

PCI Bus

Understanding a PCI Address

The PCI address is a series of numbers like 0000:04:00.0. The full form is **<domain>:<bus>:<device>.<function>**.

The bus, device, and function numbers specify the device's location on the bus. We can break the device string "0000:04:00.0" down as follows:

- 0000 : PCI domain (each domain can contain up to 256 PCI buses)
- 04 : The bus number the device is attached to
- 00 : The device number
- .0 : PCI device function

sysfs PCI support

The Linux kernel represents PCI devices as pseudo-devices in the sysfs file system. Linux lists these devices in **/sys/bus/pci/devices**.

```
# ls -al /sys/bus/pci/devices

total 0
drwxr-xr-x 2 root root 0 20 sep 14:25 .
drwxr-xr-x 5 root root 0 20 sep 13:53 ..
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:00.0 ->
../..../devices/pci0000:00/0000:00:00.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:02.0 ->
../..../devices/pci0000:00/0000:00:02.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:08.0 ->
../..../devices/pci0000:00/0000:00:08.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:12.0 ->
../..../devices/pci0000:00/0000:00:12.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:14.0 ->
../..../devices/pci0000:00/0000:00:14.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:14.2 ->
../..../devices/pci0000:00/0000:00:14.2
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:16.0 ->
../..../devices/pci0000:00/0000:00:16.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:17.0 ->
../..../devices/pci0000:00/0000:00:17.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1c.0 ->
../..../devices/pci0000:00/0000:00:1c.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1d.0 ->
../..../devices/pci0000:00/0000:00:1d.0
```

```
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1f.0 ->
../../../../devices/pci0000:00/0000:00:1f.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1f.3 ->
../../../../devices/pci0000:00/0000:00:1f.3
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1f.4 ->
../../../../devices/pci0000:00/0000:00:1f.4
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:00:1f.5 ->
../../../../devices/pci0000:00/0000:00:1f.5
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:01:00.0 ->
../../../../devices/pci0000:00/0000:00:1c.0/0000:01:00.0
lrwxrwxrwx 1 root root 0 20 sep 13:53 0000:02:00.0 ->
../../../../devices/pci0000:00/0000:00:1d.0/0000:02:00.0
```

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Last update: **2025/09/20 15:13**

