k all
update-initramfs: Generating /boot/initrd.img-6.18.18-trim
W: Possible missing firmware /lib/firmware/amd/amd_sev_fam19h_model1xh.sbin for module ccp
W: Possible missing firmware /lib/firmware/amd/amd_sev_fam19h_model0xh.sbin for module ccp
W: Possible missing firmware /lib/firmware/amd/amd_sev_fam17h_model3xh.sbin for module ccp
W: Possible missing firmware /lib/firmware/amd/amd_sev_fam17h_model0xh.sbin for module ccp
update-initramfs: Generating /boot/initrd.img-6.12.18-trim
root@lk:~# reboot

```

7. ???????VF?

??????? SSH > root ??????

```
echo 7 > /sys/devices/pci0000:00/0000:00:02.0/sriov_numvfs
```

“ Intel UHD ????????? 7 ? VF

```

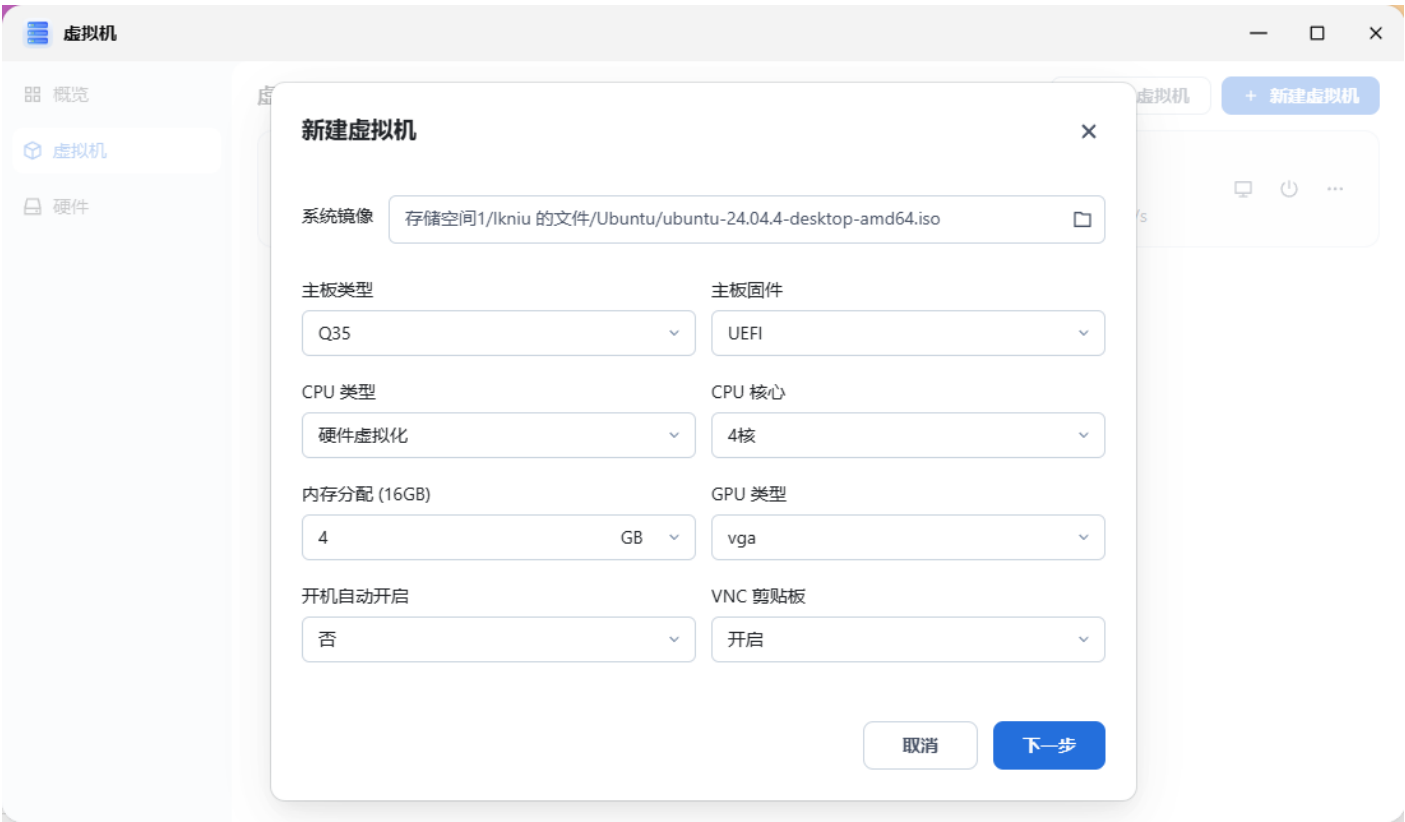
PS C:\Users\ > ssh lk@192.168.3.252
lk@192.168.3.252's password:
Linux lkniu 6.18.18-trim #473 SMP PREEMPT_DYNAMIC Thu Apr  9 09:34:02 UTC 2026 x86_64
Last login: Mon May 11 16:54:21 2026 from 192.168.3.168
lk@lk:~$ sudo -i
[sudo] password for lk:
root@lk:~# echo 7 > /sys/devices/pci0000:00/0000:00:02.0/sriov_numvfs
root@lk:~#

```

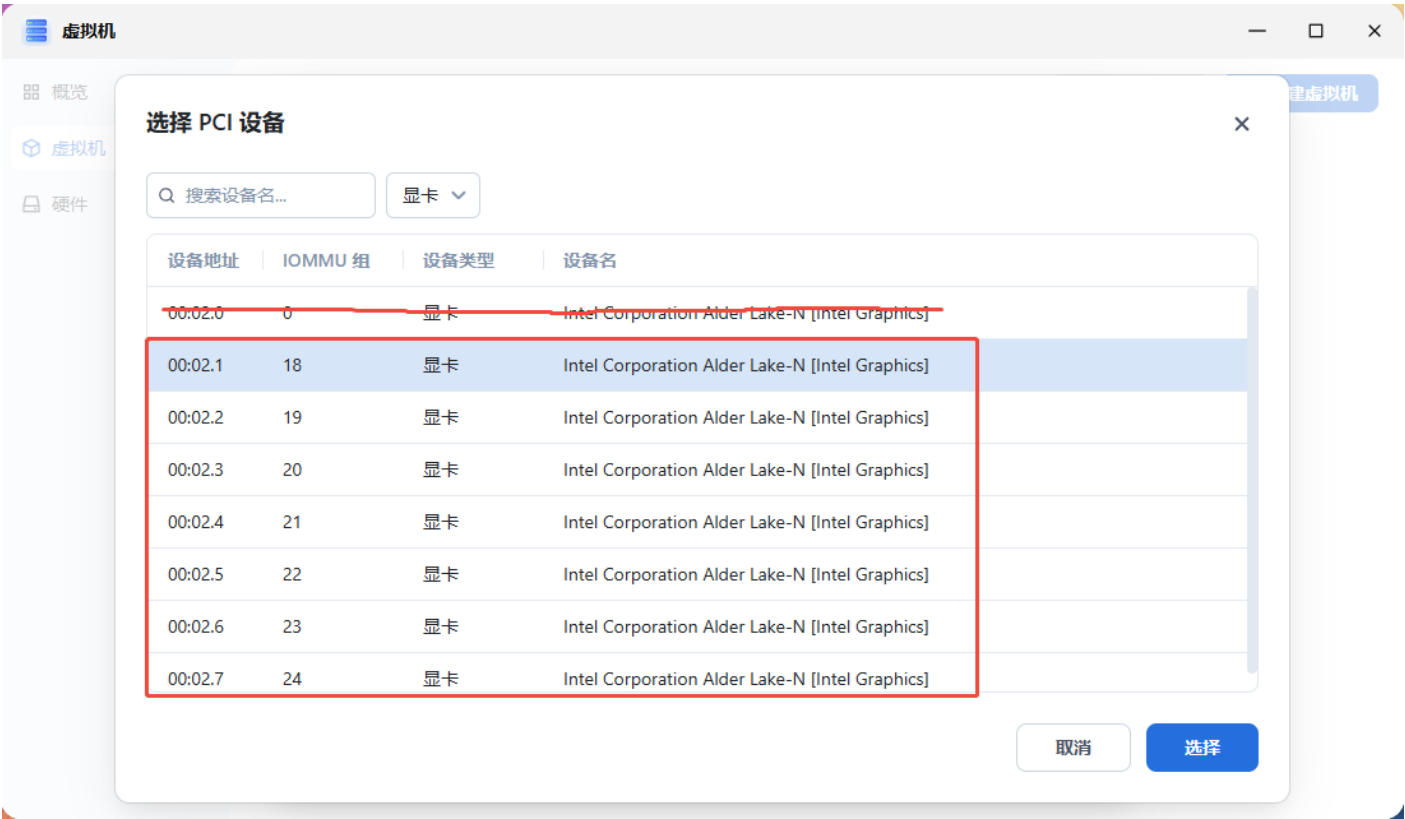
“ ?????????????? SSH?????????

8. ??????? VF

????????? Ubuntu ?????????? VF



? “?????” ???? “PCI???beta?” ????????? VF



“ ?????????? 00.02.0 ???

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9. ???????

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```
sudo apt install build-essential dkms linux-headers-$(uname -r)
```

```
lk@lk: ~  
lk@lk:~$ sudo apt install build-essential dkms linux-headers-$(uname -r)  
[sudo: authenticate] Password:  
linux-headers-6.17.0-23-generic 已经是最新版 (6.17.0-23.23)。  
linux-headers-6.17.0-23-generic 已设置为手动安装。  
下列软件包是自动安装的并且现在不需要了:  
  linux-headers-6.17.0-5  linux-headers-6.17.0-5-generic  linux-modules-6.17.0-5-generic  linux-tools-6.17.0-5  linux-tools-6.17.0-5-generic  
使用'sudo apt autoremove'来卸载它(它们)。  
  
将要安装:  
  build-essential  dkms  
  
将要安装的依赖:  
  bzip2      g++-15-x86-64-linux-gnu  gcc-x86-64-linux-gnu  libcc1-0      libhwasan0  libtsan2  
  dpkg-dev  g++-x86-64-linux-gnu    libalgorithm-diff-perl  libdpkg-perl  libitm1     libubsan1  
  fakeroot  gcc                    libalgorithm-diff-xs-perl  libfakeroot  liblsan0    lto-disabled-list  
  g++       gcc-15                 libalgorithm-merge-perl  libfile-fcntllock-perl  libquadmath0  make  
  g++-15    gcc-15-x86-64-linux-gnu  libasan8               libgcc-15-dev  libstdc++-15-dev  
  
建议安装:  
  bzip2-doc      debian-tag2upload-keyring  gcc-15-doc  automake  bison      gcc-15-locales  bzip  
  menu           g++-multilib              gcc-multilib  libtool  gcc-doc    gdb-x86-64-linux-gnu  libstdc++-15-doc  
  debian-keyring  g++-15-multilib           autoconf     flex      gcc-15-multilib  git              make-doc  
  
摘要:  
  升级: 0, 安装: 31, 卸载: 0, 不升级: 125  
  下载大小: 58.0 MB  
  所需的空间: 201 MB / 51.7 GB 可用  
  
是否继续? [Y/n]
```

????????????????

```
wget -O /tmp/i915-sriov-dkms_2026.05.06_amd64.deb "https://github.com/strongtz/i915-sriov-dkms/
```

????????

```
2026-05-12 11:25:49 (3.96 MB/s) - 已保存 '/tmp/i915-sriov-dkms_2026.05.06_amd64.deb' [2467424/2467424])
```

```
sudo dpkg -i /tmp/i915-sriov-dkms_2026.05.06_amd64.deb
```

????????

```
update-initramfs: Generating /boot/initrd.img-6.17.0-23-generic
```

10. ?? GRUB ????

???

```
sudo nano /etc/default/grub
```

?? GRUB_CMDLINE_LINUX_DEFAULT ????????????

```
i915.enable_guc=3 module_blacklist=xe
```

“ ?????? GRUB ?????????????????????”



```
lk@lk: ~ — sudo nano /etc/default/grub
GNU nano 8.4 /etc/default/grub *
# If you change this file or any /etc/default/grub.d/*.cfg file,
# run 'update-grub' afterwards to update /boot/grub/grub.cfg.
# For full documentation of the options in these files, see:
#   info -f grub -n 'Simple configuration'

GRUB_DEFAULT=0
GRUB_TIMEOUT_STYLE=hidden
GRUB_TIMEOUT=0
GRUB_DISTRIBUTOR=`( . /etc/os-release && echo ${NAME} )`
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash i915.enable_guc=3 module_blacklist=xe"
GRUB_CMDLINE_LINUX=""
```

? Ctrl+X ?? y ????? ??????????????

```
sudo update-grub
sudo update-initramfs -u
reboot
```

```
lk@lk:~$ sudo update-grub
Sourcing file `/etc/default/grub'
Sourcing file `/etc/default/grub.d/kdump-tools.cfg'
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-6.17.0-23-generic
Found initrd image: /boot/initrd.img-6.17.0-23-generic
Found memtest86+ 64bit EFI image: /boot/memtest86+x64.efi
Found memtest86+ 32bit EFI image: /boot/memtest86+ia32.efi
Found memtest86+ 64bit image: /boot/memtest86+x64.bin
Found memtest86+ 32bit image: /boot/memtest86+ia32.bin
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
Adding boot menu entry for UEFI Firmware Settings ...
done
lk@lk:~$ sudo update-initramfs -u
update-initramfs: Generating /boot/initrd.img-6.17.0-23-generic
lk@lk:~$ reboot
```

11. ???????? VF

???

```
sudo dmesg | grep i915
```

```
lk@lk:~$ sudo dmesg | grep i915
[sudo] lk 的密码:
[ 0.000000] Command line: BOOT_IMAGE=/boot/vmlinuz-6.17.0-23-generic root=UUID=411a9165-2112-48e3-ac54-a2e1dde319a0 ro quiet splash i915.enable_guc=3 module_blacklist=xv vt.handoff=7
[ 0.037798] Kernel command line: BOOT_IMAGE=/boot/vmlinuz-6.17.0-23-generic root=UUID=411a9165-2112-48e3-ac54-a2e1dde319a0 ro quiet splash i915.enable_guc=3 module_blacklist=xv vt.handoff=7
[ 3.264993] i915: You are using the i915-sriov-dkms module, a ported version of the i915/xv module with SR-IOV support.
[ 3.264997] i915: Please file any bug report at https://github.com/strongtz/i915-sriov-dkms/issues/new.
[ 3.264998] i915: Module Homepage: https://github.com/strongtz/i915-sriov-dkms
[ 3.265316] i915 0000:09:00.0: [drm] Found alderlake_p/alderlake_n (device ID 46d4) integrated display version 13.00 stepping D0
[ 3.265356] i915 0000:09:00.0: Running in SR-IOV VF mode ✓
[ 3.266368] i915 0000:09:00.0: [drm] GT0: GUC: interface version 0.1.24.4
[ 3.266951] i915 0000:09:00.0: [drm] VT-d active for gfx access
[ 3.267018] i915 0000:09:00.0: [drm] Using Transparent Hugepages
[ 3.269462] i915 0000:09:00.0: [drm] GT0: GUC: interface version 0.1.24.4
[ 3.270101] i915 0000:09:00.0: [drm] GT0: GUC: interface version 0.1.24.4
[ 3.276310] i915 0000:09:00.0: GuC firmware PRELOADED version 0.0 submission:SR-IOV VF
[ 3.276321] i915 0000:09:00.0: HuC firmware PRELOADED
[ 3.289144] i915 0000:09:00.0: [drm] Protected Xe Path (PXP) protected content support initialized
[ 3.289163] i915 0000:09:00.0: [drm] PMU not supported for this GPU.
[ 3.292263] [drm] Initialized i915 1.6.0 for 0000:09:00.0 on minor 1
[ 5.706586] i915 0000:09:00.0: vgaarb: VGA decodes changed: olddecodes=io+mem,decodes=none:owns=none
```

?????? Running in SR-IOV VF moded ?? SR-IOV ??????

?????

```
sudo lspci -nnk | grep -A2 -i "VGA\|Display"
```

?????? Kernel driver in use: i915 ???????? i915 ??

```
lk@lk:~$ sudo lspci -nnk | grep -A2 -i "VGA\|Display"
00:03.0 VGA compatible controller [0300]: Device [1234:1111] (rev 02)
        Subsystem: Red Hat, Inc. Device [1af4:1100]
        Kernel driver in use: bochs-drm
--
09:00.0 VGA compatible controller [0300]: Intel Corporation Alder Lake-N [Intel Graphics] [8086:46d4]
        Kernel driver in use: i915 ✓
        Kernel modules: i915, xe
```

??????????????

```
sudo dpkg -P i915-sriov-dkms
```

?????? Deleting module i915-sriov-dkms-2026.05.06 completely from the DKMS tree.

????????????????????

Revision #1

Created 2026-05-12 08:04:27 CST by xiaoshao

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