

Framework

PCIDriverKit

Develop device drivers for Peripheral Component Interconnect (PCI) accessories.

DriverKit 19.0+ | macOS 11.1+



Overview

Use the PCIDriverKit framework to develop drivers that manage custom features on your Peripheral Component Interconnect (PCI) and PCI-Express hardware. When the system loads your custom PCI driver, it passes an [IOPCIDevice](#) object as the provider to your driver. Use that object to read and write the configuration and memory of your PCI hardware.

On macOS, use the [System Extensions](#) framework to install and upgrade your driver. On iPadOS, the system automatically discovers and upgrades drivers along with their host apps.

Note

PCIDriverKit is available on macOS for Intel and Apple Silicon devices, and on iPadOS for devices with an M-series chip.

Topics

Entitlements

```
com.apple.developer.driverkit.transport.pci
```

An array of PCI device descriptors that your custom driver supports.

Samples



DriverKit sample code

Explore projects that demonstrate how to write macOS device drivers with the DriverKit family of frameworks.

Device Interface



Creating Custom PCIe Drivers for Thunderbolt Devices

Create a DriverKit extension to support your Thunderbolt device's custom features.

IOPCIDevice

A DriverKit provider object that manages access to your custom PCI hardware.

Reference



PCIDriverKit Enumerations



PCIDriverKit Data Types



PCIDriverKit Macros

Macros

kIOPCIACSCapabilitiesKey

kIOPCIAERCapabilitiesKey

kIOPCIExpressDeviceCapabilities2Key

kIOPCIExpressDeviceCapabilitiesKey

kIOPCIExpressLinkCapabilities2Key

kIOPCIExpressRootCapabilitiesKey

kIOPCIExpressSlotCapabilities2Key

kIOPCIFPBCapabilitiesKey

kIOPCIL1PMCapabilitiesKey

kIOPCIMSIMessageControlKey

kIOPCIMSIXMessageControlKey

kIOPCIPTMCapabilitiesKey

kIOPCIPowerManagementCapabilitiesKey

Enumeration Cases

kIOPCICapabilityIDAF
kIOPCICapabilityIDEnhancedAllocation
kIOPCICapabilityIDSATAConfiguration
kIOPCIExpressCapabilityIDAMD
kIOPCIExpressCapabilityIDATS
kIOPCIExpressCapabilityIDAlternateProtocol
kIOPCIExpressCapabilityIDCAC
kIOPCIExpressCapabilityIDDPA
kIOPCIExpressCapabilityIDDPC
kIOPCIExpressCapabilityIDDVSEC
kIOPCIExpressCapabilityIDDataLinkFeature
kIOPCIExpressCapabilityIDFRSQueueing
kIOPCIExpressCapabilityIDHierarchyID
kIOPCIExpressCapabilityIDLNR
kIOPCIExpressCapabilityIDLaneMarginingRx
kIOPCIExpressCapabilityIDMFVC
kIOPCIExpressCapabilityIDMPCIE
kIOPCIExpressCapabilityIDMRIOV
kIOPCIExpressCapabilityIDMulticast
kIOPCIExpressCapabilityIDNPEM
kIOPCIExpressCapabilityIDPASID
kIOPCIExpressCapabilityIDPL16GTs
kIOPCIExpressCapabilityIDPL32GTs
kIOPCIExpressCapabilityIDPMUX
kIOPCIExpressCapabilityIDPRI

kIOPCIExpressCapabilityIDRCECEndpointAssociation

kIOPCIExpressCapabilityIDRCInternalLinkCtrl

kIOPCIExpressCapabilityIDRCLinkDeclaration

kIOPCIExpressCapabilityIDReadinessTimeReporting

kIOPCIExpressCapabilityIDResizableBAR

kIOPCIExpressCapabilityIDRootComplexRegBlock

kIOPCIExpressCapabilityIDSFI

kIOPCIExpressCapabilityIDSPCIe

kIOPCIExpressCapabilityIDSRIOV

kIOPCIExpressCapabilityIDTPHRequester

kIOPCIExpressCapabilityIDVC_MFVCPresent

kIOPCIExpressCapabilityIDVFResizableBAR

kIOPCIExpressCapabilityIDVSEC

kIOPCISlotStatusAttentionButtonPressed

kIOPCISlotStatusCommandCompleted

kIOPCISlotStatusDataLinkLayerStateChanged

kIOPCISlotStatusElectromechanicalInterlockState

kIOPCISlotStatusMRLSensorChanged

kIOPCISlotStatusMRLSensorState

kIOPCISlotStatusPowerFaultDetected

kIOPCISlotStatusPresenceDetectChanged

kIOPCISlotStatusPresenceDetectState