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:      0xfffffffff
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:

- In the "Overview" section, set your firmware to "UEFI" and Q35 BIOS

- In the "Processor" section write CPU model to "host-passthrough"

```
<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=1480148388

Last update: **2016/11/26 09:19**