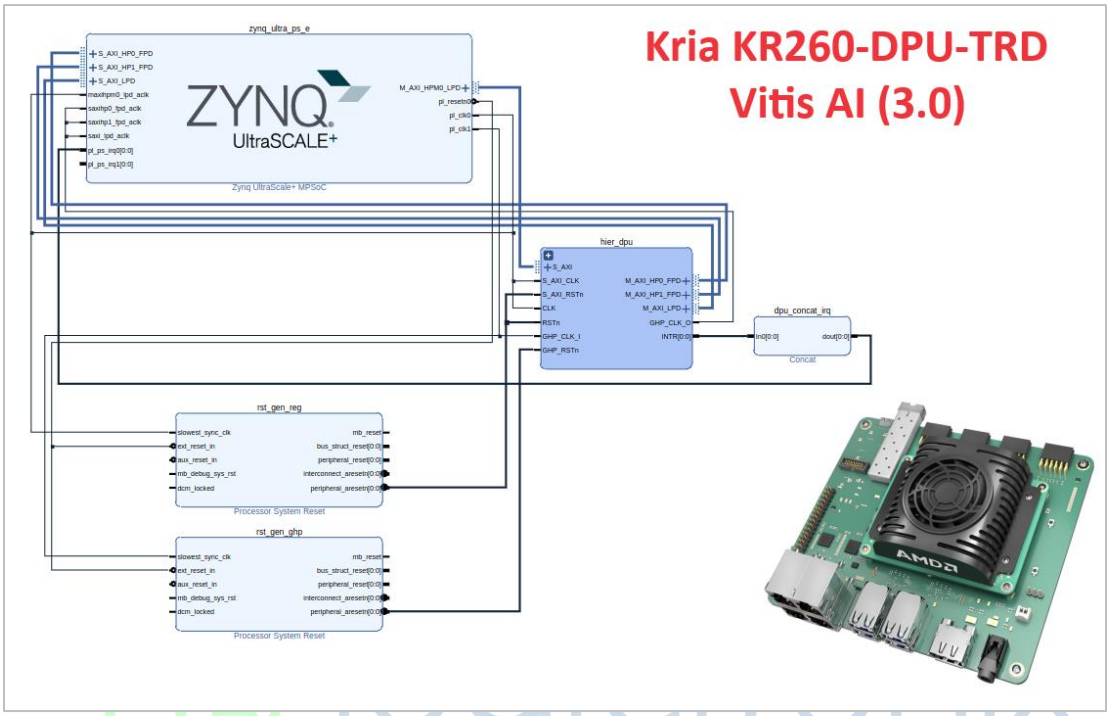
# Kria KR260-DPU-TRD VIVADO Flow with Vitis AI 3.0 (2022.2 tools)

November 28, 2023, Revision(v1.2)




## A. Prerequisite

i. Install Vitis/VIVADO 2022.2 and Petalinux 2022.2
ii. Download Vitis AI(3.0) DPU TRD files: DPUCZDX8G_VAI_v3.0.tar.gz
iii. Download Petalinux 2022.2 BSP for KR260
iv. Linux/Ubuntu PC with 20.04 LTS (preferred also for VIVADO/Vitis and Petalinux 2022.2 tools).

## B. VIVADO IP Design

For VIVADO design we ourself followed "VIVADO DPU TRD for ZCU102" and modified its "project creation tcl script. After then we updated the Zynq PS setting with Board preset and also customized the DPU IP core with lower DPU architecture and lower clock. These DPU configuration is downsized to "generate the VIVADO project on less amount of time", larger the DPU architecture and clock , larger the generation time will be.

We will brief two method for creating "VIVADO project":

a. Customizing ZCU102 DPU TRD- as also mentioned by Hackster post
   - In this method as we migrate the ZCU102 board tcl to Kria KR260, the project pick the MPSoC- PS setting as of ZCU102. Even though the design can work, but using different

set of PS setting is not good practice, PS setting consists of DDR settings , MIO/EMIO and other interface settings as well as locations.

- Goto : **/DPUCZDX8G_VAI_v3.0/prj/Vivado/hw/scripts/trd_prj.tcl**
- Edit following information in it:

```
dict set dict_prj dict_sys prj_name                {KR260}
dict set dict_prj dict_sys prj_part                {xck26-
sfvc784-2LV-c}
dict set dict_prj dict_sys prj_board               {KR260}
dict set dict_prj dict_param  DPU_CLK_MHz            {275}
dict set dict_prj dict_param  DPU_NUM                 {1}
dict set dict_prj dict_param  DPU_ARCH              {512}
dict set dict_prj dict_param  DPU_SFM_NUM             {0}
dict set dict_prj dict_param  DPU_URAM_PER_DPU       {50}
```

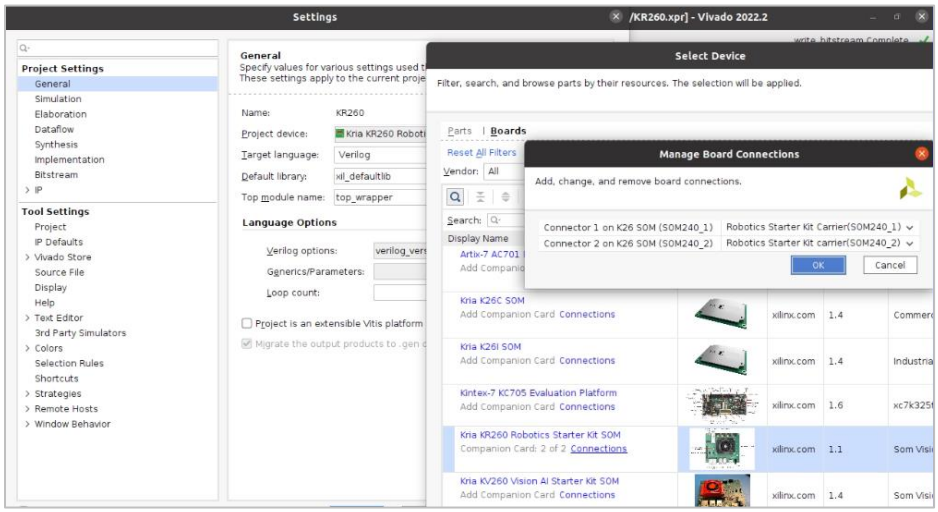
- In above tcl file, we are editing DPU ARCH for 512 , it is for faster generation of the project. If your PC has 8+ Core of CPU and 16GB+ RAM then you can also do 4096(default).
- Also edit : **/DPUCZDX8G_VAI_v3.0/prj/Vivado/hw/scripts/base/trd_bd.tcl**

```
dict set dict_prj dict_param HP_CLK_MHz          {274}
```

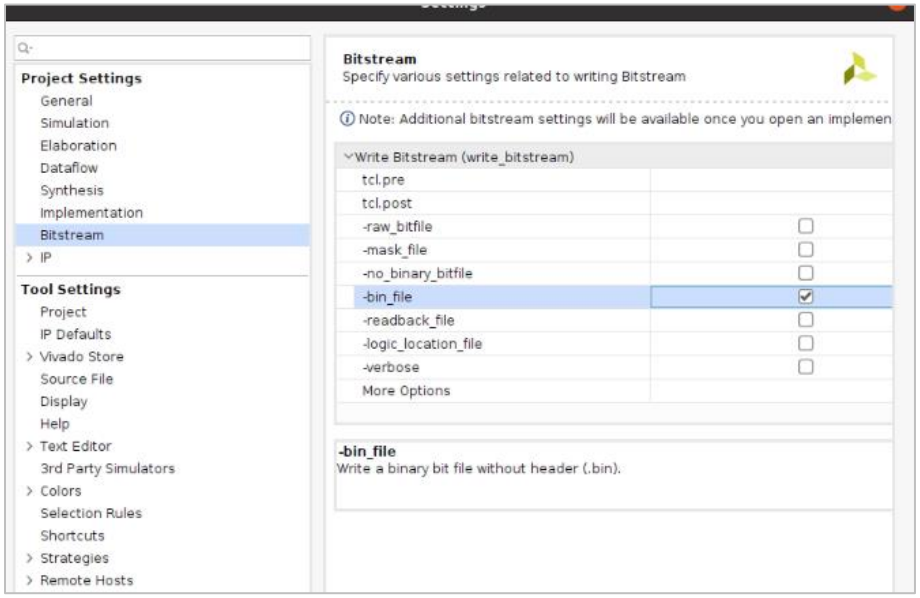
- Now source or open VIVADO 2022.2 , goto (using cd command) /DPUCZDX8G_VAI_v3.0/prj/Vivado/hw/scripts and run:

```
source ./trd_prj.tcl
```

- Now DPU-TRD project will be created in VIVADO.
- On the VIVADO project , goto Project setting, goto “project device” and change the part as “KR260 and also select the both carrier card connection” as below:




- Also goto “Bitstream” setting in “project setting” and “check” the “generate bin” file option.

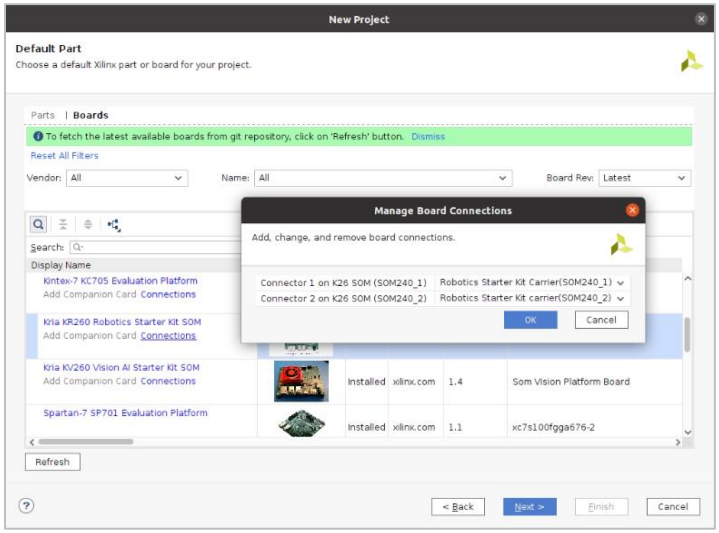



- Save the design and click on “generate bitstream”. It will generate the project.
- After generation complete, you can export hardware (include bitstream) , this hardware we can use in Petalinux and device tree creation.

b. Creating DPU TRD own self from scratch or re-customizing the automated project with “PS preset” and configurations.

We also have provided the “tcl” script for 2022.2 VIVADO. For running this, you have to create a VIVADO project with KR260 board (by also selecting both carrier card connections) as mentioned below:

1. Create the VIVADO project with Kria KR260 board and both carrier card connections.



2. Goto Project Setting → IP → Repository → Add IP Repository and add DPU IP directory , "/DPUCZDX8G_VAI_v3.0/dpu_ip/". Click Apply and OK.

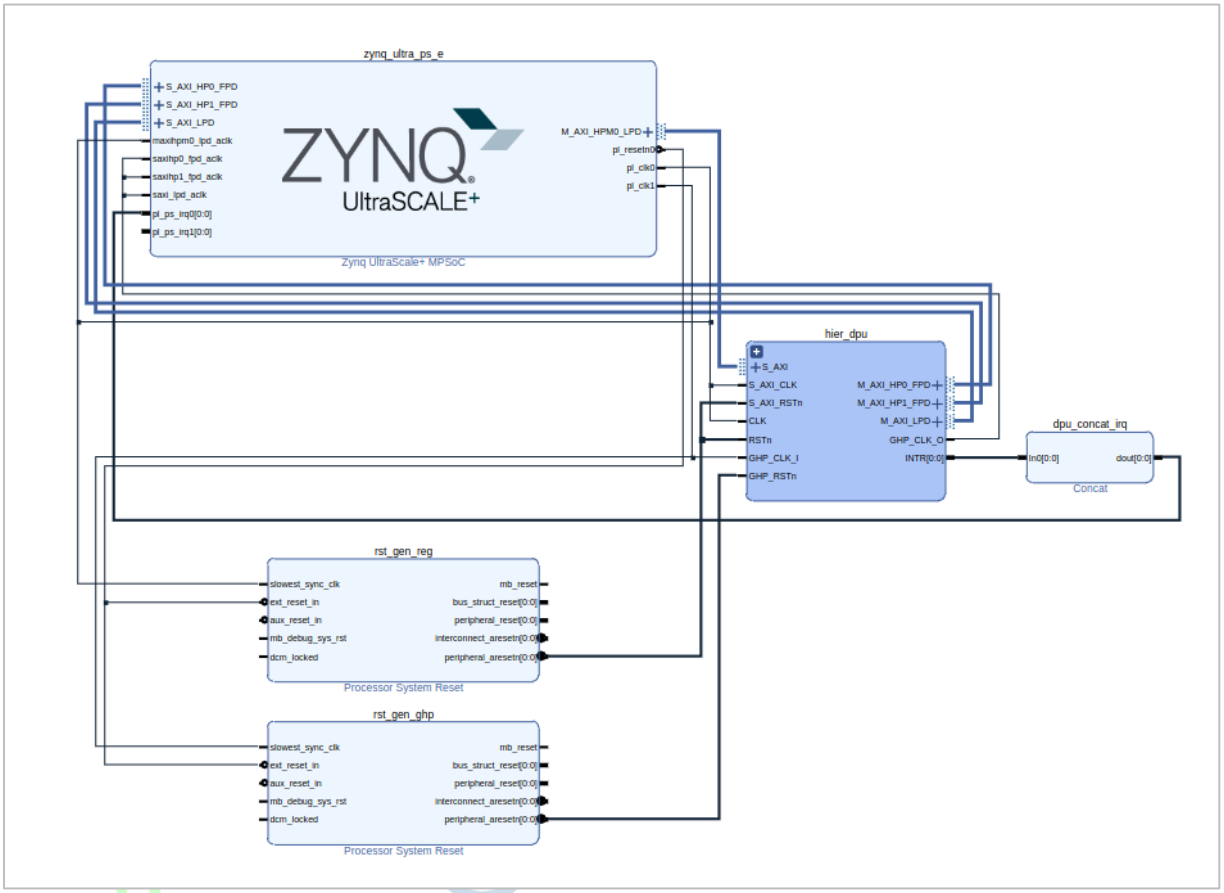
3. After project created, goto tcl console and change the directory to where you have the tcl file.
4. Now, run the tcl file. You can do:

```
source ./kr260-dpu-trd.tcl
```

Here we have copied our tcl script inside VIVADO project directory after creating project.
This will create the VIVADO project with "single core DPU of 512 architecture and clock of 512", we also use some of URAM available on KR260( Kria Device).

5. If you want to increase the DPU architecture then you can goto VIVADO block design → dpu_hier→DPU IP (double click)→ change the arch of DPU IP. You can also change other parameter on this DPU IP configuration menu as wanted.
   Note: Some change can impact on "ML model compatibility if there is change in fingerprint of DPU happen".
6. After project created, you can goto "project setting" and update "bitstream" with "generate bin file".
7. Now click on generate the project.
8. After generation , you can export it (including bitstream), it will create XSA. We will use XSA in upcoming petalinux and device tree creation.

Finally , the VIVADO block design looks similar like to this:




## C. Petalinux project creation, configuration and build

At here you must have downloaded the Kria KR260 Petalinux 2022.2 BSP from Xilinx by logging in there.
We will be referring "**/DPUCZDX8G_VAI_v3.0/prj/Vivado/sw/README.md**" which has detailed the necessary steps for DPU-TRD Petalinux build while some steps will not needed for us.

i. Now create the project

```
$petalinux-create -t project -s <BSP_directory>/xilinx-kr260-starterkit-v2022.2-10141622.bsp --name kr260-dpu-trd
```

ii. Loading Hardware-XSA

1. First approach is using default hardware-XSA from BSP itself and configuring rootfs, kernel etc. While following "FPGA Manager" based overlay loading method, we are going to create a "firmware files- DTBO, BIN and JSON" separately, these firmware will itself load the hardware details so we don't

necessarily need own-XSA for petalinux project and WIC image creation. So, we can also use XSA from BSP itself for WIC image creation.

```
$petalinux-config --get-hw-
description=/home/logictronix01/Downloads/KR260-DPU-
TRD-2/ --silentconfig
```

2. Second approach is using custom (own) XSA on petalinux config and configuring rootfs, kernel etc.

```
$petalinux-config --get-hw-
description=/home/logictronix01/Downloads/KR260-DPU-
TRD-2/custom-xsa-kr260-dpu-trd/ --silentconfig
```

In both approach or after following any of above approach, we have to follow following method.

iii. Config the project

- Enable FPGA Manager
- Disable TFTPboot Copy
- Image Package type INITRD, name as petalinux-initramfs-image. You can goto UG1144 for more details on Image packaging options.
- Save and exit the project config.

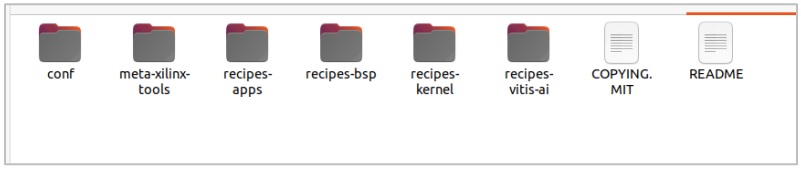
iv. Kernel Config

Now run following kernel config command and enable the DPU Driver:

```
petalinux-config -c kernel
Device Drivers -->
Misc devices -->
<*> Xilinux Deep learning Processing Unit (DPU) Driver
```

v. Copying the recipes from "Vitis DPU TRD Files: **"/DPUCZDX8G_VAI_v3.0/prj/Vivado/sw/meta-vitis/"** into current project: **kr260-dpu-trd/project-spec/meta-user**.

You have to copy: recipes-apps, recipes-vitis-ai, and then copy/merge recipes-kernel




vi. Update "**/project-spec/meta-user/conf/petalinuxbsp.conf**",

IMAGE_INSTALL:append = " vitis-ai-library "

IMAGE_INSTALL:append = " vitis-ai-library-dev "

IMAGE_INSTALL:append = " resnet50 "

vii. Update"**/project-spec/meta-user/conf/user-rootfs.conf**",
CONFIG_vitis-ai-library
CONFIG_vitis-ai-library-dev
CONFIG_vitis-ai-library-dbg

CONFIG_dnf
CONFIG_nfs-utils

viii. Rootfs config:
```
$ petalinux-config -c rootfs
```

Here select the packages and un-select the "vitis-ai-library-dbg".

ix. Now run the petalinux build.

x. After build completes, create the WIC image:
```
petalinux-package --wic --images-dir images/linux/ --
bootfiles "ramdisk.cpio.gz.u-
boot,boot.scr,Image,system.dtb,system-zynqmp-sck-kr-g-
revB.dtb" --disk-name "sda" --wic-extra-args "-c gzip"
```

## D. Preparing SD Card

You can use Balena Etcher for burning SD card(16GB preferred) with WIC image created in previous step "petalinux project build".

## E. Creating firmware files (DTBO)

Here we will use XSCT for creating DTSI from XSA file and then use DTC for compiling DTSI into DTBO.

i. If you have Vitis/VIVADO installed on your PC then source that Vivado or Vitis and enter "**xsct**" in terminal, it will give you XSCT terminal. Else, you can goto :
`$cd <petalinux_installation_directory>/tools/xsct/bin`
and then run :
`$./xsct`, it will also create XSCT terminal.

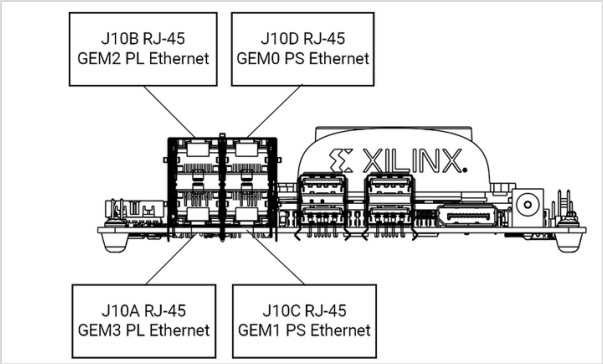
ii. Now we can create the DTSI or device tree using XSCT
```
xsct% createdts -hw
<directory_for_XSA>/top_wrapper_nov5.xsa -zocl -platform-
name KR260 -git-branch xlnx_rel_v2022.2 -overlay -compile -
out <Output_Directory>/dt
```

iii. Use DTC (Device Tree Compiler) to compile DTSI into DTBO:

```
$ dtc -@ -O dtb -o ./kr260.dtbo
./dt/KR260/psu_cortexa53_0/device_tree_domain/bsp/pl.dtsi
```

## F. Copying firmware files to Kria KR260 Board

i. Here you need to have connected KR260 with Ethernet. You can connect top right port (PS ethernet) to router or internet connection.




ii. First check the IP address of KR260 via UART. You can type "ifconfig" and check, also check "ping google.com" to see internet is working on KR260.

iii. Now run following command for "copying the files" to KR260 board:

```
$ scp kr260-dpu-trd.dtbo petalinux@<ip_address_of_kr260>:/home/petalinux/
```

Example:

```
$ scp kr260-dpu-trd.dtbo
petalinux@192.178.1.78:/home/petalinux
```

Now enter the password for petalinux user which you have placed at first boot.

Similarly , you can also copy BIT.BIN and JSON file. Alternatively, you can directly copy the directory instead of single file copy.

## G. Loading firmware

i. We have DTBO, BIT.BIN and JSON file inside **/home/petalinux** directory.

ii. Now create "kr260-dpu-trd" directory inside "**/lib/firmware/xilinx**" with **sudo**.

iii. Copy all three files inside "**/lib/firmware/xilinx/kr260-dpu-trd**" with sudo.

```
$sudo cp -r kr260-dpu-trd.dtbo /lib/firmware/xilinx/kr260-dpu-trd/
```

And copy others.

iv. Run , **sudo xdputil listapps** to see application

v. Run, **sudo xdputil unloadapp**, to unload the default app

vi. Run, **sudo xdputil loadapp kr260-dpu-trd**.

vii. After loading you must get log like following:

```
xilinx-kr260-starterkit-20222:~$ sudo xmutil loadapp kr260-
dpu-trd
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /fpga-full/firmware-name
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /fpga-full/pid
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /fpga-full/resets
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /fpga-full/uid
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/overlay0
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/overlay1
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/afi0
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/clocking0
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/clocking1
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/overlay2
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/hier_dpu_DPUCZDX8G
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/misc_clk_0
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF:
overlay: WARNING: memory leak will occur if overlay
removed, property: /__symbols__/misc_clk_1
kr260-dpu-trd: loaded to slot 0
```

## H. Checking the DPU availability

i. We will run **show_dpu** and **xdputil query** for validating DPU driver installation and availability.

ii. After validating, we will run "**resnet50**" application, resnet50 application can also be found at Vitis AI Runtime [Link1 or Link2]. For this we have to "**re-compile**" the resnet50 from "Vitis AI ModelZoo [Resnet50 Caffe GPU Model [Link]" with our fingerprint. For this step you can also follow "ZCU102 DPU TRD steps: Model compilation".

Here is the log from **show_dpu** and **xdputil query**, while we have included detail log at footer section of this document (Appendix).

```
xilinx-kr260-starterkit-20222:/home/petalinux# show_dpu
device_core_id=0 device= 0 core = 0 fingerprint =
0x101000056010400 batch = 1 full_cu_name=unknown:dpu0

xilinx-kr260-starterkit-20222:/home/petalinux# xdputil query
{
    "DPU IP Spec":{
        "DPU Core Count":1,
        "IP version":"v4.1.0",
        "enable softmax":"False"
    },
    "VAI Version":{
        "libvart-runner.so":"Xilinx vart-runner Version: 3.0.0-
c5d2bd43d951c174185d728b8e5bcda3869e0b39  2023-11-26-18:59:05 ",
        "libvitis_ai_library-dpu_task.so":"Xilinx
vitis_ai_library dpu_task Version: 3.0.0-
c5d2bd43d951c174185d728b8e5bcda3869e0b39  2023-01-13 06:58:30
[UTC] ",
        "libxir.so":"Xilinx xir Version: xir-
c5d2bd43d951c174185d728b8e5bcda3869e0b39 2023-11-26-18:56:23",
        "target_factory":"target-factory.3.0.0
c5d2bd43d951c174185d728b8e5bcda3869e0b39"
    },
    "kernels":[
        {
            "DPU Arch":"DPUCZDX8G_ISA1_B512_0101000056010400",
            "DPU Frequency (MHz)":275,
            "XRT Frequency (MHz)":100,
            "cu_idx":0,
            "fingerprint":"0x101000056010400",
            "is_vivado_flow":true,
            "name":"DPU Core 0"
        }
```

```
    ]
}
```

## Revision History

The following table shows the revision history of this product guide – LRD060.

| Date | Version | Detail |
|---|---|---|
| November 28, 2023 | 1.2 | Initial Release |

*Table 8. Document Revision History*

## About LogicTronix

***LogicTronix is "AMD-Xilinx Partner – Select" and also "Design service partner for AI/ML for Kria SoM FPGAs".***

LogicTronix provides turnkey Solutions, design services, and Intellectual Property (IP) to customers on FPGA Design, Computer/Machine Vision, Learning Acceleration for various applications including ADAS, Surveillance, Computer Vision, etc.

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Know more about our IP Cores: https://www.xilinx.com/alliance/memberlocator/1-1dturdk.html

## Appendix

```
Xilinx Zynq MP First Stage Boot Loader
Release 2022.2   Oct  7 2022  -  04:56:16
MultiBootOffset: 0x40
Reset Mode      :       System Reset
Platform: Silicon (4.0), Running on A53-0 (64-bit) Processor, Device Name: XCZUUNKNEG
QSPI 32 bit Boot Mode
FlashID=0x20 0xBB 0x20
Non authenticated Bitstream download to start now
PL Configuration done successfully
øNOTICE:  BL31: v2.6(release):xlnx_rebase_v2.6_2022.1_update3-18-g0897efd45
NOTICE:  BL31: Built : 03:55:03, Sep  9 2022


U-Boot 2022.01 (Sep 20 2022 - 06:35:33 +0000)


CPU:   ZynqMP
Silicon: v3
PMUFW no permission to change config object
Detected name: zynqmp-smk-k26-xcl2g-rev1-sck-kr-g-rev1
Model: ZynqMP SMK-K26 Rev1/B/A
Board: Xilinx ZynqMP
DRAM:  4 GiB
PMUFW:  v1.1
PMUFW no permission to change config object
Xilinx I2C FRU format at nvmem0:
 Manufacturer Name: XILINX
 Product Name: SMK-K26-XCL2G
 Serial No: XFL1D2430C3M
 Part Number: 5057-04
 File ID: 0x0
 Revision Number: 1
```

```
Xilinx I2C FRU format at nvmem1:
 Manufacturer Name: XILINX
 Product Name: SCK-KR-G
 Serial No: XFL1D55NSHWG
 Part Number: 5100-01
 File ID: 0x0
 Revision Number: 1
EL Level:       EL2
Chip ID:        xck26
NAND:  0 MiB
MMC:
Loading Environment from nowhere... OK
In:    serial
Out:   serial
Err:   serial
Bootmode: QSPI_MODE
Reset reason:   SOFT
Net:
ZYNQ GEM: ff0c0000, mdio bus ff0c0000, phyaddr 8, interface rgmii-id

Warning: ethernet@ff0c0000 MAC addresses don't match:
Address in ROM is               ff:ff:ff:ff:ff:ff
Address in environment is       00:0a:35:0f:db:8a
Get shared mii bus on ethernet@ff0b0000

ZYNQ GEM: ff0b0000, mdio bus ff0c0000, phyaddr 4, interface sgmii
eth0: ethernet@ff0b0000, eth1: ethernet@ff0c0000AXI EMAC: a0030000, phyaddr 0,
interface mii

Warning: ethernet@a0030000 MAC addresses don't match:
Address in DT is                00:0a:35:00:00:02
Address in environment is       00:0a:35:0f:db:8b
, eth2: ethernet@a0030000
```

```
starting USB...
Bus usb@fe200000: Register 2000440 NbrPorts 2
Starting the controller
USB XHCI 1.00
Bus usb@fe300000: Register 2000440 NbrPorts 2
Starting the controller
USB XHCI 1.00
scanning bus usb@fe200000 for devices... 5 USB Device(s) found
scanning bus usb@fe300000 for devices... 4 USB Device(s) found
       scanning usb for storage devices... 1 Storage Device(s) found
Hit any key to stop autoboot:  0
model=SMK-K26-XCL2G


Device 0: Vendor: Generic  Rev: 1.98 Prod: Ultra HS-COMBO
            Type: Removable Hard Disk
            Capacity: 29550.0 MB = 28.8 GB (60518400 x 512)
... is now current device
Scanning usb 0:1...
Found U-Boot script /boot.scr
2777 bytes read in 1 ms (2.6 MiB/s)
## Executing script at 20000000
Trying to load boot images from usb0
21592576 bytes read in 1418 ms (14.5 MiB/s)
45024 bytes read in 5 ms (8.6 MiB/s)
23216191 bytes read in 1528 ms (14.5 MiB/s)
## Loading init Ramdisk from Legacy Image at 04000000 ...
   Image Name:   petalinux-initramfs-image-xilinx
   Created:      2011-04-05  23:00:00 UTC
   Image Type:   AArch64 Linux RAMDisk Image (uncompressed)
   Data Size:    23216127 Bytes = 22.1 MiB
   Load Address: 00000000
   Entry Point:  00000000
```

```
   Verifying Checksum ... OK
## Flattened Device Tree blob at 00100000
   Booting using the fdt blob at 0x100000
   Loading Ramdisk to 779dc000, end 78ffffff ... OK
   Loading Device Tree to 000000000fff2000, end 000000000fffffdf ... OK


Starting kernel ...


[    0.000000] Booting Linux on physical CPU 0x0000000000 [0x410fd034]
[    0.000000] Linux version 5.15.36-xilinx-v2022.2 (oe-user@oe-host) (aarch64-xilinx-linux-gcc (GCC) 11.2.0, GNU ld (GNU Binutils) 2.37.20210721) #1 SMP Mon Oct 3 07:50:07 UTC 2022
[    0.000000] Machine model: ZynqMP SMK-K26 Rev1/B/A
[    0.000000] earlycon: cdns0 at MMIO 0x00000000ff010000 (options '115200n8')
[    0.000000] printk: bootconsole [cdns0] enabled
[    0.000000] efi: UEFI not found.
[    0.000000] Zone ranges:
[    0.000000]   DMA32    [mem 0x0000000000000000-0x00000000ffffffff]
[    0.000000]   Normal   [mem 0x0000000100000000-0x000000087fffffff]
[    0.000000] Movable zone start for each node
[    0.000000] Early memory node ranges
[    0.000000]   node   0: [mem 0x0000000000000000-0x000000007feffffe]
[    0.000000]   node   0: [mem 0x0000000800000000-0x000000087fffffff]
[    0.000000] Initmem setup node 0 [mem 0x0000000000000000-0x000000087fffffff]
[    0.000000] On node 0, zone Normal: 256 pages in unavailable ranges
[    0.000000] cma: Reserved 900 MiB at 0x000000003f400000
[    0.000000] psci: probing for conduit method from DT.
[    0.000000] psci: PSCIv1.1 detected in firmware.
[    0.000000] psci: Using standard PSCI v0.2 function IDs
[    0.000000] psci: MIGRATE_INFO_TYPE not supported.
[    0.000000] psci: SMC Calling Convention v1.2
[    0.000000] percpu: Embedded 18 pages/cpu s34776 r8192 d30760 u73728
[    0.000000] Detected VIPT I-cache on CPU0
```

```
[    0.000000] CPU features: detected: ARM erratum 845719

[    0.000000] Built 1 zonelists, mobility grouping on.  Total pages: 1031940

[    0.000000] Kernel command line:  earlycon console=ttyPS1,115200 clk_ignore_unused
root=/dev/ram0 rw init_fatal_sh=1 xilinx_tsn_ep.st_pcp=4 cma=900M

[    0.000000] Unknown kernel command line parameters "init_fatal_sh=1", will be
passed to user space.

[    0.000000] Dentry cache hash table entries: 524288 (order: 10, 4194304 bytes,
linear)

[    0.000000] Inode-cache hash table entries: 262144 (order: 9, 2097152 bytes,
linear)

[    0.000000] mem auto-init: stack:off, heap alloc:off, heap free:off

[    0.000000] software IO TLB: mapped [mem 0x000000007bf00000-0x000000007ff00000]
(64MB)

[    0.000000] Memory: 3080540K/4193280K available (13888K kernel code, 990K rwdata,
3924K rodata, 2176K init, 573K bss, 191140K reserved, 921600K cma-reserved)

[    0.000000] rcu: Hierarchical RCU implementation.

[    0.000000] rcu:     RCU event tracing is enabled.

[    0.000000] rcu:     RCU restricting CPUs from NR_CPUS=16 to nr_cpu_ids=4.

[    0.000000] rcu: RCU calculated value of scheduler-enlistment delay is 25 jiffies.

[    0.000000] rcu: Adjusting geometry for rcu_fanout_leaf=16, nr_cpu_ids=4

[    0.000000] NR_IRQS: 64, nr_irqs: 64, preallocated irqs: 0

[    0.000000] GIC: Adjusting CPU interface base to 0x00000000f902f000

[    0.000000] Root IRQ handler: gic_handle_irq

[    0.000000] GIC: Using split EOI/Deactivate mode

[    0.000000] random: get_random_bytes called from start_kernel+0x474/0x6d8 with
crng_init=0

[    0.000000] arch_timer: cp15 timer(s) running at 99.99MHz (phys).

[    0.000000] clocksource: arch_sys_counter: mask: 0xffffffffffffff max_cycles:
0x171015c90f, max_idle_ns: 440795203080 ns

[    0.000000] sched_clock: 56 bits at 99MHz, resolution 10ns, wraps every
4398046511101ns

[    0.008304] Console: colour dummy device 80x25

[    0.012397] Calibrating delay loop (skipped), value calculated using timer
frequency.. 199.99 BogoMIPS (lpj=399996)

[    0.022753] pid_max: default: 32768 minimum: 301

[    0.027533] Mount-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
```

```
[    0.034700] Mountpoint-cache hash table entries: 8192 (order: 4, 65536 bytes,
linear)

[    0.043471] rcu: Hierarchical SRCU implementation.

[    0.047495] EFI services will not be available.

[    0.051863] smp: Bringing up secondary CPUs ...

[    0.056575] Detected VIPT I-cache on CPU1

[    0.056612] CPU1: Booted secondary processor 0x0000000001 [0x410fd034]

[    0.056984] Detected VIPT I-cache on CPU2

[    0.057005] CPU2: Booted secondary processor 0x0000000002 [0x410fd034]

[    0.057347] Detected VIPT I-cache on CPU3

[    0.057368] CPU3: Booted secondary processor 0x0000000003 [0x410fd034]

[    0.057409] smp: Brought up 1 node, 4 CPUs

[    0.091692] SMP: Total of 4 processors activated.

[    0.096364] CPU features: detected: 32-bit EL0 Support

[    0.101468] CPU features: detected: CRC32 instructions

[    0.106606] CPU: All CPU(s) started at EL2

[    0.110648] alternatives: patching kernel code

[    0.115958] devtmpfs: initialized

[    0.123579] clocksource: jiffies: mask: 0xffffffff max_cycles: 0xffffffff,
max_idle_ns: 7645041785100000 ns

[    0.128034] futex hash table entries: 1024 (order: 4, 65536 bytes, linear)

[    0.154728] pinctrl core: initialized pinctrl subsystem

[    0.155231] DMI not present or invalid.

[    0.158340] NET: Registered PF_NETLINK/PF_ROUTE protocol family

[    0.164971] DMA: preallocated 512 KiB GFP_KERNEL pool for atomic allocations

[    0.171098] DMA: preallocated 512 KiB GFP_KERNEL|GFP_DMA32 pool for atomic
allocations

[    0.178918] audit: initializing netlink subsys (disabled)

[    0.184322] audit: type=2000 audit(0.124:1): state=initialized audit_enabled=0
res=1

[    0.184668] hw-breakpoint: found 6 breakpoint and 4 watchpoint registers.

[    0.198747] ASID allocator initialised with 65536 entries

[    0.204153] Serial: AMBA PL011 UART driver

[    0.225941] HugeTLB registered 1.00 GiB page size, pre-allocated 0 pages
```

```
[    0.227004] HugeTLB registered 32.0 MiB page size, pre-allocated 0 pages
[    0.233673] HugeTLB registered 2.00 MiB page size, pre-allocated 0 pages
[    0.240329] HugeTLB registered 64.0 KiB page size, pre-allocated 0 pages
[    1.209100] cryptd: max_cpu_qlen set to 1000
[    1.230811] DRBG: Continuing without Jitter RNG
[    1.331671] raid6: neonx8   gen()  2382 MB/s
[    1.399722] raid6: neonx8   xor()  1759 MB/s
[    1.467788] raid6: neonx4   gen()  2426 MB/s
[    1.535836] raid6: neonx4   xor()  1727 MB/s
[    1.603902] raid6: neonx2   gen()  2294 MB/s
[    1.671944] raid6: neonx2   xor()  1579 MB/s
[    1.740015] raid6: neonx1   gen()  1958 MB/s
[    1.808056] raid6: neonx1   xor()  1347 MB/s
[    1.876116] raid6: int64x8  gen()  1518 MB/s
[    1.944167] raid6: int64x8  xor()   859 MB/s
[    2.012222] raid6: int64x4  gen()  1777 MB/s
[    2.080277] raid6: int64x4  xor()   947 MB/s
[    2.148340] raid6: int64x2  gen()  1551 MB/s
[    2.216395] raid6: int64x2  xor()   833 MB/s
[    2.284475] raid6: int64x1  gen()  1148 MB/s
[    2.352508] raid6: int64x1  xor()   574 MB/s
[    2.352545] raid6: using algorithm neonx4 gen() 2426 MB/s
[    2.356497] raid6: .... xor() 1727 MB/s, rmw enabled
[    2.361433] raid6: using neon recovery algorithm
[    2.366476] iommu: Default domain type: Translated
[    2.370864] iommu: DMA domain TLB invalidation policy: strict mode
[    2.377291] SCSI subsystem initialized
[    2.380933] usbcore: registered new interface driver usbfs
[    2.386282] usbcore: registered new interface driver hub
[    2.391557] usbcore: registered new device driver usb
[    2.396614] mc: Linux media interface: v0.10
[    2.400806] videodev: Linux video capture interface: v2.00
```

```
[    2.406273] pps_core: LinuxPPS API ver. 1 registered

[    2.411171] pps_core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti
<giometti@linux.it>

[    2.420260] PTP clock support registered

[    2.424162] EDAC MC: Ver: 3.0.0

[    2.427518] zynqmp-ipi-mbox mailbox@ff990400: Registered ZynqMP IPI mbox with TX/RX
channels.

[    2.435916] FPGA manager framework

[    2.439218] Advanced Linux Sound Architecture Driver Initialized.

[    2.445466] Bluetooth: Core ver 2.22

[    2.448722] NET: Registered PF_BLUETOOTH protocol family

[    2.453990] Bluetooth: HCI device and connection manager initialized

[    2.460306] Bluetooth: HCI socket layer initialized

[    2.465149] Bluetooth: L2CAP socket layer initialized

[    2.470171] Bluetooth: SCO socket layer initialized

[    2.475323] clocksource: Switched to clocksource arch_sys_counter

[    2.481175] VFS: Disk quotas dquot_6.6.0

[    2.484989] VFS: Dquot-cache hash table entries: 512 (order 0, 4096 bytes)

[    2.495828] NET: Registered PF_INET protocol family

[    2.496747] IP idents hash table entries: 65536 (order: 7, 524288 bytes, linear)

[    2.505411] tcp_listen_portaddr_hash hash table entries: 2048 (order: 3, 32768
bytes, linear)

[    2.512504] TCP established hash table entries: 32768 (order: 6, 262144 bytes,
linear)

[    2.520517] TCP bind hash table entries: 32768 (order: 7, 524288 bytes, linear)

[    2.527956] TCP: Hash tables configured (established 32768 bind 32768)

[    2.534155] UDP hash table entries: 2048 (order: 4, 65536 bytes, linear)

[    2.540815] UDP-Lite hash table entries: 2048 (order: 4, 65536 bytes, linear)

[    2.547968] NET: Registered PF_UNIX/PF_LOCAL protocol family

[    2.553751] RPC: Registered named UNIX socket transport module.

[    2.559358] RPC: Registered udp transport module.

[    2.564021] RPC: Registered tcp transport module.

[    2.568689] RPC: Registered tcp NFSv4.1 backchannel transport module.

[    2.575095] PCI: CLS 0 bytes, default 64
```

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[    2.579122] Trying to unpack rootfs image as initramfs...
[    2.585029] armv8-pmu pmu: hw perfevents: no interrupt-affinity property, guessing.
[    2.592300] hw perfevents: enabled with armv8_pmuv3 PMU driver, 7 counters
available
[    3.562156] Freeing initrd memory: 22668K
[    3.592437] Initialise system trusted keyrings
[    3.592564] workingset: timestamp_bits=46 max_order=20 bucket_order=0
[    3.598277] NFS: Registering the id_resolver key type
[    3.602704] Key type id_resolver registered
[    3.606821] Key type id_legacy registered
[    3.610813] nfs4filelayout_init: NFSv4 File Layout Driver Registering...
[    3.617460] nfs4flexfilelayout_init: NFSv4 Flexfile Layout Driver Registering...
[    3.624823] jffs2: version 2.2. (NAND) (SUMMARY)  © 2001-2006 Red Hat, Inc.
[    3.664232] NET: Registered PF_ALG protocol family
[    3.664282] xor: measuring software checksum speed
[    3.671894]    8regs           :  2626 MB/sec
[    3.675629]    32regs          :  3109 MB/sec
[    3.680629]    arm64_neon      :  2564 MB/sec
[    3.681112] xor: using function: 32regs (3109 MB/sec)
[    3.686134] Key type asymmetric registered
[    3.690198] Asymmetric key parser 'x509' registered
[    3.695075] Block layer SCSI generic (bsg) driver version 0.4 loaded (major 244)
[    3.702397] io scheduler mq-deadline registered
[    3.706894] io scheduler kyber registered
[    3.736975] Serial: 8250/16550 driver, 4 ports, IRQ sharing disabled
[    3.738706] Serial: AMBA driver
[    3.741592] cacheinfo: Unable to detect cache hierarchy for CPU 0
[    3.750785] brd: module loaded
[    3.754011] loop: module loaded
[    3.754924] mtdoops: mtd device (mtddev=name/number) must be supplied
[    3.762027] tun: Universal TUN/TAP device driver, 1.6
[    3.764506] CAN device driver interface
[    3.768882] usbcore: registered new interface driver asix
```

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[    3.773631] usbcore: registered new interface driver ax88179_178a

[    3.779668] usbcore: registered new interface driver cdc_ether

[    3.785466] usbcore: registered new interface driver net1080

[    3.791084] usbcore: registered new interface driver cdc_subset

[    3.796966] usbcore: registered new interface driver zaurus

[    3.802511] usbcore: registered new interface driver cdc_ncm

[    3.808769] usbcore: registered new interface driver uas

[    3.813414] usbcore: registered new interface driver usb-storage

[    3.819950] rtc_zynqmp ffa60000.rtc: registered as rtc0

[    3.824556] rtc_zynqmp ffa60000.rtc: setting system clock to 1970-01-01T00:00:08
UTC (8)

[    3.832636] i2c_dev: i2c /dev entries driver

[    3.838434] usbcore: registered new interface driver uvcvideo

[    3.843237] Bluetooth: HCI UART driver ver 2.3

[    3.846949] Bluetooth: HCI UART protocol H4 registered

[    3.852052] Bluetooth: HCI UART protocol BCSP registered

[    3.857342] Bluetooth: HCI UART protocol LL registered

[    3.862431] Bluetooth: HCI UART protocol ATH3K registered

[    3.867804] Bluetooth: HCI UART protocol Three-wire (H5) registered

[    3.874052] Bluetooth: HCI UART protocol Intel registered

[    3.879397] Bluetooth: HCI UART protocol QCA registered

[    3.884596] usbcore: registered new interface driver bcm203x

[    3.890223] usbcore: registered new interface driver bpa10x

[    3.895756] usbcore: registered new interface driver bfusb

[    3.901204] usbcore: registered new interface driver btusb

[    3.906667] usbcore: registered new interface driver ath3k

[    3.912155] EDAC MC: ECC not enabled

[    3.915741] EDAC DEVICE0: Giving out device to module edac controller cache_err:
DEV edac (POLLED)

[    3.924685] EDAC DEVICE1: Giving out device to module zynqmp-ocm-edac controller
zynqmp_ocm: DEV ff960000.memory-controller (INTERRUPT)

[    3.937054] sdhci: Secure Digital Host Controller Interface driver

[    3.942796] sdhci: Copyright(c) Pierre Ossman

[    3.947117] sdhci-pltfm: SDHCI platform and OF driver helper
```

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[    3.953060] ledtrig-cpu: registered to indicate activity on CPUs

[    3.958807] SMCCC: SOC_ID: ARCH_SOC_ID not implemented, skipping ....

[    3.965181] zynqmp_firmware_probe Platform Management API v1.1

[    3.970909] zynqmp_firmware_probe Trustzone version v1.0

[    4.004563] securefw securefw: securefw probed

[    4.004690] zynqmp_aes firmware:zynqmp-firmware:zynqmp-aes: The zynqmp-aes driver
shall be deprecated in 2022.2 and removed in 2023.1

[    4.015550] alg: No test for xilinx-zynqmp-aes (zynqmp-aes)

[    4.020962] zynqmp_aes firmware:zynqmp-firmware:zynqmp-aes: AES Successfully
Registered

[    4.028997] zynqmp-keccak-384 firmware:zynqmp-firmware:sha384: The zynqmp-sha-
deprecated driver shall be deprecated in 2022.2 and removed in 2023.1 release

[    4.042797] alg: No test for xilinx-keccak-384 (zynqmp-keccak-384)

[    4.049049] alg: No test for xilinx-zynqmp-rsa (zynqmp-rsa)

[    4.054549] usbcore: registered new interface driver usbhid

[    4.059950] usbhid: USB HID core driver

[    4.066570] ARM CCI_400_r1 PMU driver probed

[    4.067157] fpga_manager fpga0: Xilinx ZynqMP FPGA Manager registered

[    4.074773] usbcore: registered new interface driver snd-usb-audio

[    4.081278] pktgen: Packet Generator for packet performance testing. Version: 2.75

[    4.088762] Initializing XFRM netlink socket

[    4.092368] NET: Registered PF_INET6 protocol family

[    4.097647] Segment Routing with IPv6

[    4.100881] In-situ OAM (IOAM) with IPv6

[    4.104827] sit: IPv6, IPv4 and MPLS over IPv4 tunneling driver

[    4.110943] NET: Registered PF_PACKET protocol family

[    4.115669] NET: Registered PF_KEY protocol family

[    4.120423] can: controller area network core

[    4.124761] NET: Registered PF_CAN protocol family

[    4.129495] can: raw protocol

[    4.132436] can: broadcast manager protocol

[    4.136590] can: netlink gateway - max_hops=1

[    4.140976] Bluetooth: RFCOMM TTY layer initialized

[    4.145763] Bluetooth: RFCOMM socket layer initialized
```

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[    4.150871] Bluetooth: RFCOMM ver 1.11

[    4.154583] Bluetooth: BNEP (Ethernet Emulation) ver 1.3

[    4.159854] Bluetooth: BNEP filters: protocol multicast

[    4.165048] Bluetooth: BNEP socket layer initialized

[    4.169975] Bluetooth: HIDP (Human Interface Emulation) ver 1.2

[    4.175859] Bluetooth: HIDP socket layer initialized

[    4.180813] 8021q: 802.1Q VLAN Support v1.8

[    4.185033] 9pnet: Installing 9P2000 support

[    4.189198] Key type dns_resolver registered

[    4.193550] registered taskstats version 1

[    4.197486] Loading compiled-in X.509 certificates

[    4.203274] Btrfs loaded, crc32c=crc32c-generic, zoned=no, fsverity=no

[    4.217426] ff010000.serial: ttyPS1 at MMIO 0xff010000 (irq = 60, base_baud =
6249999) is a xuartps

[    4.226458] printk: console [ttyPS1] enabled

[    4.226458] printk: console [ttyPS1] enabled

[    4.230749] printk: bootconsole [cdns0] disabled

[    4.230749] printk: bootconsole [cdns0] disabled

[    4.239953] of-fpga-region fpga-full: FPGA Region probed

[    4.251046] xilinx-zynqmp-dma fd500000.dma-controller: ZynqMP DMA driver Probe
success

[    4.259120] xilinx-zynqmp-dma fd510000.dma-controller: ZynqMP DMA driver Probe
success

[    4.267186] xilinx-zynqmp-dma fd520000.dma-controller: ZynqMP DMA driver Probe
success

[    4.275254] xilinx-zynqmp-dma fd530000.dma-controller: ZynqMP DMA driver Probe
success

[    4.283330] xilinx-zynqmp-dma fd540000.dma-controller: ZynqMP DMA driver Probe
success

[    4.291399] xilinx-zynqmp-dma fd550000.dma-controller: ZynqMP DMA driver Probe
success

[    4.299477] xilinx-zynqmp-dma fd560000.dma-controller: ZynqMP DMA driver Probe
success

[    4.307547] xilinx-zynqmp-dma fd570000.dma-controller: ZynqMP DMA driver Probe
success

[    4.315676] xilinx-zynqmp-dma ffa80000.dma-controller: ZynqMP DMA driver Probe
success
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[    4.323745] xilinx-zynqmp-dma ffa90000.dma-controller: ZynqMP DMA driver Probe
success

[    4.331806] xilinx-zynqmp-dma ffaa0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.339872] xilinx-zynqmp-dma ffab0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.347933] xilinx-zynqmp-dma ffac0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.356002] xilinx-zynqmp-dma ffad0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.364070] xilinx-zynqmp-dma ffae0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.372136] xilinx-zynqmp-dma ffaf0000.dma-controller: ZynqMP DMA driver Probe
success

[    4.380504] xilinx-zynqmp-dpdma fd4c0000.dma-controller: Xilinx DPDMA engine is
probed

[    4.391600] zynqmp-display fd4a0000.display: vtc bridge property not present

[    4.401401] xilinx-dp-snd-codec fd4a0000.display:zynqmp_dp_snd_codec0: Xilinx
DisplayPort Sound Codec probed

[    4.411455] xilinx-dp-snd-pcm zynqmp_dp_snd_pcm0: Xilinx DisplayPort Sound PCM
probed

[    4.419499] xilinx-dp-snd-pcm zynqmp_dp_snd_pcm1: Xilinx DisplayPort Sound PCM
probed

[    4.428294] xilinx-dp-snd-card fd4a0000.display:zynqmp_dp_snd_card: Xilinx
DisplayPort Sound Card probed

[    4.437861] OF: graph: no port node found in /axi/display@fd4a0000

[    4.444203] zynqmp_pll_disable() clock disable failed for dpll_int, ret = -13

[    4.451500] xlnx-drm xlnx-drm.0: bound fd4a0000.display (ops 0xffff800008e649d8)

[    5.535346] zynqmp-display fd4a0000.display: [drm] Cannot find any crtc or sizes

[    5.542999] [drm] Initialized xlnx 1.0.0 20130509 for fd4a0000.display on minor 0

[    5.550503] zynqmp-display fd4a0000.display: ZynqMP DisplayPort Subsystem driver
probed

[    5.560262] spi-nor spi0.0: mt25qu512a (65536 Kbytes)

[    5.561919] tpm_tis_spi spi2.0: 2.0 TPM (device-id 0x1B, rev-id 22)

[    5.565364] 17 fixed-partitions partitions found on MTD device spi0.0

[    5.573945] tpm tpm0: A TPM error (256) occurred attempting the self test

[    5.577997] Creating 17 MTD partitions on "spi0.0":

[    5.584776] tpm tpm0: starting up the TPM manually
```

```
[    5.589639] 0x000000000000-0x000000080000 : "Image Selector"
[    5.600835] 0x000000080000-0x000000100000 : "Image Selector Golden"
[    5.607758] 0x000000100000-0x000000120000 : "Persistent Register"
[    5.614498] 0x000000120000-0x000000140000 : "Persistent Register Backup"
[    5.621830] 0x000000140000-0x000000200000 : "Open_1"
[    5.624682] random: fast init done
[    5.630770] 0x000000200000-0x000000f00000 : "Image A (FSBL, PMU, ATF, U-Boot)"
[    5.638622] 0x000000f00000-0x000000f80000 : "ImgSel Image A Catch"
[    5.645458] 0x000000f80000-0x000001c80000 : "Image B (FSBL, PMU, ATF, U-Boot)"
[    5.653322] 0x000001c80000-0x000001d00000 : "ImgSel Image B Catch"
[    5.660140] 0x000001d00000-0x000001e00000 : "Open_2"
[    5.665739] 0x000001e00000-0x000002000000 : "Recovery Image"
[    5.672050] 0x000002000000-0x000002200000 : "Recovery Image Backup"
[    5.678954] 0x000002200000-0x000002220000 : "U-Boot storage variables"
[    5.686114] 0x000002220000-0x000002240000 : "U-Boot storage variables backup"
[    5.693890] 0x000002240000-0x000002280000 : "SHA256"
[    5.699511] 0x000002280000-0x0000022a0000 : "Secure OS Storage"
[    5.706068] 0x0000022a0000-0x000004050000 : "User"
[    5.710856] mtd: partition "User" extends beyond the end of device "spi0.0" -- size
truncated to 0x1d60000
[    5.721669] macb ff0b0000.ethernet: Not enabling partial store and forward
[    5.729169] macb ff0b0000.ethernet eth0: Defer probe as mdio producer
ff0c0000.ethernet is not probed
[    5.753347] macb ff0c0000.ethernet: Not enabling partial store and forward
[    5.784221] xilinx-axipmon ffa00000.perf-monitor: Probed Xilinx APM
[    5.790734] xilinx-axipmon fd0b0000.perf-monitor: Probed Xilinx APM
[    5.797198] xilinx-axipmon fd490000.perf-monitor: Probed Xilinx APM
[    5.803650] xilinx-axipmon ffa10000.perf-monitor: Probed Xilinx APM
[    5.811273] i2c i2c-1: Added multiplexed i2c bus 3
[    5.816177] i2c i2c-1: Added multiplexed i2c bus 4
[    5.821066] i2c i2c-1: Added multiplexed i2c bus 5
[    5.825953] i2c i2c-1: Added multiplexed i2c bus 6
[    5.830743] pca954x 1-0074: registered 4 multiplexed busses for I2C switch pca9546
```

```
[    5.839268] at24 1-0050: supply vcc not found, using dummy regulator

[    5.845915] at24 1-0050: 8192 byte 24c64 EEPROM, writable, 1 bytes/write

[    5.852741] at24 1-0051: supply vcc not found, using dummy regulator

[    5.859367] at24 1-0051: 8192 byte 24c64 EEPROM, writable, 1 bytes/write

[    5.866272] cdns-i2c ff030000.i2c: 400 kHz mmio ff030000 irq 41

[    5.873572] cdns-wdt fd4d0000.watchdog: Xilinx Watchdog Timer with timeout 60s

[    5.881024] cdns-wdt ff150000.watchdog: Xilinx Watchdog Timer with timeout 10s

[    5.889264] macb ff0b0000.ethernet: Not enabling partial store and forward

[    5.896177] macb ff0b0000.ethernet: invalid hw address, using random

[    5.903049] macb ff0b0000.ethernet eth0: Defer probe as mdio producer
ff0c0000.ethernet is not probed

[    5.929176] macb ff0c0000.ethernet: Not enabling partial store and forward

[    5.936077] macb ff0c0000.ethernet: invalid hw address, using random

[    5.949806] macb ff0c0000.ethernet eth0: Cadence GEM rev 0x50070106 at 0xff0c0000
irq 39 (de:fa:8f:f7:a1:d3)

[    5.982748] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[    5.988269] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 1

[    5.996023] xhci-hcd xhci-hcd.1.auto: hcc params 0x0238f625 hci version 0x100
quirks 0x0000000002010890

[    6.005452] xhci-hcd xhci-hcd.1.auto: irq 66, io mem 0xfe200000

[    6.011574] usb usb1: New USB device found, idVendor=1d6b, idProduct=0002,
bcdDevice= 5.15

[    6.019838] usb usb1: New USB device strings: Mfr=3, Product=2, SerialNumber=1

[    6.027056] usb usb1: Product: xHCI Host Controller

[    6.031926] usb usb1: Manufacturer: Linux 5.15.36-xilinx-v2022.2 xhci-hcd

[    6.038713] usb usb1: SerialNumber: xhci-hcd.1.auto

[    6.043884] hub 1-0:1.0: USB hub found

[    6.047650] hub 1-0:1.0: 1 port detected

[    6.051754] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[    6.057245] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 2

[    6.064901] xhci-hcd xhci-hcd.1.auto: Host supports USB 3.0 SuperSpeed

[    6.071535] usb usb2: New USB device found, idVendor=1d6b, idProduct=0003,
bcdDevice= 5.15

[    6.079801] usb usb2: New USB device strings: Mfr=3, Product=2, SerialNumber=1
```

```
[    6.087020] usb usb2: Product: xHCI Host Controller

[    6.091904] usb usb2: Manufacturer: Linux 5.15.36-xilinx-v2022.2 xhci-hcd

[    6.098686] usb usb2: SerialNumber: xhci-hcd.1.auto

[    6.103823] hub 2-0:1.0: USB hub found

[    6.107590] hub 2-0:1.0: 1 port detected

[    6.134393] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[    6.139896] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 3

[    6.147648] xhci-hcd xhci-hcd.2.auto: hcc params 0x0238f625 hci version 0x100
quirks 0x0000000002010890

[    6.157075] xhci-hcd xhci-hcd.2.auto: irq 69, io mem 0xfe300000

[    6.163217] usb usb3: New USB device found, idVendor=1d6b, idProduct=0002,
bcdDevice= 5.15

[    6.171478] usb usb3: New USB device strings: Mfr=3, Product=2, SerialNumber=1

[    6.178698] usb usb3: Product: xHCI Host Controller

[    6.183571] usb usb3: Manufacturer: Linux 5.15.36-xilinx-v2022.2 xhci-hcd

[    6.190355] usb usb3: SerialNumber: xhci-hcd.2.auto

[    6.195502] hub 3-0:1.0: USB hub found

[    6.199259] hub 3-0:1.0: 1 port detected

[    6.203399] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[    6.208889] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 4

[    6.216550] xhci-hcd xhci-hcd.2.auto: Host supports USB 3.0 SuperSpeed

[    6.223450] usb usb4: New USB device found, idVendor=1d6b, idProduct=0003,
bcdDevice= 5.15

[    6.231722] usb usb4: New USB device strings: Mfr=3, Product=2, SerialNumber=1

[    6.238938] usb usb4: Product: xHCI Host Controller

[    6.243816] usb usb4: Manufacturer: Linux 5.15.36-xilinx-v2022.2 xhci-hcd

[    6.250608] usb usb4: SerialNumber: xhci-hcd.2.auto

[    6.255756] hub 4-0:1.0: USB hub found

[    6.259525] hub 4-0:1.0: 1 port detected

[    6.264081] macb ff0b0000.ethernet: Not enabling partial store and forward

[    6.270994] macb ff0b0000.ethernet: invalid hw address, using random

[    6.301936] macb ff0b0000.ethernet eth1: Cadence GEM rev 0x50070106 at 0xff0b0000
irq 38 (c6:dd:44:8a:4b:ba)

[    6.314567] input: gpio-keys as /devices/platform/gpio-keys/input/input0
```

```
[    6.321581] of_cfs_init

[    6.324043] of_cfs_init: OK

[    6.326945] clk: Not disabling unused clocks

[    6.331455] ALSA device list:

[    6.334410]   #0: DisplayPort monitor

[    6.338881] Freeing unused kernel memory: 2176K

[    6.351337] usb 1-1: new high-speed USB device number 2 using xhci-hcd

[    6.383368] Run /init as init process

[    6.459169] random: python3: uninitialized urandom read (24 bytes read)

[    6.465850] usb 3-1: new high-speed USB device number 2 using xhci-hcd

[    6.511945] usb 1-1: New USB device found, idVendor=0424, idProduct=2744,
bcdDevice= 2.21

[    6.520175] usb 1-1: New USB device strings: Mfr=1, Product=2, SerialNumber=0

[    6.527360] usb 1-1: Product: USB2744

[    6.531022] usb 1-1: Manufacturer: Microchip Tech

[    6.583675] hub 1-1:1.0: USB hub found

[    6.587492] hub 1-1:1.0: 4 ports detected

[    6.619894] usb 3-1: New USB device found, idVendor=0424, idProduct=2744,
bcdDevice= 2.21

[    6.628091] usb 3-1: New USB device strings: Mfr=1, Product=2, SerialNumber=0

[    6.631353] zynqmp-display fd4a0000.display: [drm] Cannot find any crtc or sizes

[    6.635222] usb 3-1: Product: USB2744

[    6.646256] usb 3-1: Manufacturer: Microchip Tech

[    6.651135] usb 2-1: new SuperSpeed USB device number 2 using xhci-hcd

[    6.675746] usb 2-1: New USB device found, idVendor=0424, idProduct=5744,
bcdDevice= 2.21

[    6.683945] usb 2-1: New USB device strings: Mfr=2, Product=3, SerialNumber=0

[    6.691098] usb 2-1: Product: USB5744

[    6.694760] usb 2-1: Manufacturer: Microchip Tech

[    6.703241] hub 3-1:1.0: USB hub found

[    6.707035] hub 3-1:1.0: 3 ports detected

[    6.759684] hub 2-1:1.0: USB hub found

[    6.763582] hub 2-1:1.0: 3 ports detected

[    6.767702] usb 4-1: new SuperSpeed USB device number 2 using xhci-hcd
```

```
[    6.791724] usb 4-1: New USB device found, idVendor=0424, idProduct=5744,
bcdDevice= 2.21

[    6.799921] usb 4-1: New USB device strings: Mfr=2, Product=3, SerialNumber=0

[    6.807064] usb 4-1: Product: USB5744

[    6.810753] usb 4-1: Manufacturer: Microchip Tech

[    6.879239] hub 4-1:1.0: USB hub found

[    6.883138] hub 4-1:1.0: 2 ports detected

[    6.947328] usb 1-1.1: new high-speed USB device number 3 using xhci-hcd

[    7.057632] usb 1-1.1: New USB device found, idVendor=0424, idProduct=2240,
bcdDevice= 1.98

[    7.065997] usb 1-1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=3

[    7.073320] usb 1-1.1: Product: Ultra Fast Media

[    7.078034] usb 1-1.1: Manufacturer: Generic

[    7.082311] usb 1-1.1: SerialNumber: 000000225001

[    7.087095] usb 3-1.3: new high-speed USB device number 3 using xhci-hcd

[    7.094302] usb-storage 1-1.1:1.0: USB Mass Storage device detected

[    7.100838] scsi host0: usb-storage 1-1.1:1.0

[    7.167535] macb ff0b0000.ethernet eth1: PHY [ff0c0000.ethernet-ffffffff:04] driver
[TI DP83867] (irq=POLL)

[    7.177291] macb ff0b0000.ethernet eth1: configuring for phy/sgmii link mode

[    7.184909] pps pps0: new PPS source ptp0

[    7.187329] usb 1-1.4: new high-speed USB device number 4 using xhci-hcd

[    7.189000] macb ff0b0000.ethernet: gem-ptp-timer ptp clock registered.

[    7.196319] usb 3-1.3: New USB device found, idVendor=0424, idProduct=2740,
bcdDevice= 2.00

MAC address for eth1 is updated to 00:0a:35:0f:db:8a[    7.210609] usb 3-1.3: New USB
device strings: Mfr=1, Product=2, SerialNumber=0


[    7.222427] usb 3-1.3: Product: Hub Controller

[    7.227043] usb 3-1.3: Manufacturer: Microchip Tech

[    7.229072] random: python3: uninitialized urandom read (24 bytes read)

[    7.312066] usb 1-1.4: New USB device found, idVendor=0424, idProduct=2740,
bcdDevice= 2.00

[    7.320452] usb 1-1.4: New USB device strings: Mfr=1, Product=2, SerialNumber=0

[    7.327769] usb 1-1.4: Product: Hub Controller
```

```
[    7.332219] usb 1-1.4: Manufacturer: Microchip Tech

[    7.833312] macb ff0c0000.ethernet eth0: PHY [ff0c0000.ethernet-ffffffff:08] driver
[TI DP83867] (irq=POLL)

[    7.843067] macb ff0c0000.ethernet eth0: configuring for phy/rgmii-id link mode

[    7.850942] pps pps1: new PPS source ptp1

[    7.855034] macb ff0c0000.ethernet: gem-ptp-timer ptp clock registered.

MAC address for eth0 is updated to 00:0a:35:0f:d0:40

[    8.124134] scsi 0:0:0:0: Direct-Access     Generic  Ultra HS-COMBO   1.98 PQ: 0
ANSI: 0

[    8.133371] sd 0:0:0:0: [sda] 60518400 512-byte logical blocks: (31.0 GB/28.9 GiB)

[    8.141564] sd 0:0:0:0: [sda] Write Protect is off

[    8.146939] sd 0:0:0:0: [sda] No Caching mode page found

[    8.152245] sd 0:0:0:0: [sda] Assuming drive cache: write through

[    8.161699]  sda: sda1 sda2

[    8.166220] sd 0:0:0:0: [sda] Attached SCSI removable disk

root: recovering journal

[   10.235599] macb ff0b0000.ethernet eth1: unable to generate target frequency:
125000000 Hz

[   10.244948] macb ff0b0000.ethernet eth1: Link is Up - 1Gbps/Full - flow control tx

[   10.252535] IPv6: ADDRCONF(NETDEV_CHANGE): eth1: link becomes ready

root: clean, 71932/524288 files, 437737/1048576 blocks

[   10.403403] EXT4-fs (sda2): mounted filesystem with ordered data mode. Opts:
(null). Quota mode: none.

[   11.092996] systemd[1]: System time before build time, advancing clock.

[   11.144281] systemd[1]: systemd 249.7+ running in system mode (+PAM -AUDIT -SELINUX
-APPARMOR +IMA -SMACK +SECCOMP -GCRYPT -GNUTLS -OPENSSL +ACL +BLKID -CURL -ELFUTILS -
FIDO2 -IDN2 -IDN -IPTC +KMOD -LIBCRYPTSETUP +LIBFDISK -PCRE2 -PWQUALITY -P11KIT -
QRENCODE -BZIP2 -LZ4 -XZ -ZLIB +ZSTD +XKBCOMMON +UTMP +SYSVINIT default-
hierarchy=hybrid)

[   11.174581] systemd[1]: Detected architecture arm64.


Welcome to PetaLinux 2022.2_release_S10071807 (honister)!


[   11.212147] systemd[1]: Hostname set to <xilinx-kr260-starterkit-20222>.

[   11.351030] systemd-sysv-generator[526]: SysV service '/etc/init.d/single' lacks a
native systemd unit file. Automatically generating a unit file for compatibility.
```

```
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.375616] systemd-sysv-generator[526]: SysV service '/etc/init.d/urandom' lacks a
native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.399653] systemd-sysv-generator[526]: SysV service '/etc/init.d/save-rtc.sh'
lacks a native systemd unit file. Automatically generating a unit file for
compatibility. Please update package to include a native systemd unit file, in order
to make it more safe and robust.

[   11.403430] systemd-fstab-generator[519]: Failed to create unit file
/run/systemd/generator/boot.mount, as it already exists. Duplicate entry in
/etc/fstab?

[   11.423914] systemd-sysv-generator[526]: SysV service '/etc/init.d/halt' lacks a
native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.438813] systemd[517]: /lib/systemd/system-generators/systemd-fstab-generator
failed with exit status 1.

[   11.472152] systemd-sysv-generator[526]: SysV service '/etc/init.d/dropbear' lacks
a native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.497034] systemd-sysv-generator[526]: SysV service '/etc/init.d/inetd.busybox'
lacks a native systemd unit file. Automatically generating a unit file for
compatibility. Please update package to include a native systemd unit file, in order
to make it more safe and robust.

[   11.521933] systemd-sysv-generator[526]: SysV service '/etc/init.d/reboot' lacks a
native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.549063] systemd-sysv-generator[526]: SysV service '/etc/init.d/umountfs' lacks
a native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.

[   11.573029] systemd-sysv-generator[526]: SysV service '/etc/init.d/umountnfs.sh'
lacks a native systemd unit file. Automatically generating a unit file for
compatibility. Please update package to include a native systemd unit file, in order
to make it more safe and robust.

[   11.597310] systemd-sysv-generator[526]: SysV service '/etc/init.d/watchdog-init'
lacks a native systemd unit file. Automatically generating a unit file for
compatibility. Please update package to include a native systemd unit file, in order
to make it more safe and robust.

[   11.623959] systemd-sysv-generator[526]: SysV service '/etc/init.d/sendsigs' lacks
a native systemd unit file. Automatically generating a unit file for compatibility.
Please update package to include a native systemd unit file, in order to make it more
safe and robust.
```

```
[   11.649834] systemd-sysv-generator[526]: SysV service '/etc/init.d/fuse' lacks a native systemd unit file. Automatically generating a unit file for compatibility. Please update package to include a native systemd unit file, in order to make it more safe and robust.

[   12.029688] systemd[1]: Queued start job for default target Multi-User System.

[   12.037840] random: systemd: uninitialized urandom read (16 bytes read)

[   12.072514] systemd[1]: Created slice Slice /system/getty.

[  OK  ] Created slice Slice /system/getty.

[   12.095445] random: systemd: uninitialized urandom read (16 bytes read)

[   12.103265] systemd[1]: Created slice Slice /system/modprobe.

[  OK  ] Created slice Slice /system/modprobe.

[   12.123390] random: systemd: uninitialized urandom read (16 bytes read)

[   12.131139] systemd[1]: Created slice Slice /system/serial-getty.

[  OK  ] Created slice Slice /system/serial-getty.

[   12.152357] systemd[1]: Created slice User and Session Slice.

[  OK  ] Created slice User and Session Slice.

[   12.175594] systemd[1]: Started Dispatch Password Requests to Console Directory Watch.

[  OK  ] Started Dispatch Password …ts to Console Directory Watch.

[   12.199507] systemd[1]: Started Forward Password Requests to Wall Directory Watch.

[  OK  ] Started Forward Password R…uests to Wall Directory Watch.

[   12.223631] systemd[1]: Reached target Path Units.

[  OK  ] Reached target Path Units.

[   12.239409] systemd[1]: Reached target Remote File Systems.

[  OK  ] Reached target Remote File Systems.

[   12.259408] systemd[1]: Reached target Slice Units.

[  OK  ] Reached target Slice Units.

[   12.275420] systemd[1]: Reached target Swaps.

[  OK  ] Reached target Swaps.

[   12.291895] systemd[1]: Listening on RPCbind Server Activation Socket.

[  OK  ] Listening on RPCbind Server Activation Socket.

[   12.315410] systemd[1]: Reached target RPC Port Mapper.

[  OK  ] Reached target RPC Port Mapper.

[   12.335650] systemd[1]: Listening on Syslog Socket.
```

```
[  OK  ] Listening on Syslog Socket.
[   12.351532] systemd[1]: Listening on initctl Compatibility Named Pipe.
[  OK  ] Listening on initctl Compatibility Named Pipe.
[   12.375835] systemd[1]: Listening on Journal Audit Socket.
[  OK  ] Listening on Journal Audit Socket.
[   12.395587] systemd[1]: Listening on Journal Socket (/dev/log).
[  OK  ] Listening on Journal Socket (/dev/log).
[   12.415686] systemd[1]: Listening on Journal Socket.
[  OK  ] Listening on Journal Socket.
[   12.431820] systemd[1]: Listening on Network Service Netlink Socket.
[  OK  ] Listening on Network Service Netlink Socket.
[   12.455729] systemd[1]: Listening on udev Control Socket.
[  OK  ] Listening on udev Control Socket.
[   12.475594] systemd[1]: Listening on udev Kernel Socket.
[  OK  ] Listening on udev Kernel Socket.
[   12.495615] systemd[1]: Listening on User Database Manager Socket.
[  OK  ] Listening on User Database Manager Socket.
[   12.521803] systemd[1]: Mounting Huge Pages File System...
         Mounting Huge Pages File System...
[   12.541851] systemd[1]: Mounting POSIX Message Queue File System...
         Mounting POSIX Message Queue File System...
[   12.565926] systemd[1]: Mounting Kernel Debug File System...
         Mounting Kernel Debug File System...
[   12.583751] systemd[1]: Condition check resulted in Kernel Trace File System being
skipped.
[   12.595714] systemd[1]: Mounting Temporary Directory /tmp...
         Mounting Temporary Directory /tmp...
[   12.616629] random: crng init done
[   12.620030] random: 5 urandom warning(s) missed due to ratelimiting
[   12.626913] systemd[1]: Condition check resulted in Create List of Static Device
Nodes being skipped.
[   12.639034] systemd[1]: Starting Load Kernel Module configfs...
         Starting Load Kernel Module configfs...
```

```
[   12.658514] systemd[1]: Starting Load Kernel Module drm...
         Starting Load Kernel Module drm...
[   12.682209] systemd[1]: Starting Load Kernel Module fuse...
         Starting Load Kernel Module fuse...
[   12.706251] systemd[1]: Starting RPC Bind...
         Starting RPC Bind...
[   12.719538] systemd[1]: Condition check resulted in File System Check on Root
Device being skipped.
[   12.735799] systemd[1]: Starting Load Kernel Modules...
         Starting Load Kernel Modules...
[   12.754152] systemd[1]: Starting Remount Root and Kernel File Systems...
         Starting Remount Root and Kernel File Systems...
[   12.775163] EXT4-fs (sda2): re-mounted. Opts: (null). Quota mode: none.
[   12.784011] dmaproxy: loading out-of-tree module taints kernel.
[   12.785028] systemd[1]: Starting Coldplug All udev Devices...
         Starting Coldplug All udev Devices...
[   12.812845] systemd[1]: Mounted Huge Pages File System.
[  OK  ] Mounted Huge Pages File System.
[   12.835728] systemd[1]: Mounted POSIX Message Queue File System.
[  OK  ] Mounted POSIX Message Queue File System.
[   12.859694] systemd[1]: Mounted Kernel Debug File System.
[  OK  ] Mounted Kernel Debug File System.
[   12.879759] systemd[1]: Mounted Temporary Directory /tmp.
[  OK  ] Mounted Temporary Directory /tmp.
[   12.892199] systemd[1]: modprobe@configfs.service: Deactivated successfully.
[   12.900422] systemd[1]: Finished Load Kernel Module configfs.
[  OK  ] Finished Load Kernel Module configfs.
[   12.923833] systemd[1]: Started RPC Bind.
[  OK  ] Started RPC Bind.
[   12.940239] systemd[1]: modprobe@drm.service: Deactivated successfully.
[   12.948142] systemd[1]: Finished Load Kernel Module drm.
[  OK  ] Finished Load Kernel Module drm.
[   12.972288] systemd[1]: modprobe@fuse.service: Deactivated successfully.
```

```
[   12.980566] systemd[1]: Finished Load Kernel Module fuse.
[  OK  ] Finished Load Kernel Module fuse.
[   13.005134] systemd[1]: Finished Load Kernel Modules.
[  OK  ] Finished Load Kernel Modules.
[   13.021093] systemd[1]: Finished Remount Root and Kernel File Systems.
[  OK  ] Finished Remount Root and Kernel File Systems.
[   13.048282] systemd[1]: Mounting NFSD configuration filesystem...
         Mounting NFSD configuration filesystem...
[   13.063859] systemd[1]: Condition check resulted in FUSE Control File System being
skipped.
[   13.075003] systemd[1]: Mounting Kernel Configuration File System...
         Mounting Kernel Configuration File System...
[   13.097676] systemd[1]: Condition check resulted in Rebuild Hardware Database being
skipped.
[   13.106328] systemd[1]: Condition check resulted in Platform Persistent Storage
Archival being skipped.
[   13.118738] systemd[1]: Starting Apply Kernel Variables...
         Starting Apply Kernel Variables...
[   13.135641] systemd[1]: Condition check resulted in Create System Users being
skipped.
[   13.146800] systemd[1]: Starting Create Static Device Nodes in /dev...
         Starting Create Static Device Nodes in /dev...
[   13.175471] systemd[1]: Failed to mount NFSD configuration filesystem.
[FAILED] Failed to mount NFSD configuration filesystem.
See 'systemctl status proc-fs-nfsd.mount' for details.
[DEPEND] Dependency failed for NFS Mount Daemon.
[DEPEND] Dependency failed for NFS server and services.
[  OK  ] Mounted Kernel Configuration File System.
[  OK  ] Finished Apply Kernel Variables.
[  OK  ] Finished Create Static Device Nodes in /dev.
[  OK  ] Reached target Preparation for Local File Systems.
         Mounting /var/volatile...
[  OK  ] Started Entropy Daemon based on the HAVEGE algorithm.
         Starting Journal Service...
```

```
         Starting Rule-based Manage…for Device Events and Files...
[  OK  ] Mounted /var/volatile.
         Starting Load/Save Random Seed...
[  OK  ] Finished Coldplug All udev Devices.
[  OK  ] Finished Load/Save Random Seed.
[  OK  ] Started Journal Service.
         Starting Flush Journal to Persistent Storage...
[  OK  ] Finished Flush Journal to Persistent Storage.
[  OK  ] Started Rule-based Manager for Device Events and Files.
[  OK  ] Reached target Sound Card.
[  OK  ] Found device Ultra_HS-COMBO boot.
[  OK  ] Listening on Load/Save RF …itch Status /dev/rfkill Watch.
         Mounting /boot...
[  OK  ] Mounted /boot.
[  OK  ] Reached target Local File Systems.
         Starting Create Volatile Files and Directories...
[  OK  ] Finished Create Volatile Files and Directories.
         Starting Network Time Synchronization...
         Starting Record System Boot/Shutdown in UTMP...
[  OK  ] Finished Record System Boot/Shutdown in UTMP.
[  OK  ] Started Network Time Synchronization.
[  OK  ] Reached target System Initialization.
[  OK  ] Started Daily Cleanup of Temporary Directories.
[  OK  ] Reached target System Time Set.
[  OK  ] Started Daily rotation of log files.
[  OK  ] Reached target Timer Units.
[  OK  ] Listening on D-Bus System Message Bus Socket.
[  OK  ] Listening on dropbear.socket.
[  OK  ] Reached target Socket Units.
[  OK  ] Reached target Basic System.
[  OK  ] Started archconfig.
[  OK  ] Started Job spooling tools.
```

```
[  OK  ] Started Periodic Command Scheduler.
[  OK  ] Started D-Bus System Message Bus.
         Starting dfx-mgrd Dynamic Function eXchange...
[  OK  ] Started Start fan control, if configured.
         Starting inetd.busybox.service...
         Starting IPv6 Packet Filtering Framework...
         Starting IPv4 Packet Filtering Framework...
[  OK  ] Started System Logging Service.
         Starting User Login Management...
[  OK  ] Finished IPv6 Packet Filtering Framework.
[  OK  ] Finished IPv4 Packet Filtering Framework.
[  OK  ] Reached target Preparation for Network.
         Starting Network Configuration...
Nov 27 05:12:12 xilinx-kr260-starterkit-20222 kernel: GIC: Adjusting CPU interface
base to 0x00000000f902f000
[  OK  ] Started dfx-mgrd Dynamic Function eXchange.
Nov 27 05:12:14 xilinx-kr260-starterkit-20222 kernel: armv8-pmu pmu: hw perfevents: no
interrupt-affinity property, guessing.
Nov 27 05:12:15 xilinx-kr260-starterkit-20222 kernel: cacheinfo: Unable to detect
cache hierarchy for CPU 0
Nov 27 05:12:15 xilinx-kr260-starterkit-20222 kernel: mtdoops: mtd device
(mtddev=name/number) must be supplied
Nov 27 05:12:16 xilinx-kr260-starterkit-20222 kernel: OF: graph: no port node found in
/axi/display@fd4a0000
Nov 27 05:12:16 xilinx-kr260-starterkit-20222 kernel: zynqmp_pll_disable() clock
disable failed for dpll_int, ret = -13
Nov 27 05:12:17 xilinx-kr260-starterkit-20222 kernel: tpm tpm0: A TPM error (256)
occurred attempting the self test
Nov 27 05:12:17 xilinx-kr260-starterkit-20222 kernel: mtd: partition "User" extends
beyond the end of device "spi0.0" -- size truncated to 0x1d60000
Nov 27 05:12:17 xilinx-kr260-starterkit-20222 kernel: at24 1-0050: supply vcc not
found, using dummy regulator
Nov 27 05:12:17 xilinx-kr260-starterkit-20222 kernel: at24 1-0051: supply vcc not
found, using dummy regulator
Nov 27 05:12:18 xilinx-kr260-starterkit-20222 kernel: clk: Not disabling unused clocks
Nov 27 05:12:20 xilinx-kr260-starterkit-20222 kernel: sd 0:0:0:0: [sda] No Caching
mode page found
```

```
Nov 27 05:12:20 xilinx-kr260-starterkit-20222 kernel: sd 0:0:0:0: [sda] Assuming drive
cache: write through

Nov 27 05:12:22 xilinx-kr260-starterkit-20222 kernel: macb ff0b0000.ethernet eth1:
unable to generate target frequency: 125000000 Hz

Nov 27 05:12:24 xilinx-kr260-starterkit-20222 kernel: dmaproxy: loading out-of-tree
module taints kernel.

Nov 27 05:12:27 xilinx-kr260-starterkit-20222 kernel: FAT-fs (sda1): Volume was not
properly unmounted. Some data may be corrupt. Please run fsck.

[  OK  ] Started inetd.busybox.service.

[  OK  ] Started User Login Management.

[  OK  ] Started Network Configuration.

         Starting Wait for Network to be Configured...

         Starting Network Name Resolution...

[  OK  ] Finished Wait for Network to be Configured.

Nov 27 05:12:29 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/firmware-name

Nov 27 05:12:29 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/resets

[  OK  ] Started Network Name Resolution.

[  OK  ] Reached target Network.

[  OK  ] Reached target Network is Online.

[  OK  ] Reached target Host and Network Name Lookups.

         Starting DNS forwarder and DHCP server...

[  OK  ] Started kria-dashboard-init.

[  OK  ] Started NFS status monitor for NFSv2/3 locking..

[  OK  ] Started Respond to IPv6 Node Information Queries.

         Starting Network Time Service...

[  OK  ] Started Network Router Discovery Daemon.

         Starting Permit User Sessions...

         Starting Target Communication Framework agent...

[  OK  ] Finished Permit User Sessions.

[  OK  ] Started Getty on tty1.

[  OK  ] Started Serial Getty on ttyPS1.

[  OK  ] Reached target Login Prompts.

[  OK  ] Started DNS forwarder and DHCP server.
```

```
[  OK  ] Started Target Communication Framework agent.

[  OK  ] Started Network Time Service.

[  OK  ] Reached target Multi-User System.

         Starting Record Runlevel Change in UTMP...

[  OK  ] Finished Record Runlevel Change in U[   18.132202] kria-dashboard.sh[1144]:
Cant find IP addr, please call /usr/bin/kria-dashboard.sh after assigning IP addr


PetaLinux 2022.2_release_S10071807 xilinx-kr260-starterkit-20222 ttyPS1


xilinx-kr260-starterkit-20222 login: petalinux

Password:

xilinx-kr260-starterkit-20222:~$ ls

kr260  kr260.bit.bin  kr260.dtbo  shell.json

xilinx-kr260-starterkit-20222:~$ mkdir kr260-dpu-trd

xilinx-kr260-starterkit-20222:~$ ls

kr260  kr260-dpu-trd  kr260.bit.bin  kr260.dtbo  shell.json

xilinx-kr260-starterkit-20222:~$ ls kr260-dpu-trd/

kr260-dpu-trd.bit  kr260-dpu-trd.dtbo  shell.json

xilinx-kr260-starterkit-20222:~$ sudo cp -r kr260-dpu-trd/ /lib/firmware/xilinx/

Password:

xilinx-kr260-starterkit-20222:~$ sudo xmutil listapps

                    Accelerator          Accel_type                                Base
Base_type      #slots(PL+AIE)          Active_slot


               k26-starter-kits            XRT_FLAT                k26-starter-kits
XRT_FLAT               (0+0)                  0,

                  kr260-dpu-trd            XRT_FLAT                   kr260-dpu-trd
XRT_FLAT               (0+0)                  -1

xilinx-kr260-starterkit-20222:~$ sudo xmutil unloadapp

remove from slot 0 returns: 0 (Ok)

xilinx-kr260-starterkit-20222:~$ sudo xmutil loadapp kr260-dpu-trd

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/firmware-name

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/pid
```

```
Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/resets

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /fpga-full/uid

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/overlay0

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/overlay1

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/afi0

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/clocking0

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/clocking1

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/overlay2

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/hier_dpu_DPUCZDX8G

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/misc_clk_0

Nov 27 05:14:32 xilinx-kr260-starterkit-20222 kernel: OF: overlay: WARNING: memory
leak will occur if overlay removed, property: /__symbols__/misc_clk_1

kr260-dpu-trd: loaded to slot 0

xilinx-kr260-starterkit-20222:~$ show_dpu

WARNING: Logging before InitGoogleLogging() is written to STDERR

F1127 06:40:56.328039  1363 dpu_controller_dnndk.cpp:70] Check failed: fd >= 0 (-1 vs.
0) cannot open /dev/dpu

*** Check failure stack trace: ***

Aborted

xilinx-kr260-starterkit-20222:~$

xilinx-kr260-starterkit-20222:~$ sudo show_dpu

device_core_id=0 device= 0 core = 0 fingerprint = 0x101000056010400 batch = 1
full_cu_name=unknown:dpu0


xilinx-kr260-starterkit-20222:~$ xdputil query

WARNING: Logging before InitGoogleLogging() is written to STDERR

F1127 06:41:09.559062  1375 xdputil_query.cpp:89] Check failed: fd >= 0 (-1 vs. 0)
cannot open /dev/dpu
```

```
*** Check failure stack trace: ***
/usr/bin/xdputil: line 20:  1375 Aborted                 /usr/bin/python3 -m xdputil
$*
xilinx-kr260-starterkit-20222:~$
xilinx-kr260-starterkit-20222:~$ sudo xdputil query
{
    "DPU IP Spec":{
        "DPU Core Count":1,
        "IP version":"v4.1.0",
        "enable softmax":"False"
    },
    "VAI Version":{
        "libvart-runner.so":"Xilinx vart-runner Version: 3.0.0-
c5d2bd43d951c174185d728b8e5bcda3869e0b39  2023-11-26-18:59:05 ",
        "libvitis_ai_library-dpu_task.so":"Xilinx vitis_ai_library dpu_task Version:
3.0.0-c5d2bd43d951c174185d728b8e5bcda3869e0b39  2023-01-13 06:58:30 [UTC] ",
        "libxir.so":"Xilinx xir Version: xir-c5d2bd43d951c174185d728b8e5bcda3869e0b39
2023-11-26-18:56:23",
        "target_factory":"target-factory.3.0.0
c5d2bd43d951c174185d728b8e5bcda3869e0b39"
    },
    "kernels":[
        {
            "DPU Arch":"DPUCZDX8G_ISA1_B512_0101000056010400",
            "DPU Frequency (MHz)":275,
            "XRT Frequency (MHz)":100,
            "cu_idx":0,
            "fingerprint":"0x101000056010400",
            "is_vivado_flow":true,
            "name":"DPU Core 0"
        }
    ]
}
xilinx-kr260-starterkit-20222:~$
```