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AMD Ryzen 8845HS iGPU Passthrough

Proxmox 설정

Proxmox에서 iGPU를 패스스루 하기 위한 설정을 아래와 같이 적용한다.

/etc/modules

```
vfio
vfio_iommu_type1
vfio_pci
vfio_virqfd
```

/etc/modprobe.d/blacklist.conf

```
blacklist amdgpu
blacklist radeon
blacklist nouveau
blacklist nvidia*
```

/etc/modprobe.d/kvm.conf

```
options kvm ignore_msrs=1 report_ignored_msrs=0
options kvm-amd nested=1
```

lspci -nnv

```
01:00.0 VGA compatible controller [0300]: Advanced Micro Devices, Inc.
[AMD/ATI] Phoenix3 [1002:1900] (rev d5) (prog-if 00 [VGA controller])
    Subsystem: Advanced Micro Devices, Inc. [AMD/ATI] Device [1002:0124]
    Flags: bus master, fast devsel, latency 0, IRQ 42, IOMMU group 25
    Memory at 7c00000000 (64-bit, prefetchable) [size=256M]
    Memory at dc000000 (64-bit, prefetchable) [size=2M]
    I/O ports at f000 [size=256]
    Memory at dc500000 (32-bit, non-prefetchable) [size=512K]
    Capabilities: [48] Vendor Specific Information: Len=08 <?>
    Capabilities: [50] Power Management version 3
    Capabilities: [64] Express Legacy Endpoint, IntMsgNum 0
    Capabilities: [a0] MSI: Enable- Count=1/4 Maskable- 64bit+
    Capabilities: [c0] MSI-X: Enable+ Count=4 Masked-
    Capabilities: [100] Vendor Specific Information: ID=0001 Rev=1
    Len=010 <?>
```

```
Capabilities: [270] Secondary PCI Express
Capabilities: [2a0] Access Control Services
Capabilities: [2b0] Address Translation Service (ATS)
Capabilities: [2c0] Page Request Interface (PRI)
Capabilities: [2d0] Process Address Space ID (PASID)
Capabilities: [410] Physical Layer 16.0 GT/s <?>
Capabilities: [450] Lane Margining at the Receiver
Kernel driver in use: vfio-pci
Kernel modules: amdgpu
```

```
01:00.1 Audio device [0403]: Advanced Micro Devices, Inc. [AMD/ATI] Radeon
High Definition Audio Controller [Rembrandt/Strix] [1002:1640]
Subsystem: Advanced Micro Devices, Inc. [AMD/ATI] Radeon High
Definition Audio Controller [Rembrandt/Strix] [1002:1640]
Flags: fast devsel, IRQ 255, IOMMU group 26
Memory at dc5c8000 (32-bit, non-prefetchable) [disabled] [size=16K]
Capabilities: [48] Vendor Specific Information: Len=08 <?>
Capabilities: [50] Power Management version 3
Capabilities: [64] Express Legacy Endpoint, IntMsgNum 0
Capabilities: [a0] MSI: Enable- Count=1/1 Maskable- 64bit+
Capabilities: [100] Vendor Specific Information: ID=0001 Rev=1
Len=010 <?>
Capabilities: [2a0] Access Control Services
Kernel driver in use: vfio-pci
Kernel modules: snd_hda_intel
```

위에서 VGA의 id값인 1002:1900과 AUDIO의 id 값인 1002:1640을 vfio장치로 등록합니다.

/etc/modprobe.d/vfio.conf

```
options vfio-pci ids=1002:1900,1002:1640
options vfio-pci disable_idle_d3=1

softdep radeon pre: vfio-pci
softdep amdgpu pre: vfio-pci
softdep snd_hda_intel pre: vfio-pci
```

disable_idle_d3는 해당 장치의 절전모드를 비활성화 하는 옵션입니다.

모두 저장 후 적용 하고 리부팅

```
update-initramfs -u -k all
update-grub
proxmox-boot-tool refresh

reboot
```

가상머신 생성 및 vBios 적용

구형 GPU모델인 (Cezanne, Vega 8 iGPU) 같은 경우는 vBios 설정 없이도 패스스루가 잘 되지만 신형 RDNA3 기반 GPU(Phoenix, Radeon 780M RDNA3 iGPU)의 경우는 반드시 vBios를 적용해야지만 정상적으로 부팅 및 Code43 에러가 발생하지 않습니다.

vBios 및 ROM파일은 아래 링크에서 받을수 있습니다.

<https://github.com/isc30/ryzen-gpu-passthrough-proxmox>

가상머신 생성 후 PCI장치를 아래와 같이 등록해줍니다. 체크박스 확인!

Edit: PCI Device

☐ Mapped Device MDev Type:

Device:

☒ Raw Device

Device:

All Functions: ☐

ROM-Bar: ☒ PCI-Express: ☒

ROM-File: Sub-Vendor ID:

Vendor ID: Sub-Device ID:

Device ID:

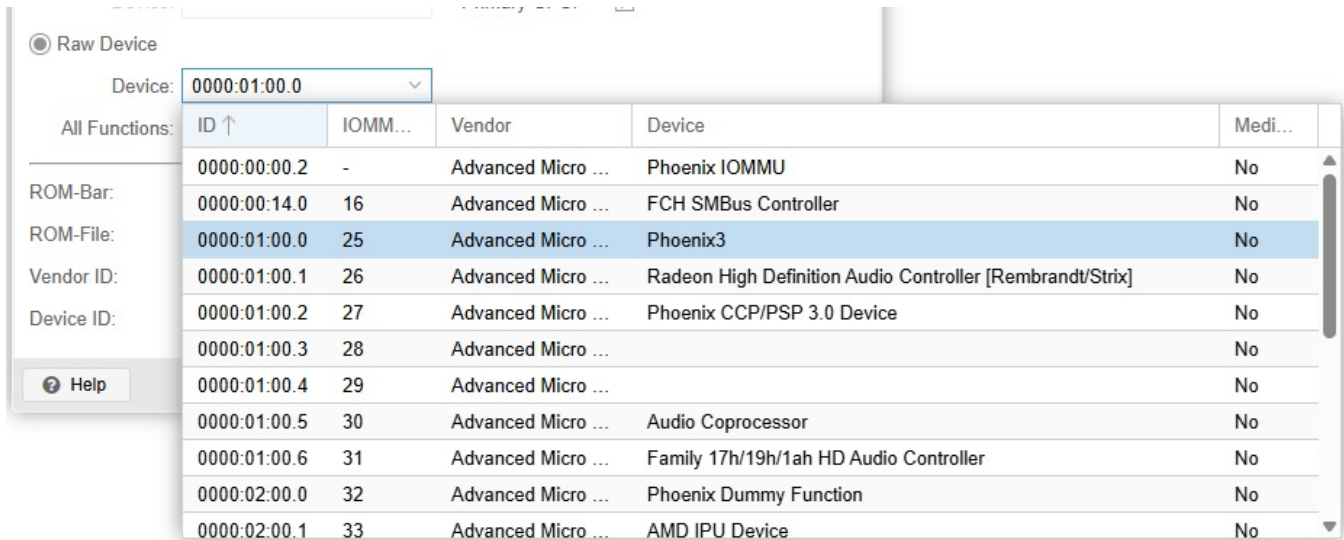
 Advanced ☒

ROM File 설정은 /etc/pve/qemu-server/<VMID>.conf 파일을 열어서 수정해주면 됩니다.

```
boot: order=scsi0;ide2;net0
cores: 4
cpu: host,hidden=1
hostpci0: 0000:01:00.0,pcie=1,x-vga=1,romfile=vbios_8845hs.bin
ide2: none,media=cdrom
machine: q35
memory: 8192
meta: creation-qemu=10.1.2,ctime=1772604340
name: plex.koov.net
net0: virtio=BC:24:11:D0:FD:94,bridge=vmbr0,firewall=1
numa: 0
ostype: l26
scsi0: data-2T1:vm-106-disk-0,discard=on,iothread=1,size=100G
```

```
scsihw: virtio-scsi-single  
smbios1: uuid=6fe8fb7b-1b4c-4d1f-be4d-ac8b83cb7438  
sockets: 1  
vga: std  
vmgenid: 6ddb4c34-7aa8-44f4-b373-6fb1e4579b71
```

이때 주의할점은 hostpci0: 0000:01:00.0,pcie=1,x-vga=1,romfile=vbios_8845hs.bin 와 같이 되어있어야 하는데 장치 주소값이 0000:01:00 까지만 되어있는 경우가 있습니다. 확실하게 VGA 장치의 서브주소까지 0000:01:00.0 명기되어야 합니다.



ID ↑	IOMMU...	Vendor	Device	Medi...
0000:00:00.2	-	Advanced Micro ...	Phoenix IOMMU	No
0000:00:14.0	16	Advanced Micro ...	FCH SMBus Controller	No
0000:01:00.0	25	Advanced Micro ...	Phoenix3	No
0000:01:00.1	26	Advanced Micro ...	Radeon High Definition Audio Controller [Rembrandt/Strix]	No
0000:01:00.2	27	Advanced Micro ...	Phoenix CCP/PSP 3.0 Device	No
0000:01:00.3	28	Advanced Micro ...		No
0000:01:00.4	29	Advanced Micro ...		No
0000:01:00.5	30	Advanced Micro ...	Audio Coprocessor	No
0000:01:00.6	31	Advanced Micro ...	Family 17h/19h/1ah HD Audio Controller	No
0000:02:00.0	32	Advanced Micro ...	Phoenix Dummy Function	No
0000:02:00.1	33	Advanced Micro ...	AMD IPU Device	No

오디오 장치 추가의 경우는 아래 참조링크를 확인하시기 바랍니다.

참조링크

- <https://god-logger.tistory.com/188>
- <https://github.com/isc30/ryzen-gpu-passthrough-proxmox>

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Last update: 2026/03/04 07:10

