

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:   0xffffffffffff
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>
    <vcpu pin vcpu='0' cpuset='0' />
    <vcpu pin vcpu='1' cpuset='2' />
    <vcpu pin vcpu='2' cpuset='4' />
    <vcpu pin vcpu='3' cpuset='1' />
    <vcpu pin vcpu='4' cpuset='3' />
    <vcpu pin vcpu='5' cpuset='5' />
  </cputune>
  <os>
    <type arch='x86_64' machine='pc-q35-2.6'>hvm</type>
    <loader readonly='yes'
type='pflash'>/usr/share/0VMF/0VMF_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-ehc1'>
        <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>

```

```
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>

Last update: **2016/11/26 09:24**