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# Introduction: -

**PCI enumeration: -**

The OS can discover them via the standard PCI enumeration mechanism, using config accesses to discover and identify devices and read and size their BARs.

# PCIe platform/ Controller driver flow in Exynos: -

File - <Android\_Root\_Folder>/Android-kernel/exynos/drivers/pci/controller/dwc/v920/ pcie-exynos-v920-rc-auto.c

struct platform\_driver exynos\_pcie\_driver = {

.probe = exynos\_v920\_pcie\_probe,

…

};

static int pcie\_init\_v920(void)

{

return platform\_driver\_register(&exynos\_pcie\_driver);

}

## 2.1. PCI core code flow: -

### 2.1.1. pci\_device\_probe(): -

File: - Android-kernel/exynos/drivers/pci/pci\_driver.c

struct bus\_type pci\_bus\_type = {

.name = "pci",

.match = pci\_bus\_match,

.uevent = pci\_uevent,

.probe = pci\_device\_probe,

….

}

pci\_device\_probe()

{

1. pci\_assign\_irq( );
2. pci\_dev\_get( );
3. \_\_pci\_device\_probe( );

{

pci\_match\_device( );

pci\_call\_probe( ) {

local\_pci\_probe () {

rc = pci\_drv->probe(pci\_dev, ddi->id);

|= = > Probably this function calls drivers probe function.

}

}

}

}

pci\_dev\_get(): -

Increments the reference count of the pci device structure, when they bind to a device, and release them by calling pci\_dev\_put(), in their disconnect() methods.

\_\_pci\_device\_probe ( ) : –

Check if a driver wants to claim a specific PCI device.

@ drv : driver to call to check if it wants the PCI device

@ pci\_dev : PCI device being probed

pci\_match\_device ( ): -

See if a device matches a driver's list of IDs

@ drv: the PCI driver to match against

@ dev: the PCI device structure to match against

# PCIe device (Cypress WLAN) code flow: -

Reference - Android\_Code\_Sync\_13122022/Android-kernel/exynos/Documentation/PCI/pci.rst

PCI drivers "discover" PCI devices in a system via pci\_register\_driver(). Actually, it's the other way around. When the PCI generic code discovers a new device, the driver with a matching "description" will be notified.

## PCIe enumeration: -

PCIe enumeration is process of accessing configuration space registers for each bus, devices and functions. By the time PCI enumeration is complete, address space is fully assigned and device is ready for use. The Device number, different from VID and DID, is merely a device's sequential number on that bus. Moreover, after a new bridge is detected, a new bus number is defined, and device enumeration restarts at device number zero.

CPU spawns PCI bus – 0, which is root bus. This bus is some physical wires coming from CPU.

Any thing which is connected to PCI bus, is called PCI device. There are two types of PCI devices: -

1. PCI endpoint device
2. PCI bridge device

Any device which can spawn bus underneath it, is called PCI bridge.

There can be 256 buses (Bus: 0 to 255), as there is 8-bit field for buses.

Similarly, there can be 32 devices (Device: 0 to 31), as there is 5-bit field for devices.

There can be at max 8 functions per device ( Fn: 0 to 7), as there is 3-bit field for functions. Under functions, there is config registers.

Type 0 is configuration space for EP device and Type – 1 is that for bridge device.

Bios or PCI root bus driver should know whether it is communicating with a Endpoint device or Bridge device. For this in both Type – 0 and Type – 1 configuration space, there is a filed “HEADER TYPE”. Value in this filed identifies whether it is a EP or Bridge.

Value in HEADER Type and its meaning: -

0 – Non-bridge function

1 – PCI to PCI bridge

2 – CardBus bridge

Function - dhdpcie\_init()

File - Android-kernel/exynos/drivers/net/wireless/cypress/bcmdhd/dhd\_pcie\_linux.c

int dhdpcie\_init(struct pci\_dev \*pdev)

{

….

/\* Find the PCI resources, verify the \*/

/\* vendor and device ID, map BAR regions and irq, update in structures \*/

if (dhdpcie\_scan\_resource(dhdpcie\_info)) {

DHD\_ERROR(("%s: dhd\_Scan\_PCI\_Res failed\n", \_\_FUNCTION\_\_));

break;

}

….

}

Date – 27th Dec prints

Prints added in below places: -

1. local\_pci\_probe(void \*\_ddi), File - Android-kernel/exynos/drivers/pci/pci-driver.c
2. store\_pcie\_v920( ), File – Android-kernel/exynos/drivers/pci/controller/dwc/v920/pcie-exynos-v920-rc-auto.c
3. exynos\_v920\_pcie\_probe( ), File - Android-kernel/exynos/drivers/pci/controller/dwc/v920/pcie-exynos-v920-rc-auto.c
4. Added “dump\_stack\_lvl(KERN\_ALERT)”.

**Bootup logs: -**

1 3 0:[ 7.439201][ T1] MIR: In function - exynos\_v920\_pcie\_probe

1 3 0:[ 8.465924][ T1] MIR: In function - (null)

1 3 0:[ 8.465924][ T1] , \_\_func\_\_...

1 3 0:[ 8.466218][ T1] CPU: 0 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

2 3 1:[ 8.466224][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

1 3 0:[ 8.466226][ T1] Call trace:inker Cache.

1 3 0:[ 8.466227][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 8.466230][ T1] show\_stack+0x28/0x38t Storage...

1 3 0:[ 8.466233][ T1] dump\_stack\_lvl+0x68/0x84rage.

1 3 0:[ 8.466237][ T1] pci\_device\_probe+0x154/0x1acies...

1 3 0:[ 8.466242][ T1] call\_driver\_probe+0x48/0x124es.

1 3 0:[ 8.466245][ T1] really\_probe+0xd4/0x360

1 3 0:[ 8.466248][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 8.466251][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 8.466253][ T1] \_\_device\_attach\_driver+0x140/0x1f0

1 3 0:[ 8.466257][ T1] bus\_for\_each\_drv+0x94/0xe4utdown...

1 3 0:[ 8.466261][ T1] \_\_device\_attach+0x120/0x1bc

1 3 0:[ 8.466264][ T1] device\_attach+0x24/0x34

1 3 0:[ 8.466267][ T1] pci\_bus\_add\_device+0x60/0xb8own.

1 3 0:[ 8.466271][ T1] pci\_bus\_add\_devices+0x50/0x94

1 3 0:[ 8.466275][ T1] pci\_host\_probe+0x128/0x180

1 3 0:[ 8.466279][ T1] dw\_pcie\_host\_init+0x35c/0x414

1 3 0:[ 8.466282][ T1] add\_pcie\_port\_v920+0x134/0x1e0 [pcie\_exynos\_v920\_dw\_rc]

1 3 0:[ 8.466291][ T1] exynos\_v920\_pcie\_probe+0x5e8/0x844 [pcie\_exynos\_v920\_dw\_rc]

1 3 0:[ 8.466299][ T1] platform\_probe+0xbc/0xe4

1 3 0:[ 8.466303][ T1] call\_driver\_probe+0x48/0x124

1 3 0:[ 8.466306][ T1] really\_probe+0xd4/0x360d.

1 3 0:[ 8.466309][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 8.466311][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 8.466314][ T1] \_\_driver\_attach+0x118/0x260ries.

1 3 0:[ 8.466317][ T1] bus\_for\_each\_dev+0x90/0xe0

1 3 0:[ 8.466323][ T1] driver\_attach+0x34/0x44ctivation Socket.

1 3 0:[ 8.466325][ T1] bus\_add\_driver+0x118/0x21cket.

1 3 0:[ 8.466330][ T1] driver\_register+0x88/0x124

1 3 0:[ 8.466333][ T1] \_\_platform\_driver\_register+0x34/0x44

1 3 0:[ 8.466337][ T1] init\_module+0x30/0x40 [pcie\_exynos\_v920\_dw\_rc]

1 3 0:[ 8.466345][ T1] do\_one\_initcall+0xc4/0x300

1 3 0:[ 8.466348][ T1] do\_init\_module+0x58/0x38c

1 3 0:[ 8.466352][ T1] load\_module+0xd88/0xee0

1 3 0:[ 8.466355][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

1 3 0:[ 8.466358][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

1 3 0:[ 8.466362][ T1] invoke\_syscall+0x50/0x12c

1 3 0:[ 8.466367][ T1] el0\_svc\_common+0xc4/0x104

1 3 0:[ 8.466371][ T1] do\_el0\_svc+0x34/0x94

1 3 0:[ 8.466375][ T1] el0\_svc+0x24/0x84

1 3 0:[ 8.466379][ T1] el0t\_64\_sync\_handler+0x88/0xec

0 2 0: Starting Telephony service...

1 3 0:[ 8.466384][ T1] el0t\_64\_sync+0x1b4/0x1b8

1 3 0:[ 8.467205][ T1] MIR: In function - exynos\_v920\_pcie\_probe

1 3 0:[ 9.492717][ T1] MIR: In function - (null)

1 3 0:[ 9.492717][ T1] , \_\_func\_\_.

1 3 0:[ 9.493139][ T1] CPU: 0 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

idcevo-hv-v920 login: 1 3 0:[ 9.493145][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

1 3 0:[ 9.493147][ T1] Call trace: Stack.

0 2 0:[ OK ] Started Telephony service.

1 3 0:[ 9.493149][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 9.493152][ T1] show\_stack+0x28/0x38

1 3 0:[ 9.493155][ T1] dump\_stack\_lvl+0x68/0x84

1 3 0:[ 9.493158][ T1] pci\_device\_probe+0x154/0x1ac

1 3 0:[ 9.493164][ T1] call\_driver\_probe+0x48/0x124

idcevo-hv-v920 login:

1 3 0:[ 9.493167][ T1] really\_probe+0xd4/0x360

1 3 0:[ 9.493169][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 9.493172][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 9.493175][ T1] \_\_device\_attach\_driver+0x140/0x1f0

1 3 0:[ 9.493178][ T1] bus\_for\_each\_drv+0x94/0xe4

idcevo-hv-v920 login:

1 3 0:[ 9.493183][ T1] \_\_device\_attach+0x120/0x1bc

1 3 0:[ 9.493186][ T1] device\_attach+0x24/0x34

1 3 0:[ 9.493188][ T1] pci\_bus\_add\_device+0x60/0xb8

1 3 0:[ 9.493192][ T1] pci\_bus\_add\_devices+0x50/0x94

1 3 0:[ 9.493196][ T1] pci\_host\_probe+0x128/0x180

1 3 0:[ 9.493201][ T1] dw\_pcie\_host\_init+0x35c/0x414

1 3 0:[ 9.493204][ T1] add\_pcie\_port\_v920+0x134/0x1e0 [pcie\_exynos\_v920\_dw\_rc]

idcevo-hv-v920 login:

1 3 0:[ 9.493213][ T1] exynos\_v920\_pcie\_probe+0x5e8/0x844 [pcie\_exynos\_v920\_dw\_rc]

1 3 0:[ 9.493222][ T1] platform\_probe+0xbc/0xe4

1 3 0:[ 9.493225][ T1] call\_driver\_probe+0x48/0x124

1 3 0:[ 9.493228][ T1] really\_probe+0xd4/0x360

idcevo-hv-v920 login:

1 3 0:[ 9.493231][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 9.493234][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 9.493237][ T1] \_\_driver\_attach+0x118/0x260

1 3 0:[ 9.493239][ T1] bus\_for\_each\_dev+0x90/0xe0

1 3 0:[ 9.493244][ T1] driver\_attach+0x34/0x44

1 3 0:[ 9.493247][ T1] bus\_add\_driver+0x118/0x21c

idcevo-hv-v920 login:

1 3 0:[ 9.493252][ T1] driver\_register+0x88/0x124

1 3 0:[ 9.493254][ T1] \_\_platform\_driver\_register+0x34/0x44

1 3 0:[ 9.493258][ T1] init\_module+0x30/0x40 [pcie\_exynos\_v920\_dw\_rc]

1 3 0:[ 9.493267][ T1] do\_one\_initcall+0xc4/0x300

1 3 0:[ 9.493270][ T1] do\_init\_module+0x58/0x38c

1 3 0:[ 9.493274][ T1] load\_module+0xd88/0xee0

idcevo-hv-v920 login:

1 3 0:[ 9.493277][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

1 3 0:[ 9.493281][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

1 3 0:[ 9.493284][ T1] invoke\_syscall+0x50/0x12c

1 3 0:[ 9.493288][ T1] el0\_svc\_common+0xc4/0x104

1 3 0:[ 9.493293][ T1] do\_el0\_svc+0x34/0x94

idcevo-hv-v920 login:

1 3 0:[ 9.493297][ T1] el0\_svc+0x24/0x84

1 3 0:[ 9.493301][ T1] el0t\_64\_sync\_handler+0x88/0xec

1 3 0:[ 9.493305][ T1] el0t\_64\_sync+0x1b4/0x1b8

1 3 0:[ 9.630530][ T1] MIR: In function -ÿÿÿÿÿ

1 3 0:[ 9.630530][ T1] , \_\_func\_\_

1 3 0:[ 9.630966][ T1] CPU: 2 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

idcevo-hv-v920 login:

1 3 0:[ 9.630978][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

1 3 0:[ 9.630987][ T1] Call trace:

1 3 0:[ 9.630996][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 9.631005][ T1] show\_stack+0x28/0x38

1 3 0:[ 9.631015][ T1] dump\_stack\_lvl+0x68/0x84

idcevo-hv-v920 login:

1 3 0:[ 9.631027][ T1] pci\_device\_probe+0x154/0x1ac

1 3 0:[ 9.631038][ T1] call\_driver\_probe+0x48/0x124

1 3 0:[ 9.631048][ T1] really\_probe+0xd4/0x360

1 3 0:[ 9.631057][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 9.631066][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 9.631075][ T1] \_\_driver\_attach+0x118/0x260

1 3 0:[ 9.631085][ T1] bus\_for\_each\_dev+0x90/0xe0

1 3 0:[ 9.631096][ T1] driver\_attach+0x34/0x44

1 3 0:[ 9.631105][ T1] bus\_add\_driver+0x118/0x21c

1 3 0:[ 9.631116][ T1] driver\_register+0x88/0x124

1 3 0:[ 9.631125][ T1] \_\_pci\_register\_driver+0x4c/0x5c

idcevo-hv-v920 login: 1 3 0:[ 9.631136][ T1] init\_module+0x38/0xfe8 [virtio\_pci]

1 3 0:[ 9.631150][ T1] do\_one\_initcall+0xc4/0x300

1 3 0:[ 9.631159][ T1] do\_init\_module+0x58/0x38c

1 3 0:[ 9.631169][ T1] load\_module+0xd88/0xee0

1 3 0:[ 9.631179][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

1 3 0:[ 9.631189][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

1 3 0:[ 9.631199][ T1] invoke\_syscall+0x50/0x12c

1 3 0:[ 9.631211][ T1] el0\_svc\_common+0xc4/0x104

1 3 0:[ 9.631222][ T1] do\_el0\_svc+0x34/0x94

1 3 0:[ 9.631232][ T1] el0\_svc+0x24/0x84

1 3 0:[ 9.631243][ T1] el0t\_64\_sync\_handler+0x88/0xec

1 3 0:[ 9.631254][ T1] el0t\_64\_sync+0x1b4/0x1b8

1 3 0:[ 9.647134][ T1] MIR: In function -ÿÿÿÿÿ

1 3 0:[ 9.647134][ T1] , \_\_func\_\_

1 3 0:[ 9.647535][ T1] CPU: 2 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

1 3 0:[ 9.647546][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

1 3 0:[ 9.647555][ T1] Call trace:

1 3 0:[ 9.647563][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 9.647573][ T1] show\_stack+0x28/0x38

1 3 0:[ 9.647582][ T1] dump\_stack\_lvl+0x68/0x84

1 3 0:[ 9.647592][ T1] pci\_device\_probe+0x154/0x1ac

1 3 0:[ 9.647603][ T1] call\_driver\_probe+0x48/0x124

1 3 0:[ 9.647612][ T1] really\_probe+0xd4/0x360

1 3 0:[ 9.647621][ T1] \_\_driver\_probe\_device+0x128/0x190

1 3 0:[ 9.647631][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 9.647640][ T1] \_\_driver\_attach+0x118/0x260

5 3 3:[ 9.647649][ T1] bus\_for\_each\_dev+0x90/0xe0

5 3 3:[ 9.647660][ T1] driver\_attach+0x34/0x44

7 3 5:[ 9.647669][ T1] bus\_add\_driver+0x118/0x21c

1 3 0:[ 9.647680][ T1] driver\_register+0x88/0x124

5 3 3:[ 9.647689][ T1] \_\_pci\_register\_driver+0x4c/0x5c

5 3 3:[ 9.647699][ T1] init\_module+0x38/0xfe8 [virtio\_pci]

7 3 5:[ 9.647712][ T1] do\_one\_initcall+0xc4/0x300

1 3 0:[ 9.647722][ T1] do\_init\_module+0x58/0x38c

7 3 5:[ 9.647731][ T1] load\_module+0xd88/0xee0

7 3 5:[ 9.647741][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

7 3 5:[ 9.647751][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

1 3 0:[ 9.647761][ T1] invoke\_syscall+0x50/0x12c

5 3 3:[ 9.647771][ T1] el0\_svc\_common+0xc4/0x104

7 3 5:[ 9.647781][ T1] do\_el0\_svc+0x34/0x94

5 3 3:[ 9.647792][ T1] el0\_svc+0x24/0x84

7 3 5:[ 9.647802][ T1] el0t\_64\_sync\_handler+0x88/0xec

1 3 0:[ 9.647814][ T1] el0t\_64\_sync+0x1b4/0x1b8

7 3 5:[ 9.660979][ T1] MIR: In function -ÿÿÿÿÿ

7 3 5:[ 9.660979][ T1] , \_\_func\_\_

5 3 3:[ 9.661380][ T1] CPU: 2 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

1 3 0:[ 9.661391][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

5 3 3:[ 9.661400][ T1] Call trace:

5 3 3:[ 9.661408][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 9.661417][ T1] show\_stack+0x28/0x38

5 3 3:[ 9.661427][ T1] dump\_stack\_lvl+0x68/0x84

7 3 5:[ 9.661437][ T1] pci\_device\_probe+0x154/0x1ac

5 3 3:[ 9.661448][ T1] call\_driver\_probe+0x48/0x124

5 3 3:[ 9.661459][ T1] really\_probe+0xd4/0x360

1 3 0:[ 9.661469][ T1] \_\_driver\_probe\_device+0x128/0x190

5 3 3:[ 9.661479][ T1] driver\_probe\_device+0x58/0x194

7 3 5:[ 9.661489][ T1] \_\_driver\_attach+0x118/0x260

5 3 3:[ 9.661499][ T1] bus\_for\_each\_dev+0x90/0xe0

1 3 0:[ 9.661511][ T1] driver\_attach+0x34/0x44

5 3 3:[ 9.661521][ T1] bus\_add\_driver+0x118/0x21c

5 3 3:[ 9.661533][ T1] driver\_register+0x88/0x124

7 3 5:[ 9.661544][ T1] \_\_pci\_register\_driver+0x4c/0x5c

1 3 0:[ 9.661557][ T1] init\_module+0x38/0xfe8 [virtio\_pci]

5 3 3:[ 9.661570][ T1] do\_one\_initcall+0xc4/0x300

7 3 5:[ 9.661580][ T1] do\_init\_module+0x58/0x38c

7 3 5:[ 9.661591][ T1] load\_module+0xd88/0xee0

7 3 5:[ 9.661602][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

1 3 0:[ 9.661613][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

5 3 3:[ 9.661624][ T1] invoke\_syscall+0x50/0x12c

7 3 5:[ 9.661636][ T1] el0\_svc\_common+0xc4/0x104

5 3 3:[ 9.661647][ T1] do\_el0\_svc+0x34/0x94

1 3 0:[ 9.661659][ T1] el0\_svc+0x24/0x84

7 3 5:[ 9.661671][ T1] el0t\_64\_sync\_handler+0x88/0xec

7 3 5:[ 9.661682][ T1] el0t\_64\_sync+0x1b4/0x1b8

7 3 5:[ 9.672833][ T1] MIR: In function -ÿÿÿÿÿ

1 3 0:[ 9.672833][ T1] , \_\_func\_\_

5 3 3:[ 9.673218][ T1] CPU: 2 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

7 3 5:[ 9.673228][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

1 3 0:[ 9.673236][ T1] Call trace:

5 3 3:[ 9.673244][ T1] dump\_backtrace+0x0/0x214

7 3 5:[ 9.673254][ T1] show\_stack+0x28/0x38

7 3 5:[ 9.673263][ T1] dump\_stack\_lvl+0x68/0x84

1 3 0:[ 9.673273][ T1] pci\_device\_probe+0x154/0x1ac

7 3 5:[ 9.673283][ T1] call\_driver\_probe+0x48/0x124

7 3 5:[ 9.673292][ T1] really\_probe+0xd4/0x360

5 3 3:[ 9.673301][ T1] \_\_driver\_probe\_device+0x128/0x190

7 3 5:[ 9.673311][ T1] driver\_probe\_device+0x58/0x194

1 3 0:[ 9.673320][ T1] \_\_driver\_attach+0x118/0x260

5 3 3:[ 9.673329][ T1] bus\_for\_each\_dev+0x90/0xe0

5 3 3:[ 9.673340][ T1] driver\_attach+0x34/0x44

7 3 5:[ 9.673349][ T1] bus\_add\_driver+0x118/0x21c

1 3 0:[ 9.673361][ T1] driver\_register+0x88/0x124

7 3 5:[ 9.673370][ T1] \_\_pci\_register\_driver+0x4c/0x5c

7 3 5:[ 9.673380][ T1] init\_module+0x38/0xfe8 [virtio\_pci]

5 3 3:[ 9.673393][ T1] do\_one\_initcall+0xc4/0x300

1 3 0:[ 9.673403][ T1] do\_init\_module+0x58/0x38c

7 3 5:[ 9.673414][ T1] load\_module+0xd88/0xee0

7 3 5:[ 9.673424][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

5 3 3:[ 9.673434][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

1 3 0:[ 9.673444][ T1] invoke\_syscall+0x50/0x12c

7 3 5:[ 9.673454][ T1] el0\_svc\_common+0xc4/0x104

7 3 5:[ 9.673466][ T1] do\_el0\_svc+0x34/0x94

7 3 5:[ 9.673476][ T1] el0\_svc+0x24/0x84

7 3 5:[ 9.673488][ T1] el0t\_64\_sync\_handler+0x88/0xec

1 3 0:[ 9.673498][ T1] el0t\_64\_sync+0x1b4/0x1b8

5 3 3:[ 9.684773][ T1] MIR: In function -ÿÿÿÿÿ

5 3 3:[ 9.684773][ T1] , \_\_func\_\_

7 3 5:[ 9.685169][ T1] CPU: 2 PID: 1 Comm: init Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

1 3 0:[ 9.685180][ T1] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

7 3 5:[ 9.685190][ T1] Call trace:

7 3 5:[ 9.685197][ T1] dump\_backtrace+0x0/0x214

1 3 0:[ 9.685207][ T1] show\_stack+0x28/0x38

7 3 5:[ 9.685215][ T1] dump\_stack\_lvl+0x68/0x84

7 3 5:[ 9.685225][ T1] pci\_device\_probe+0x154/0x1ac

5 3 3:[ 9.685236][ T1] call\_driver\_probe+0x48/0x124

5 3 3:[ 9.685245][ T1] really\_probe+0xd4/0x360

1 3 0:[ 9.685254][ T1] \_\_driver\_probe\_device+0x128/0x190

7 3 5:[ 9.685264][ T1] driver\_probe\_device+0x58/0x194

7 3 5:[ 9.685273][ T1] \_\_driver\_attach+0x118/0x260

5 3 3:[ 9.685281][ T1] bus\_for\_each\_dev+0x90/0xe0

1 3 0:[ 9.685292][ T1] driver\_attach+0x34/0x44

7 3 5:[ 9.685302][ T1] bus\_add\_driver+0x118/0x21c

7 3 5:[ 9.685313][ T1] driver\_register+0x88/0x124

5 3 3:[ 9.685323][ T1] \_\_pci\_register\_driver+0x4c/0x5c

1 3 0:[ 9.685334][ T1] init\_module+0x38/0xfe8 [virtio\_pci]

5 3 3:[ 9.685347][ T1] do\_one\_initcall+0xc4/0x300

7 3 5:[ 9.685356][ T1] do\_init\_module+0x58/0x38c

5 3 3:[ 9.685368][ T1] load\_module+0xd88/0xee0

5 3 3:[ 9.685378][ T1] \_\_se\_sys\_finit\_module+0xcc/0x138

1 3 0:[ 9.685387][ T1] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

5 3 3:[ 9.685397][ T1] invoke\_syscall+0x50/0x12c

5 3 3:[ 9.685408][ T1] el0\_svc\_common+0xc4/0x104

7 3 5:[ 9.685419][ T1] do\_el0\_svc+0x34/0x94

1 3 0:[ 9.685429][ T1] el0\_svc+0x24/0x84

[ 12.354809][ T28] ARBIF\_BE: arbif\_back\_link\_on

5 3 3:[ 9.685440][ T1] el0t\_64\_sync\_handler+0x88/0xec

7 3 5:[ 9.685451][ T1] el0t\_64\_sync+0x1b4/0x1b8

1 3 0:[ 11.524941][ T1] ARBIF\_FE: Successful initialization (BE=vm2)

**sysfs: -**

console:/ # echo 1 > /sys/devices/platform/161c0000.pcie/pcie\_sysfs

[ 217.567612][ T3417] CPU: 6 PID: 3417 Comm: sh Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

[ 217.569298][ T3417] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

[ 217.570970][ T3417] Call trace:

/sys/devices/platform/161c1000.pcie/pcie\_sysfs[ 217.571219][ T3417] dump\_backtrace+0x0/0x214

[ 217.572568][ T3417] show\_stack+0x28/0x38

[ 217.572758][ T3417] dump\_stack\_lvl+0x68/0x84

[ 217.572925][ T3417] store\_pcie\_v920+0x288/0x9d4 [pcie\_exynos\_v920\_dw\_rc]

[ 217.574200][ T3417] dev\_attr\_store+0x28/0x40

[ 217.574369][ T3417] sysfs\_kf\_write+0x4c/0x64

[ 217.594413][ T3417] kernfs\_fop\_write\_iter+0xfc/0x19c

[ 217.594466][ T3417] vfs\_write+0x2cc/0x3f8

[ 217.596015][ T3417] ksys\_write+0x88/0xf8

[ 217.596167][ T3417] \_\_arm64\_sys\_write+0x2c/0x3c

[ 217.596328][ T3417] invoke\_syscall+0x50/0x12c

[ 217.616415][ T3417] el0\_svc\_common+0xc4/0x104

[ 217.616462][ T3417] do\_el0\_svc+0x34/0x94

[ 217.616473][ T3417] el0\_svc+0x24/0x84

[ 217.616488][ T3417] el0t\_64\_sync\_handler+0x88/0xec

[ 217.616496][ T3417] el0t\_64\_sync+0x1b4/0x1b8

console:/ # echo 1 > /sys/devices/platform/161c1000.pcie/pcie\_sysfs

[ 218.514819][ T3417] CPU: 3 PID: 3417 Comm: sh Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

[ 218.516721][ T3417] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

[ 218.518237][ T3417] Call trace:

[ 218.518455][ T3417] dump\_backtrace+0x0/0x214

[ 218.519732][ T3417] show\_stack+0x28/0x38

[ 218.519916][ T3417] dump\_stack\_lvl+0x68/0x84

[ 218.520107][ T3417] store\_pcie\_v920+0x288/0x9d4 [pcie\_exynos\_v920\_dw\_rc]

[ 218.521411][ T3417] dev\_attr\_store+0x28/0x40

[ 218.521608][ T3417] sysfs\_kf\_write+0x4c/0x64

[ 218.522799][ T3417] kernfs\_fop\_write\_iter+0xfc/0x19c

[ 218.523014][ T3417] vfs\_write+0x2cc/0x3f8

[ 218.543003][ T3417] ksys\_write+0x88/0xf8

[ 218.543207][ T3417] \_\_arm64\_sys\_write+0x2c/0x3c

[ 218.544437][ T3417] invoke\_syscall+0x50/0x12c

[ 218.544630][ T3417] el0\_svc\_common+0xc4/0x104

[ 218.544816][ T3417] do\_el0\_svc+0x34/0x94

[ 218.564850][ T3417] el0\_svc+0x24/0x84

[ 218.565038][ T3417] el0t\_64\_sync\_handler+0x88/0xec

[ 218.566281][ T3417] el0t\_64\_sync+0x1b4/0x1b8

**Insmod:**

console:/ #

70-cypress\_auto.clm\_blob iface\_name=wlan0 dhd\_pcie\_bus\_num=1 <

[ 276.183647][ T6001] MIR: In function - (null)

[ 276.183647][ T6001] , \_\_func\_\_

[ 276.185514][ T6001] CPU: 3 PID: 6001 Comm: insmod Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

[ 276.188384][ T6001] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

[ 276.188913][ T6001] Call trace:

[ 276.190079][ T6001] dump\_backtrace+0x0/0x214

[ 276.190271][ T6001] show\_stack+0x28/0x38

[ 276.190437][ T6001] dump\_stack\_lvl+0x68/0x84

[ 276.191647][ T6001] pci\_device\_probe+0x154/0x1ac

[ 276.191851][ T6001] call\_driver\_probe+0x48/0x124

[ 276.193074][ T6001] really\_probe+0xd4/0x360

[ 276.193251][ T6001] \_\_driver\_probe\_device+0x128/0x190

[ 276.213284][ T6001] driver\_probe\_device+0x58/0x194

[ 276.213302][ T6001] \_\_driver\_attach+0x118/0x260

[ 276.213310][ T6001] bus\_for\_each\_dev+0x90/0xe0

[ 276.213320][ T6001] driver\_attach+0x34/0x44

[ 276.213329][ T6001] bus\_add\_driver+0x118/0x21c

[ 276.213339][ T6001] driver\_register+0x88/0x124

[ 276.213347][ T6001] \_\_pci\_register\_driver+0x4c/0x5c

[ 276.213361][ T6001] dhdpcie\_bus\_register+0x4c/0x184 [bcmdhd]

[ 276.237133][ T6001] dhd\_bus\_register+0x2c/0x54 [bcmdhd]

[ 276.257195][ T6001] dhd\_wifi\_platform\_load+0x2ec/0x46c [bcmdhd]

[ 276.257659][ T6001] dhd\_wifi\_platform\_register\_drv+0xcc/0x34c [bcmdhd]

[ 276.259086][ T6001] init\_module+0x8c/0xf94 [bcmdhd]

[ 276.259438][ T6001] do\_one\_initcall+0xc4/0x300

[ 276.279459][ T6001] do\_init\_module+0x58/0x38c

[ 276.279673][ T6001] load\_module+0xd88/0xee0

[ 276.280884][ T6001] \_\_se\_sys\_finit\_module+0xcc/0x138

[ 276.281100][ T6001] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

[ 276.281311][ T6001] invoke\_syscall+0x50/0x12c

[ 276.301418][ T6001] el0\_svc\_common+0xc4/0x104

[ 276.301639][ T6001] do\_el0\_svc+0x34/0x94

[ 276.302841][ T6001] el0\_svc+0x24/0x84

[ 276.303012][ T6001] el0t\_64\_sync\_handler+0x88/0xec

[ 276.303211][ T6001] el0t\_64\_sync+0x1b4/0x1b8

[ 276.324864][ T6001] MIR: In function - ¾

[ 276.324864][ T6001] , \_\_func\_\_

[ 276.326503][ T6001] CPU: 5 PID: 6001 Comm: insmod Tainted: G E 5.15.41MIRFAISAL-14122022-android13-8-ga940a4a0078b-dirty #1

[ 276.329112][ T6001] Hardware name: BMW IDCEvo (SP21-v920-B1) Android IVI VM (DT)

[ 276.349279][ T6001] Call trace:

[ 276.349428][ T6001] dump\_backtrace+0x0/0x214

[ 276.350653][ T6001] show\_stack+0x28/0x38

[ 276.350824][ T6001] dump\_stack\_lvl+0x68/0x84

[ 276.351008][ T6001] pci\_device\_probe+0x154/0x1ac

[ 276.371041][ T6001] call\_driver\_probe+0x48/0x124

[ 276.371264][ T6001] really\_probe+0xd4/0x360

[ 276.372470][ T6001] \_\_driver\_probe\_device+0x128/0x190

[ 276.372679][ T6001] driver\_probe\_device+0x58/0x194

[ 276.372878][ T6001] \_\_driver\_attach+0x118/0x260

[ 276.392884][ T6001] bus\_for\_each\_dev+0x90/0xe0

[ 276.393098][ T6001] driver\_attach+0x34/0x44

[ 276.394317][ T6001] bus\_add\_driver+0x118/0x21c

[ 276.394507][ T6001] driver\_register+0x88/0x124

[ 276.394693][ T6001] \_\_pci\_register\_driver+0x4c/0x5c

[ 276.414755][ T6001] dhdpcie\_bus\_register+0x4c/0x184 [bcmdhd]

[ 276.415273][ T6001] dhd\_bus\_register+0x2c/0x54 [bcmdhd]

[ 276.416682][ T6001] dhd\_wifi\_platform\_load+0x2ec/0x46c [bcmdhd]

[ 276.417094][ T6001] dhd\_wifi\_platform\_register\_drv+0xcc/0x34c [bcmdhd]

[ 276.437230][ T6001] init\_module+0x8c/0xf94 [bcmdhd]

[ 276.437665][ T6001] do\_one\_initcall+0xc4/0x300

[ 276.438900][ T6001] do\_init\_module+0x58/0x38c

[ 276.439096][ T6001] load\_module+0xd88/0xee0

[ 276.459133][ T6001] \_\_se\_sys\_finit\_module+0xcc/0x138

[ 276.459357][ T6001] \_\_arm64\_sys\_finit\_module+0x2c/0x3c

[ 276.460610][ T6001] invoke\_syscall+0x50/0x12c

[ 276.460803][ T6001] el0\_svc\_common+0xc4/0x104

[ 276.460987][ T6001] do\_el0\_svc+0x34/0x94

[ 276.480996][ T6001] el0\_svc+0x24/0x84

[ 276.481189][ T6001] el0t\_64\_sync\_handler+0x88/0xec

[ 276.482419][ T6001] el0t\_64\_sync+0x1b4/0x1b8

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