

GPU passthrough

- [code 43 solved](#)
 - <https://scottlinux.com/2016/03/21/enable-hyper-v-enlightenments-in-kvm-for-better-windows-vm-performance/>

Prereq

- NVIDIA card in second PCIE slot (code 43 if in first slot)
- Windows 10 as guest (code 43 if windows7)

```
cat /proc/driver/nvidia/gpus/0000\:06\:00.0/information
Model:      GeForce GTX 750 Ti
IRQ:        38
GPU UUID:    GPU-1a843395-eac3-0f8f-11f4-7edbb2a0e088
Video BIOS:  82.07.55.00.1b
Bus Type:    PCIe
DMA Size:    40 bits
DMA Mask:    0xffffffff
Bus Location: 0000:06:00.0
Device Minor: 0
```

OVFM

- Install ovfm

[/etc/modules](#)

```
vfio
vfio_iommu_type1
vfio_pci
vfio_virqfd
```

grub

```
vfio-pci.ids=10de:1380,10de:0fbc amd_iommu=on text systemd.unit=multi-
user.target usbcore.autosuspend=-1 elevator=noop
```

```
update-initramfs -u
```

libvirt

Create VM and customize configuration before start:

- firmware to “UEFI” and Q35 BIOS

- CPU model to “host-passthrough”
- CPU pinning
- QXL video card and SPICE server does not cause “code 43”
- hyperv make a huge improvement and does not cause “code 43”
- hidden state='on' is necessary to avoid “code 43”

```
<domain type='kvm'>
  <name>winz</name>
  <uuid>aeb4ed7e-6281-4d57-8cba-78a1622783b3</uuid>
  <memory unit='KiB'>6242304</memory>
  <currentMemory unit='KiB'>6242304</currentMemory>
  <vcpu placement='static'>6</vcpu>
  <cputune>
    <vcpupin vcpu='0' cpuset='0'>/>
    <vcpupin vcpu='1' cpuset='2'>/>
    <vcpupin vcpu='2' cpuset='4'>/>
    <vcpupin vcpu='3' cpuset='1'>/>
    <vcpupin vcpu='4' cpuset='3'>/>
    <vcpupin vcpu='5' cpuset='5'>/>
  </cputune>
  <os>
    <type arch='x86_64' machine='pc-q35-2.6'>hvm</type>
    <loader readonly='yes'
type='pflash'>/usr/share/OVMF/OVMF_CODE.fd</loader>
    <nvram>/var/lib/libvirt/qemu/nvram/winz_VARS.fd</nvram>
    <bootmenu enable='no'>/>
  </os>
  <features>
    <acpi/>
    <apic/>
    <hyperv>
      <relaxed state='on'>/>
      <vapic state='on'>/>
      <spinlocks state='on' retries='8191'>/>
      <vendor_id state='on' value='123456789ab'>/>
    </hyperv>
    <kvm>
      <hidden state='on'>/>
    </kvm>
  </features>
  <cpu mode='host-passthrough'>
    <topology sockets='1' cores='3' threads='2'>/>
  </cpu>
  <clock offset='localtime'>
    <timer name='rtc' tickpolicy='catchup'>/>
    <timer name='pit' tickpolicy='delay'>/>
    <timer name='hpet' present='no'>/>
    <timer name='hypervclock' present='yes'>/>
  </clock>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>restart</on_reboot>
```

```

<on_crash>restart</on_crash>
<pm>
  <suspend-to-mem enabled='no' />
  <suspend-to-disk enabled='no' />
</pm>
<devices>
  <emulator>/usr/bin/kvm-spice</emulator>
  <disk type='block' device='disk'>
    <driver name='qemu' type='raw' cache='none' io='native' />
    <source dev='/dev/zvol/rpool/winz' />
    <target dev='vda' bus='virtio' />
    <boot order='1' />
    <address type='pci' domain='0x0000' bus='0x02' slot='0x04'
function='0x0' />
  </disk>
  <disk type='file' device='cdrom'>
    <driver name='qemu' type='raw' />
    <source file='/storage/software/windows/Win10_1607_Italian_x64.iso' />
    <target dev='sda' bus='sata' />
    <readonly />
    <address type='drive' controller='0' bus='0' target='0' unit='0' />
  </disk>
  <disk type='file' device='cdrom'>
    <driver name='qemu' type='raw' />
    <source file='/var/lib/libvirt/images/virtio-win.iso' />
    <target dev='sdb' bus='sata' />
    <readonly />
    <address type='drive' controller='0' bus='0' target='0' unit='1' />
  </disk>
  <controller type='usb' index='0' model='ich9-ehci1'>
    <address type='pci' domain='0x0000' bus='0x00' slot='0x1d'
function='0x7' />
  </controller>
  <controller type='usb' index='0' model='ich9-uhci1'>
    <master startport='0' />
    <address type='pci' domain='0x0000' bus='0x00' slot='0x1d'
function='0x0' multifunction='on' />
  </controller>
  <controller type='usb' index='0' model='ich9-uhci2'>
    <master startport='2' />
    <address type='pci' domain='0x0000' bus='0x00' slot='0x1d'
function='0x1' />
  </controller>
  <controller type='usb' index='0' model='ich9-uhci3'>
    <master startport='4' />
    <address type='pci' domain='0x0000' bus='0x00' slot='0x1d'
function='0x2' />
  </controller>
  <controller type='sata' index='0'>
    <address type='pci' domain='0x0000' bus='0x00' slot='0x1f'
function='0x2' />

```

```
</controller>
<controller type='pci' index='0' model='pcie-root'/>
<controller type='pci' index='1' model='dmi-to-pci-bridge'>
  <model name='i82801b11-bridge'/>
  <address type='pci' domain='0x0000' bus='0x00' slot='0x1e'
function='0x0'/>
</controller>
<controller type='pci' index='2' model='pci-bridge'>
  <model name='pci-bridge'/>
  <target chassisNr='2'/>
  <address type='pci' domain='0x0000' bus='0x01' slot='0x00'
function='0x0'/>
</controller>
<controller type='virtio-serial' index='0'>
  <address type='pci' domain='0x0000' bus='0x02' slot='0x03'
function='0x0'/>
</controller>
<interface type='bridge'>
  <mac address='52:54:00:3f:38:9e'/>
  <source bridge='br-eth'/>
  <model type='rtl8139'/>
  <address type='pci' domain='0x0000' bus='0x02' slot='0x01'
function='0x0'/>
</interface>
<serial type='pty'>
  <target port='0'/>
</serial>
<console type='pty'>
  <target type='serial' port='0'/>
</console>
<channel type='spicevmc'>
  <target type='virtio' name='com.redhat.spice.0'/>
  <address type='virtio-serial' controller='0' bus='0' port='1'/>
</channel>
<input type='tablet' bus='usb'>
  <address type='usb' bus='0' port='1'/>
</input>
<input type='mouse' bus='ps2'/>
<input type='keyboard' bus='ps2'/>
<graphics type='spice' autoport='yes'>
  <listen type='address'/>
</graphics>
<sound model='ich6'>
  <address type='pci' domain='0x0000' bus='0x02' slot='0x02'
function='0x0'/>
</sound>
<video>
  <model type='qxl' ram='65536' vram='65536' vgamem='16384' heads='1'
primary='yes'/>
  <address type='pci' domain='0x0000' bus='0x00' slot='0x01'
function='0x0'/>
```

```
</video>
<hostdev mode='subsystem' type='usb' managed='yes'>
  <source>
    <vendor id='0x046d' />
    <product id='0xc52b' />
  </source>
  <address type='usb' bus='0' port='4' />
</hostdev>
<hostdev mode='subsystem' type='pci' managed='yes'>
  <source>
    <address domain='0x0000' bus='0x06' slot='0x00' function='0x0' />
  </source>
  <address type='pci' domain='0x0000' bus='0x02' slot='0x06'
function='0x0' />
</hostdev>
<hostdev mode='subsystem' type='pci' managed='yes'>
  <source>
    <address domain='0x0000' bus='0x06' slot='0x00' function='0x1' />
  </source>
  <address type='pci' domain='0x0000' bus='0x02' slot='0x07'
function='0x0' />
</hostdev>
<redirdev bus='usb' type='spicevmc'>
  <address type='usb' bus='0' port='2' />
</redirdev>
<redirdev bus='usb' type='spicevmc'>
  <address type='usb' bus='0' port='3' />
</redirdev>
<memballoon model='none' />
</devices>
</domain>
```

From:

<https://wiki.csgalileo.org/> - **Galileo Labs**

Permanent link:

<https://wiki.csgalileo.org/tips/gpu?rev=1480148641>

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