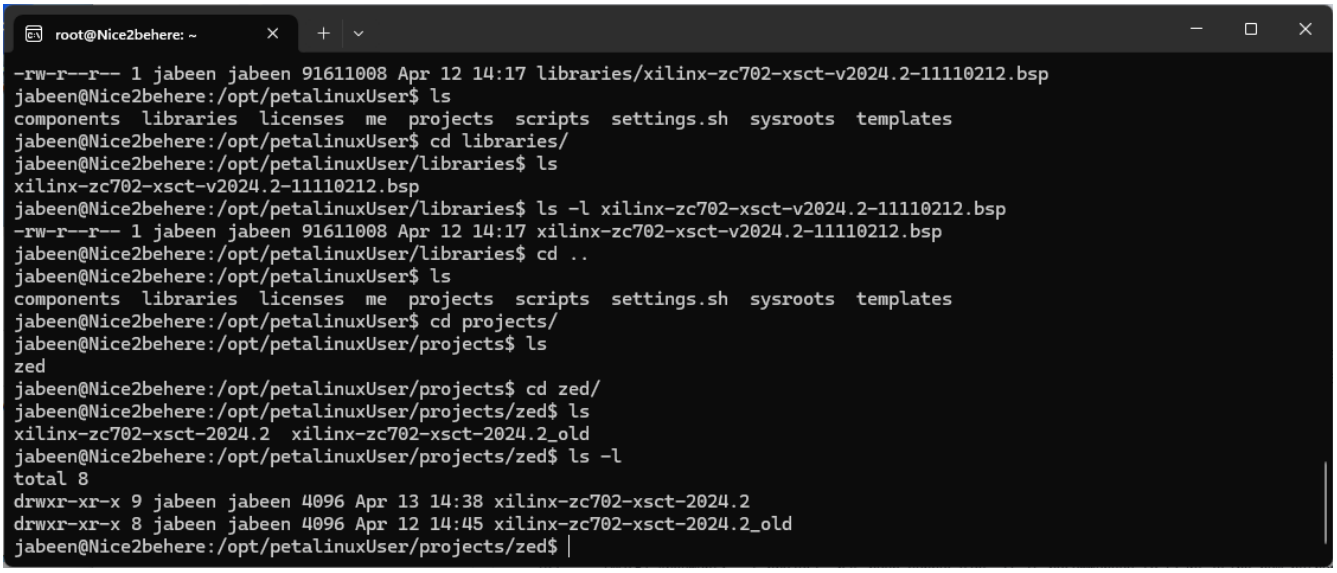
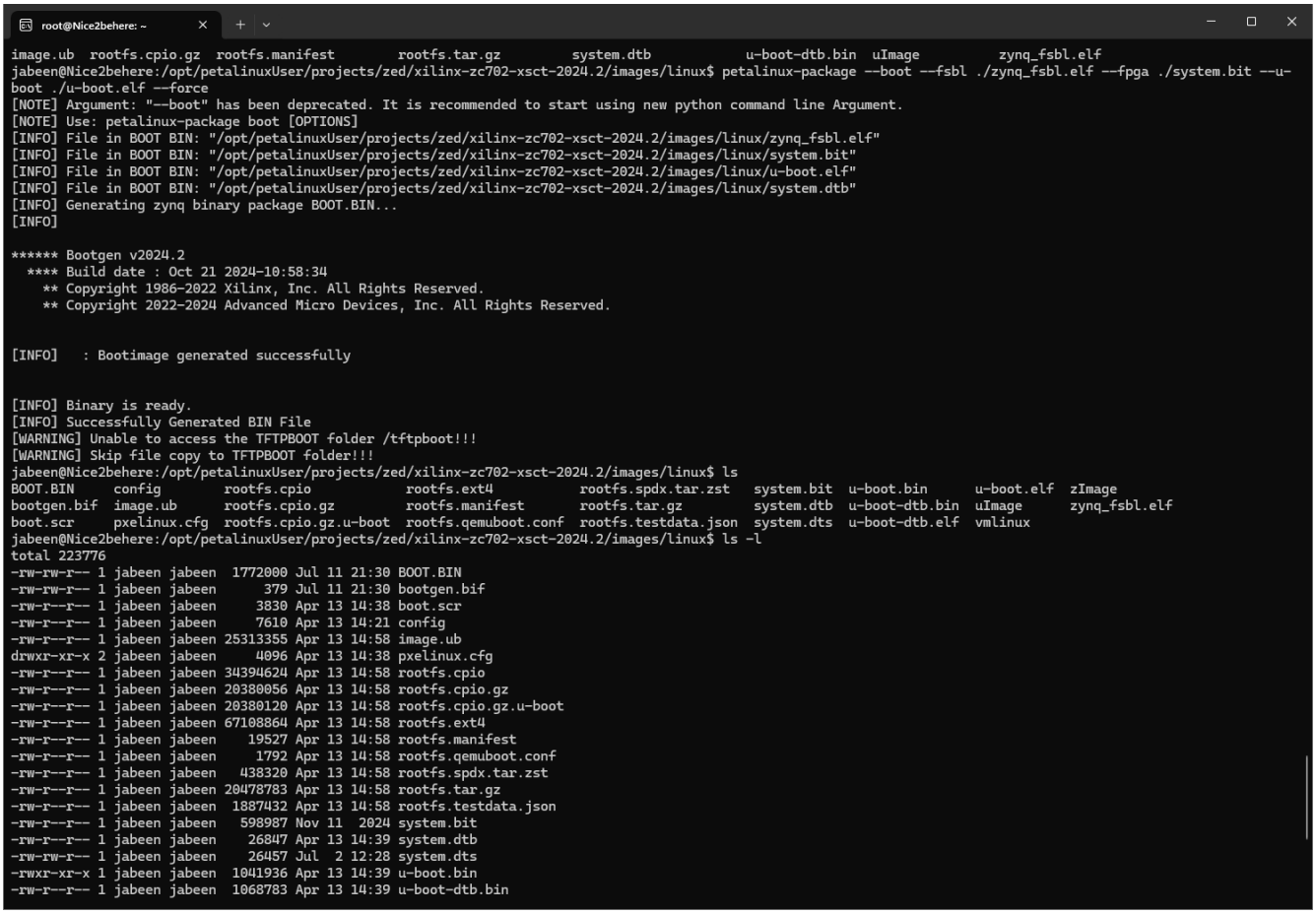
Nahid Jabeen **7/11/25**

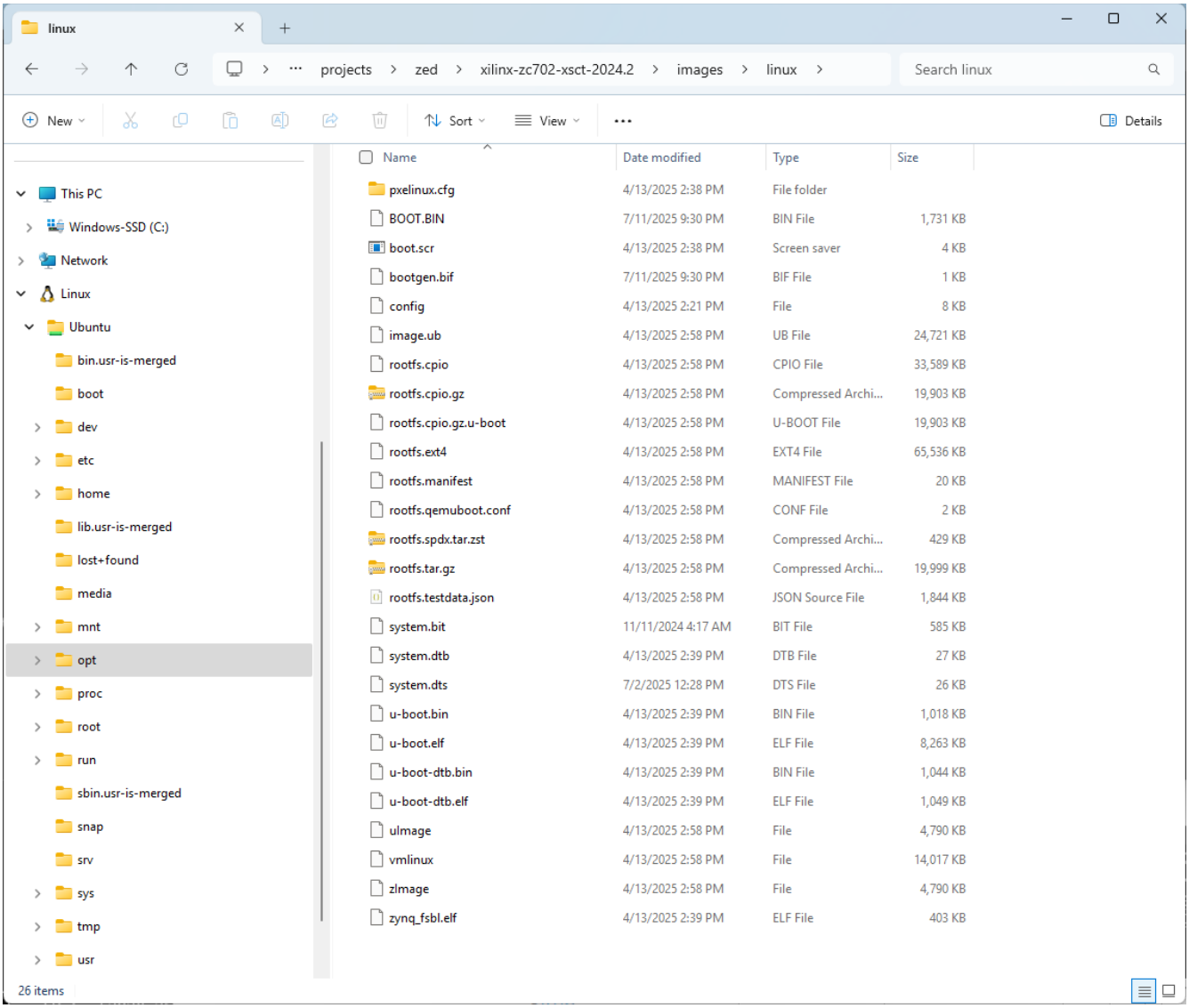
URL:

https://www.hackster.io/nikilthapa/zedboard-linux-uio-application-using-vitis-ide-883a43#:~:text=When%20Linux%20boots%20up%2C%20it,Debug%20Configurations%20%3E%20New%20Configuration%20%3E%20Debug



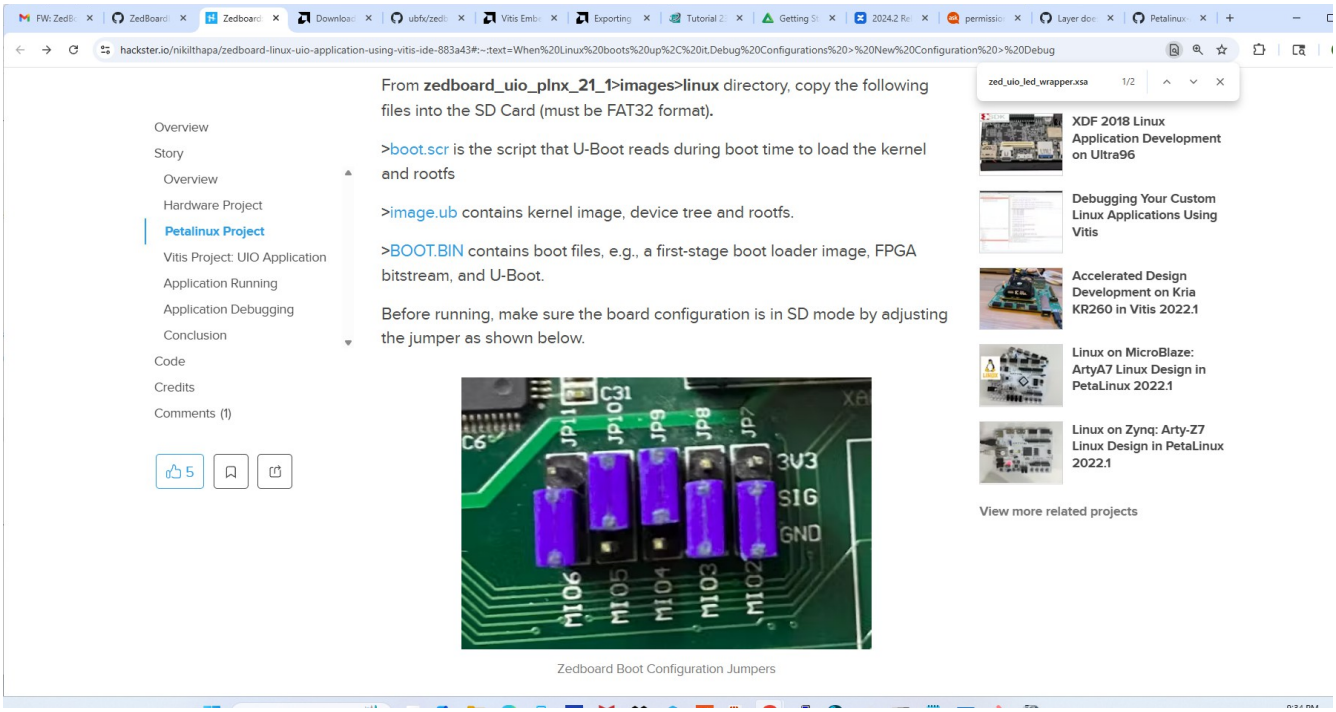

```
petalinux-package --boot --fsbl ./zynq_fsbl.elf --fpga ./system.bit --u-boot ./u-boot.elf
--force
```


root@Nice2behere: ~
image.ub rootfs.cpio.gz rootfs.manifest rootfs.tar.gz system.dtb u-boot-dtb.bin uImage zynq_fsbl.elf
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux$ petalinux-package --boot --fsbl ./zynq_fsbl.elf --fpga ./system.bit --u-boot ./u-boot.elf --force
[NOTE] Argument: "--boot" has been deprecated. It is recommended to start using new python command line Argument.
[NOTE] Use: petalinux-package boot [OPTIONS]
[INFO] File in BOOT BIN: "/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux/zynq_fsbl.elf"
[INFO] File in BOOT BIN: "/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux/system.bit"
[INFO] File in BOOT BIN: "/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux/u-boot.elf"
[INFO] File in BOOT BIN: "/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux/system.dtb"
[INFO] Generating zynq binary package BOOT.BIN...
[INFO]
****** Bootgen v2024.2
**** Build date : Oct 21 2024-10:58:34
** Copyright 1986-2022 Xilinx, Inc. All Rights Reserved.
** Copyright 2022-2024 Advanced Micro Devices, Inc. All Rights Reserved.
[INFO] : Bootimage generated successfully
[INFO] Binary is ready.
[INFO] Successfully Generated BIN File
[WARNING] Unable to access the TFTPBOOT folder /tftpboot!!!
[WARNING] Skip file copy to TFTPBOOT folder!!!
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux$ ls
BOOT.BIN config rootfs.cpio rootfs.ext4 rootfs.spdx.tar.zst system.bit u-boot.bin u-boot.elf zImage
bootgen.bif image.ub rootfs.cpio.gz rootfs.manifest rootfs.tar.gz system.dtb u-boot-dtb.bin uImage zynq_fsbl.elf
boot.scr pxelinux.cfg rootfs.cpio.gz.u-boot rootfs.qemuboot.conf rootfs.testdata.json system.dts u-boot-dtb.elf vmlinux
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/images/linux$ ls -l
total 223776
-rw-rw-r-- 1 jabeen jabeen 1772000 Jul 11 21:30 BOOT.BIN
-rw-rw-r-- 1 jabeen jabeen   379 Jul 11 21:30 bootgen.bif
-rw-r--r-- 1 jabeen jabeen   3830 Apr 13 14:38 boot.scr
-rw-r--r-- 1 jabeen jabeen   7610 Apr 13 14:21 config
-rw-r--r-- 1 jabeen jabeen 25313355 Apr 13 14:58 image.ub
drwxr-xr-x 2 jabeen jabeen   4096 Apr 13 14:38 pxelinux.cfg
-rw-r--r-- 1 jabeen jabeen 34394624 Apr 13 14:58 rootfs.cpio
-rw-r--r-- 1 jabeen jabeen 20380056 Apr 13 14:58 rootfs.cpio.gz
-rw-r--r-- 1 jabeen jabeen 20380120 Apr 13 14:58 rootfs.cpio.gz.u-boot
-rw-r--r-- 1 jabeen jabeen 67108864 Apr 13 14:58 rootfs.ext4
-rw-r--r-- 1 jabeen jabeen   19527 Apr 13 14:58 rootfs.manifest
-rw-r--r-- 1 jabeen jabeen   1792 Apr 13 14:58 rootfs.qemuboot.conf
-rw-r--r-- 1 jabeen jabeen   438320 Apr 13 14:58 rootfs.spdx.tar.zst
-rw-r--r-- 1 jabeen jabeen 20478783 Apr 13 14:58 rootfs.tar.gz
-rw-r--r-- 1 jabeen jabeen 1887432 Apr 13 14:58 rootfs.testdata.json
-rw-r--r-- 1 jabeen jabeen   598987 Nov 11 2024 system.bit
-rw-r--r-- 1 jabeen jabeen   26847 Apr 13 14:39 system.dtb
-rw-rw-r-- 1 jabeen jabeen   26457 Jul 2 12:28 system.dts
-rwxr-xr-x 1 jabeen jabeen 1041936 Apr 13 14:39 u-boot.bin
-rw-r--r-- 1 jabeen jabeen 1068783 Apr 13 14:39 u-boot-dtb.bin

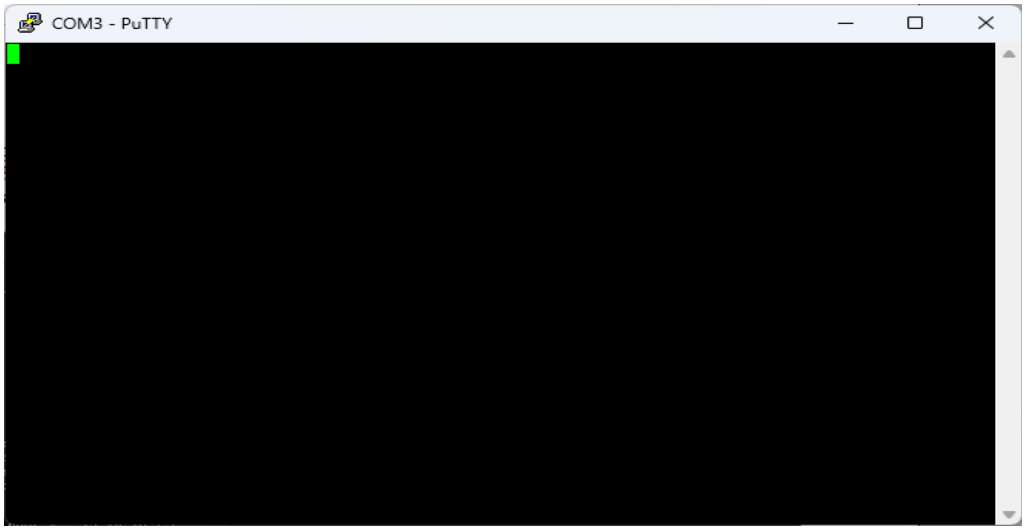


Note:

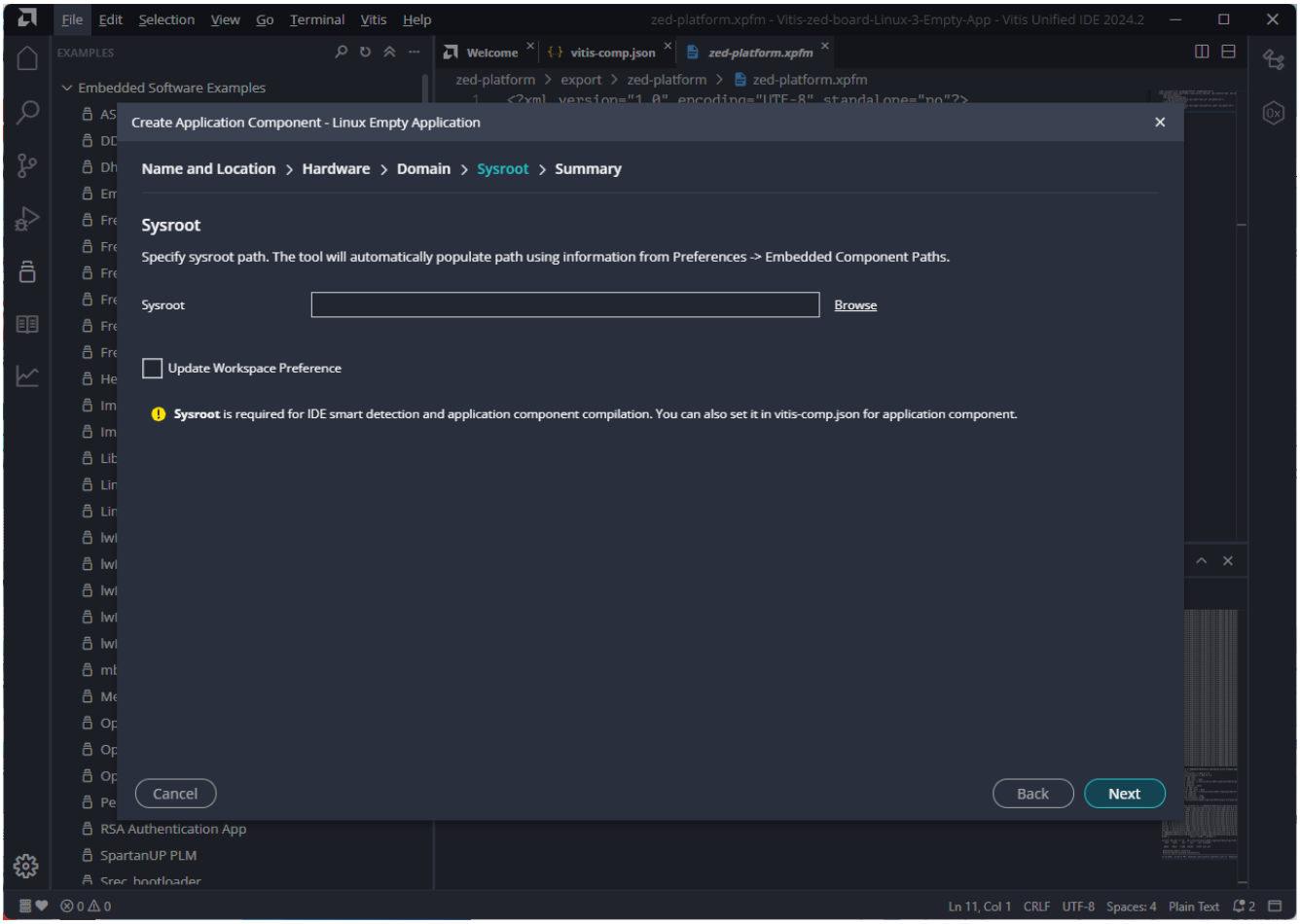
```
petalinux-package --boot --fsbl ./zynq_fsbl.elf --fpga ./system.bit --u-boot ./u-boot.elf
--force
```

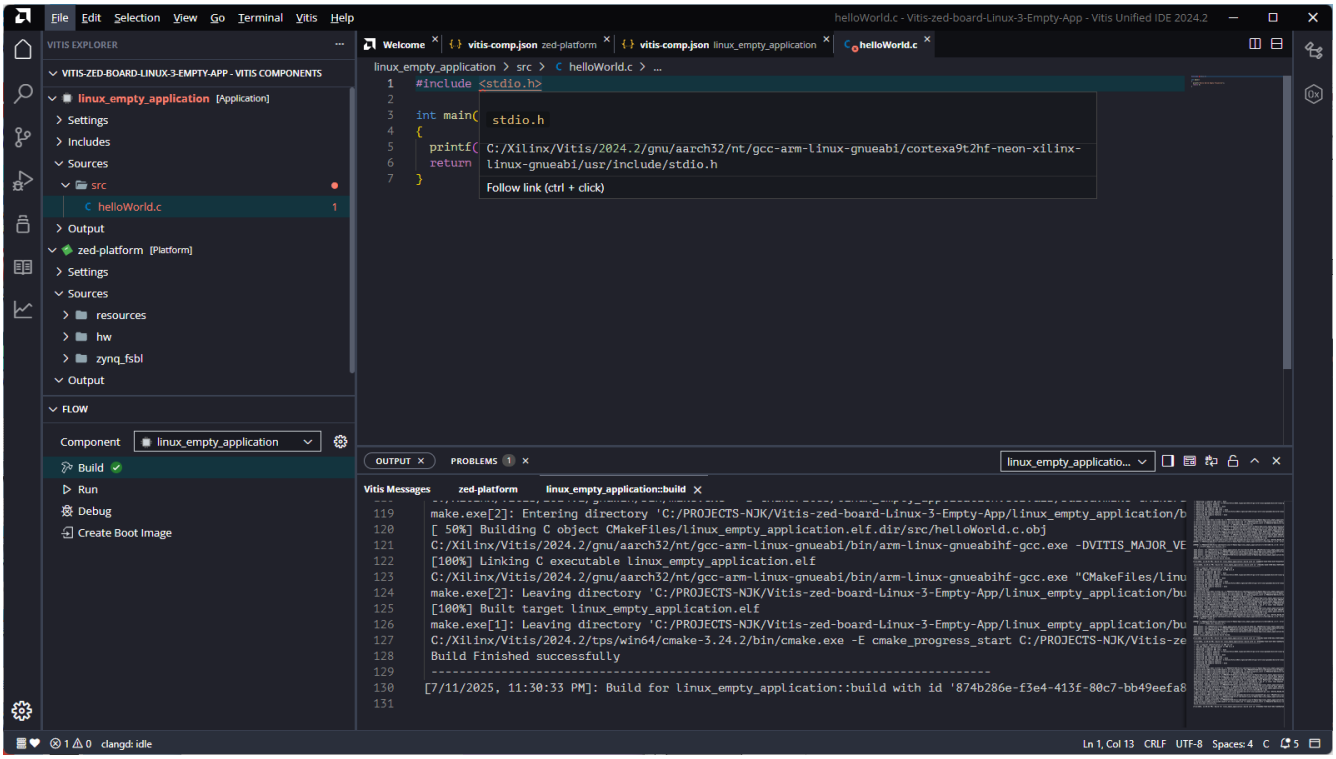


Did not work :-(

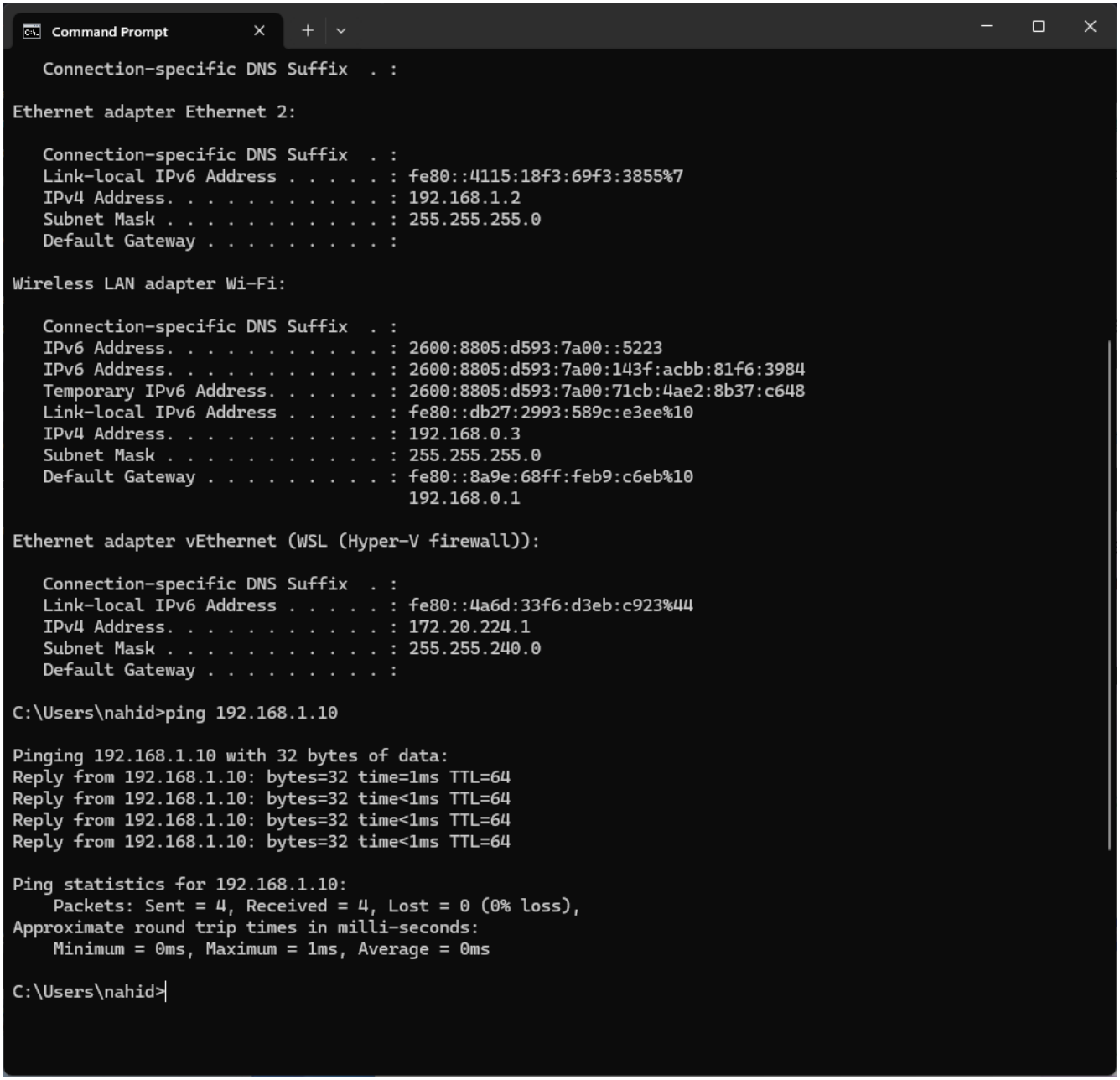


Linux Empty App

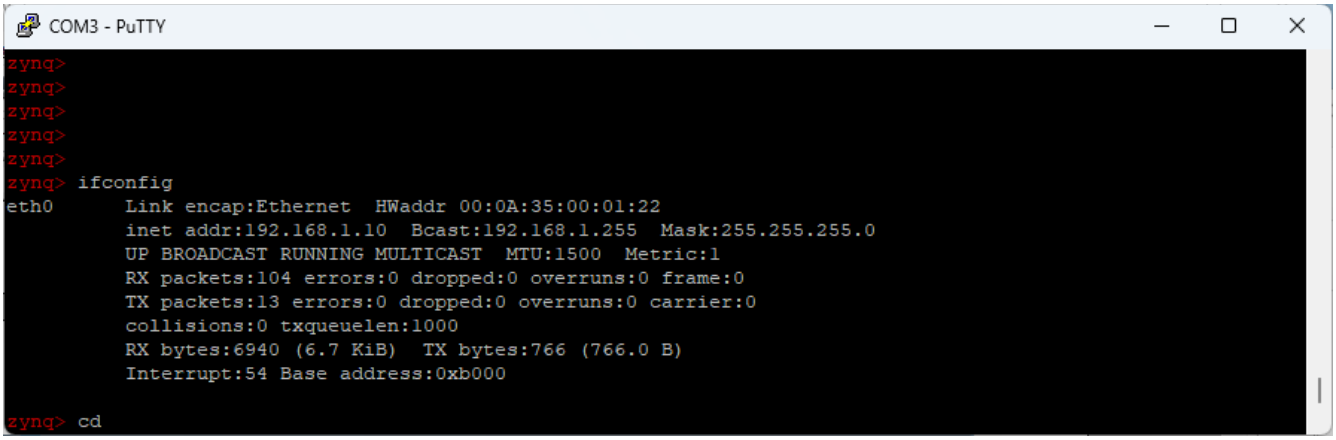

File Edit Selection View Go Terminal Vitis Help
zed-platform.xpfm - Vitis-zed-board-Linux-3-Empty-App - Vitis Unified IDE 2024.2
EXAMPLES
Embedded Software Examples
Welcome
vitis-comp.json
zed-platform.xpfm
zed-platform > export > zed-platform > zed-platform.xpfm
Create Application Component - Linux Empty Application
Name and Location > Hardware > Domain > Sysroot > Summary
Sysroot
Specify sysroot path. The tool will automatically populate path using information from Preferences -> Embedded Component Paths.
Sysroot
Browse
Update Workspace Preference
Sysroot is required for IDE smart detection and application component compilation. You can also set it in vitis-comp.json for application component.
Cancel
Back
Next
RSA Authentication App
SpartanUP PLM
Ln 11, Col 1 CRLF UTF-8 Spaces: 4 Plain Text


File Edit Selection View Go Terminal Vitis Help
helloWorld.c - Vitis-zed-board-Linux-3-Empty-App - Vitis Unified IDE 2024.2
VITIS EXPLORER
VITIS-ZED-BOARD-LINUX-3-EMPTY-APP - VITIS COMPONENTS
linux_empty_application [Application]
Settings
Includes
Sources
src
helloWorld.c
Output
zed-platform [Platform]
Settings
Sources
resources
hw
zynq_fsbl
Output
FLOW
Component linux_empty_application
Build
Run
Debug
Create Boot Image
Welcome
vitis-comp.json zed-platform
vitis-comp.json linux_empty_application
helloWorld.c
linux_empty_application > src > helloWorld.c > ...
#include <stdio.h>
int main(
{
printf(
return
}
stdio.h
C:/Xilinx/Vitis/2024.2/gnu/aarch32/nt/gcc-arm-linux-gnueabi/cortexa9t2hf-neon-xilinx-linux-gnueabi/usr/include/stdio.h
Follow link (ctrl + click)
OUTPUT
PROBLEMS 1
linux_empty_applicatio...
Vitis Messages
zed-platform
linux_empty_application::build
make.exe[2]: Entering directory 'C:/PROJECTS-NJK/Vitis-zed-board-Linux-3-Empty-App/linux_empty_application/b
[50%] Building C object CMakeFiles/linux_empty_application.elf.dir/src/helloWorld.c.obj
C:/Xilinx/Vitis/2024.2/gnu/aarch32/nt/gcc-arm-linux-gnueabi/bin/arm-linux-gnueabihf-gcc.exe -DVITIS_MAJOR_VE
[100%] Linking C executable linux_empty_application.elf
C:/Xilinx/Vitis/2024.2/gnu/aarch32/nt/gcc-arm-linux-gnueabi/bin/arm-linux-gnueabihf-gcc.exe "CMakeFiles/linu
make.exe[2]: Leaving directory 'C:/PROJECTS-NJK/Vitis-zed-board-Linux-3-Empty-App/linux_empty_application/bu
[100%] Built target linux_empty_application.elf
make.exe[1]: Leaving directory 'C:/PROJECTS-NJK/Vitis-zed-board-Linux-3-Empty-App/linux_empty_application/bu
C:/Xilinx/Vitis/2024.2/tps/win64/cmake-3.24.2/bin/cmake.exe -E cmake_progress_start C:/PROJECTS-NJK/Vitis-ze
Build Finished successfully
[7/11/2025, 11:30:33 PM]: Build for linux_empty_application::build with id '874b286e-f3e4-413f-80c7-bb49eefa8
clangd: idle
Ln 1, Col 13 CRLF UTF-8 Spaces: 4 C

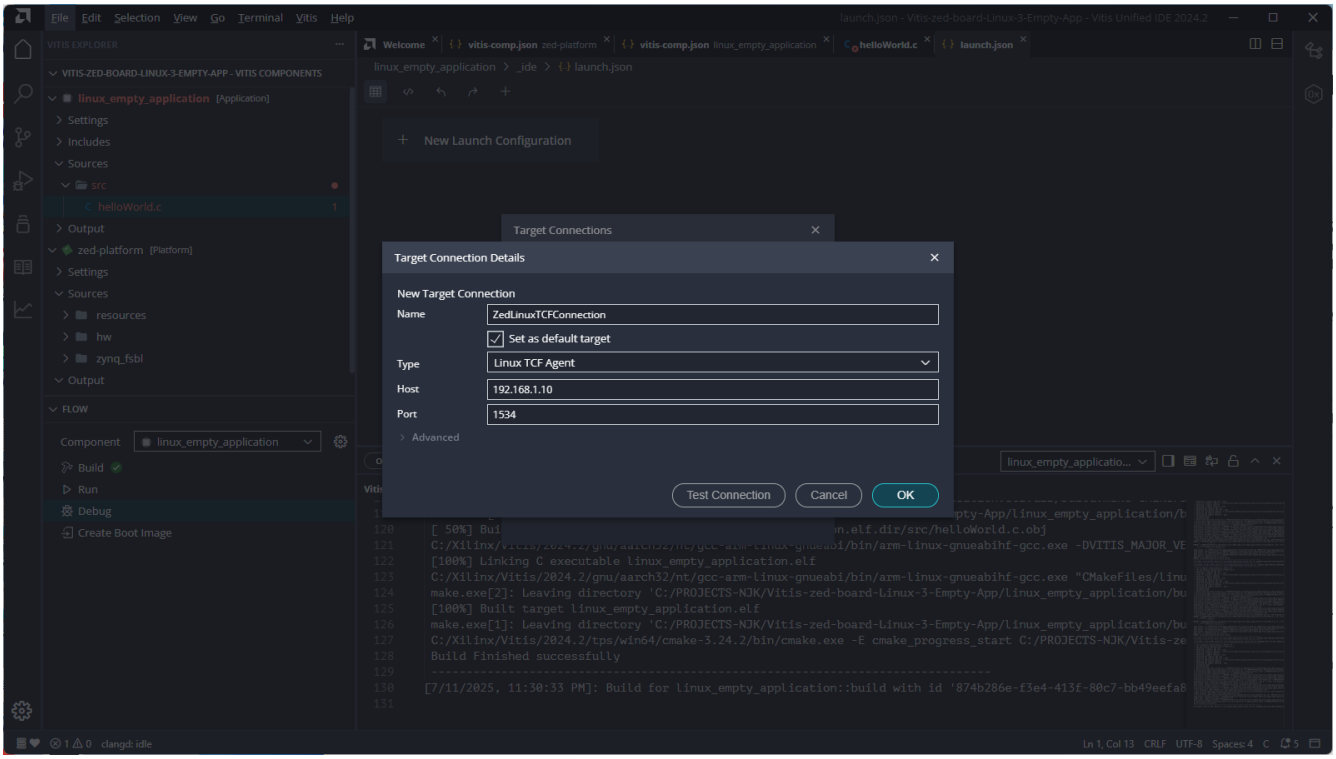
PC


Command Prompt
Connection-specific DNS Suffix . :
Ethernet adapter Ethernet 2:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::4115:18f3:69f3:3855%7
IPv4 Address. . . . . : 192.168.1.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
Wireless LAN adapter Wi-Fi:
Connection-specific DNS Suffix . :
IPv6 Address. . . . . : 2600:8805:d593:7a00::5223
IPv6 Address. . . . . : 2600:8805:d593:7a00:143f:acbb:81f6:3984
Temporary IPv6 Address. . . . . : 2600:8805:d593:7a00:71cb:4ae2:8b37:c648
Link-local IPv6 Address . . . . . : fe80::db27:2993:589c:e3ee%10
IPv4 Address. . . . . : 192.168.0.3
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::8a9e:68ff:feb9:c6eb%10
192.168.0.1
Ethernet adapter vEthernet (WSL (Hyper-V firewall)):
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::4a6d:33f6:d3eb:c923%44
IPv4 Address. . . . . : 172.20.224.1
Subnet Mask . . . . . : 255.255.240.0
Default Gateway . . . . . :
C:\Users\nahid>ping 192.168.1.10
Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time=1ms TTL=64
Reply from 192.168.1.10: bytes=32 time<1ms TTL=64
Reply from 192.168.1.10: bytes=32 time<1ms TTL=64
Reply from 192.168.1.10: bytes=32 time<1ms TTL=64
Ping statistics for 192.168.1.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users\nahid>

Zed Board with Linux running



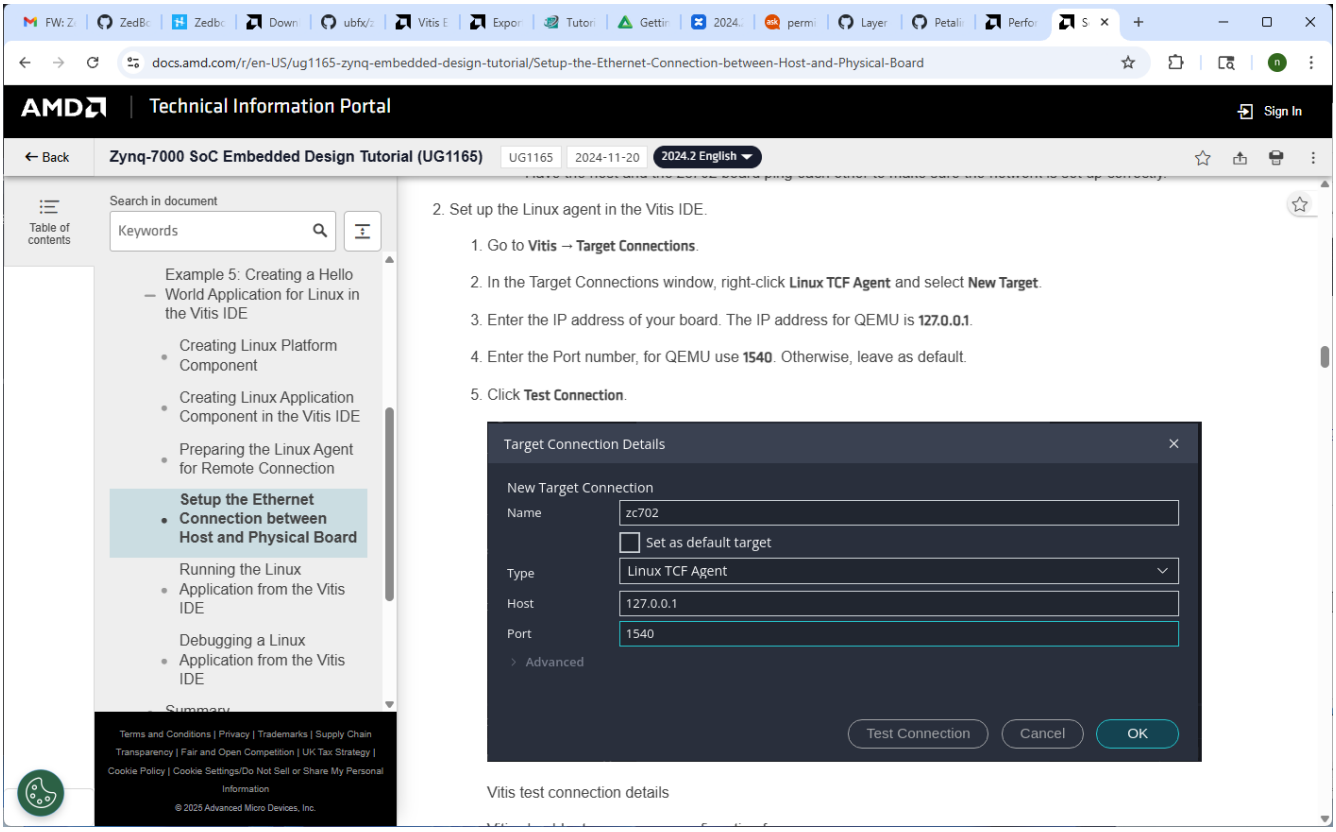
Trying TCF Agent Target Connection



URL:

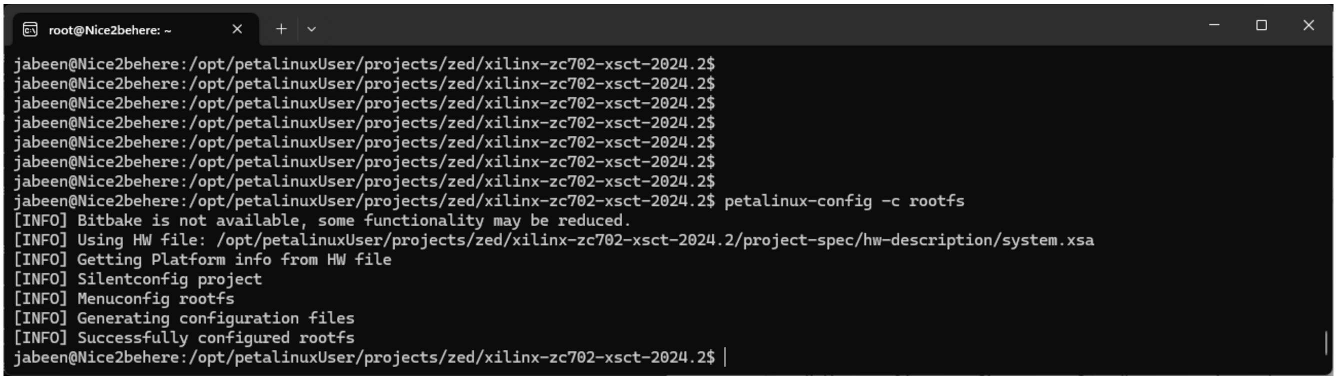
https://docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Prerequisites?tocId=iOeqPTdTYnu3O~neJoZQdg

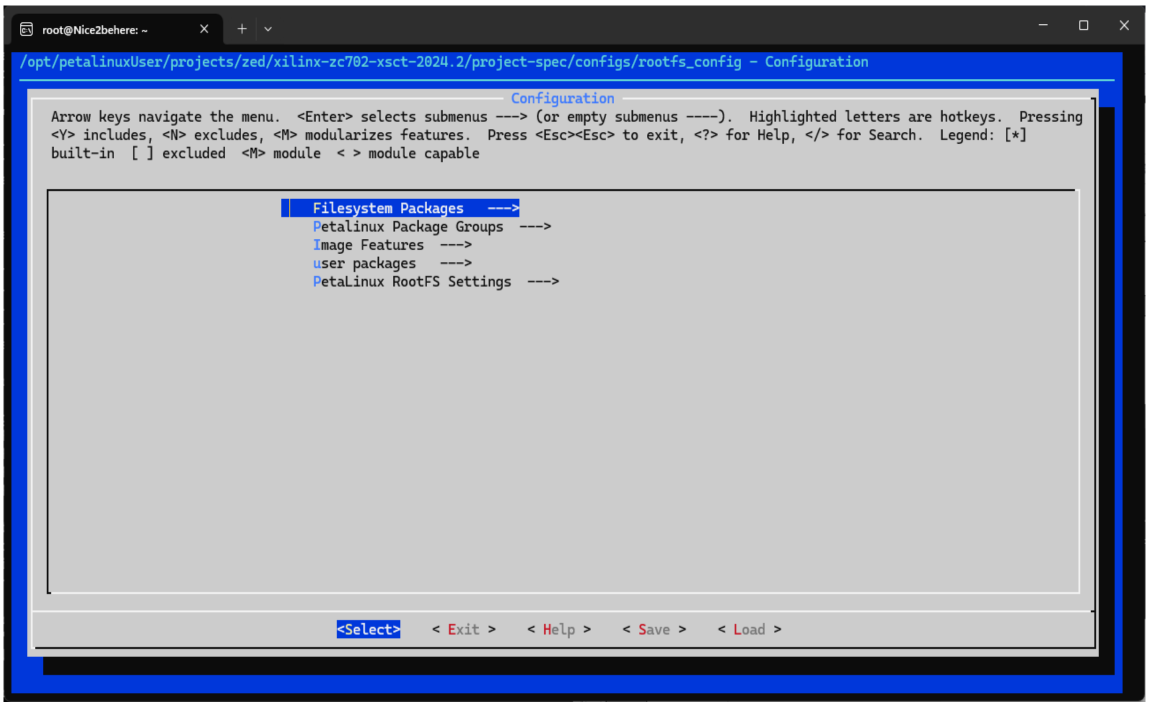
https://docs.amd.com/r/en-US/ug1165-zynq-embedded-design-tutorial/Setup-the-Ethernet-Connection-between-Host-and-Physical-Board

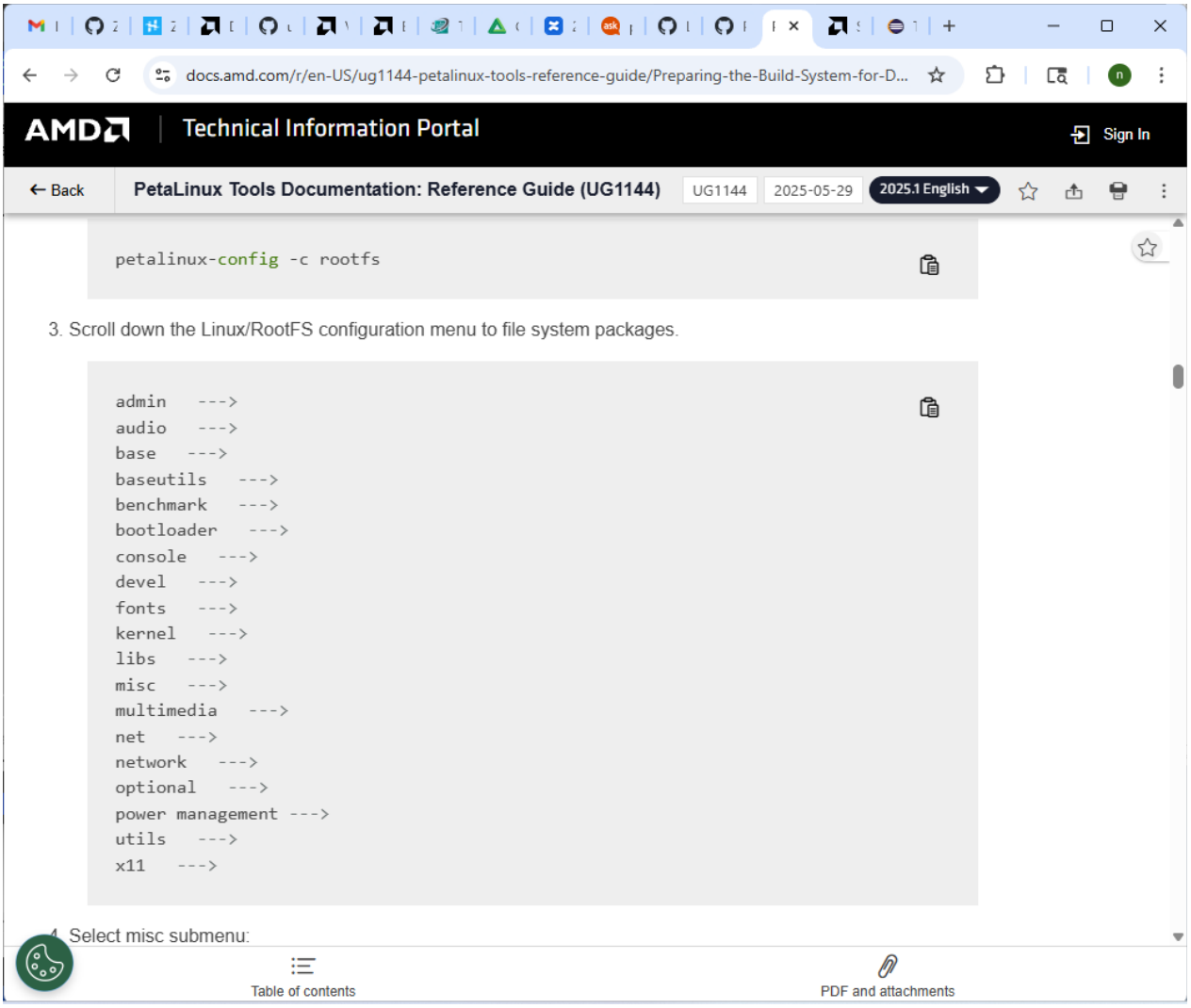


https://docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Preparing-the-Build-System-for-Debugging?tocId=vYJdtUX7Jr518mDOXyZp5A

```
[*] tcf-agent
[ ] tcf-agent-dev
[ ] tcf-agent-dbg
```


root@Nice2behere: ~
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$ petalinux-config -c rootfs
[INFO] Bitbake is not available, some functionality may be reduced.
[INFO] Using HW file: /opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/hw-description/system.xsa
[INFO] Getting Platform info from HW file
[INFO] Silentconfig project
[INFO] Menuconfig rootfs
[INFO] Generating configuration files
[INFO] Successfully configured rootfs
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$


root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
Configuration
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
Filesystem Packages --->
Petalinux Package Groups --->
Image Features --->
user packages --->
PetaLinux RootFS Settings --->
<Select> < Exit > < Help > < Save > < Load >


docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Preparing-the-Build-System-for-D...
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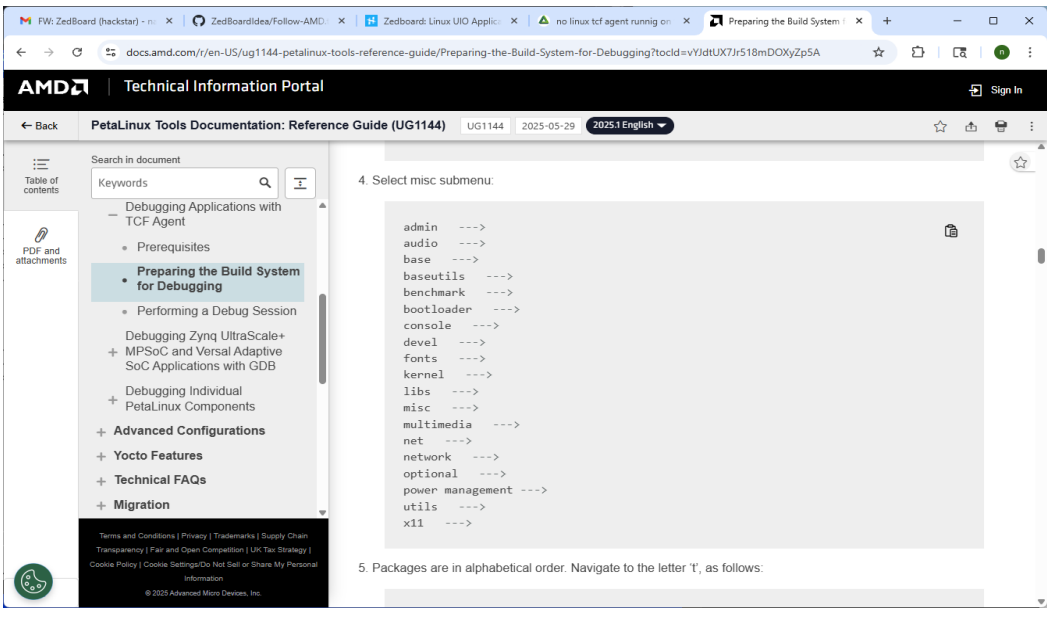
UG1144
2025-05-29
2025.1 English
petalinux-config -c rootfs
3. Scroll down the Linux/RootFS configuration menu to file system packages.
admin --->
audio --->
base --->
baseutils --->
benchmark --->
bootloader --->
console --->
devel --->
fonts --->
kernel --->
libs --->
misc --->
multimedia --->
net --->
network --->
optional --->
power management --->
utils --->
x11 --->
4. Select misc submenu:
Table of contents
PDF and attachments


docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Preparing-the-Build-System-for-Debugging?tocId=vYJdtUX7Jr518mDOXyZp5A
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UG1144
2025-05-29
2025.1 English
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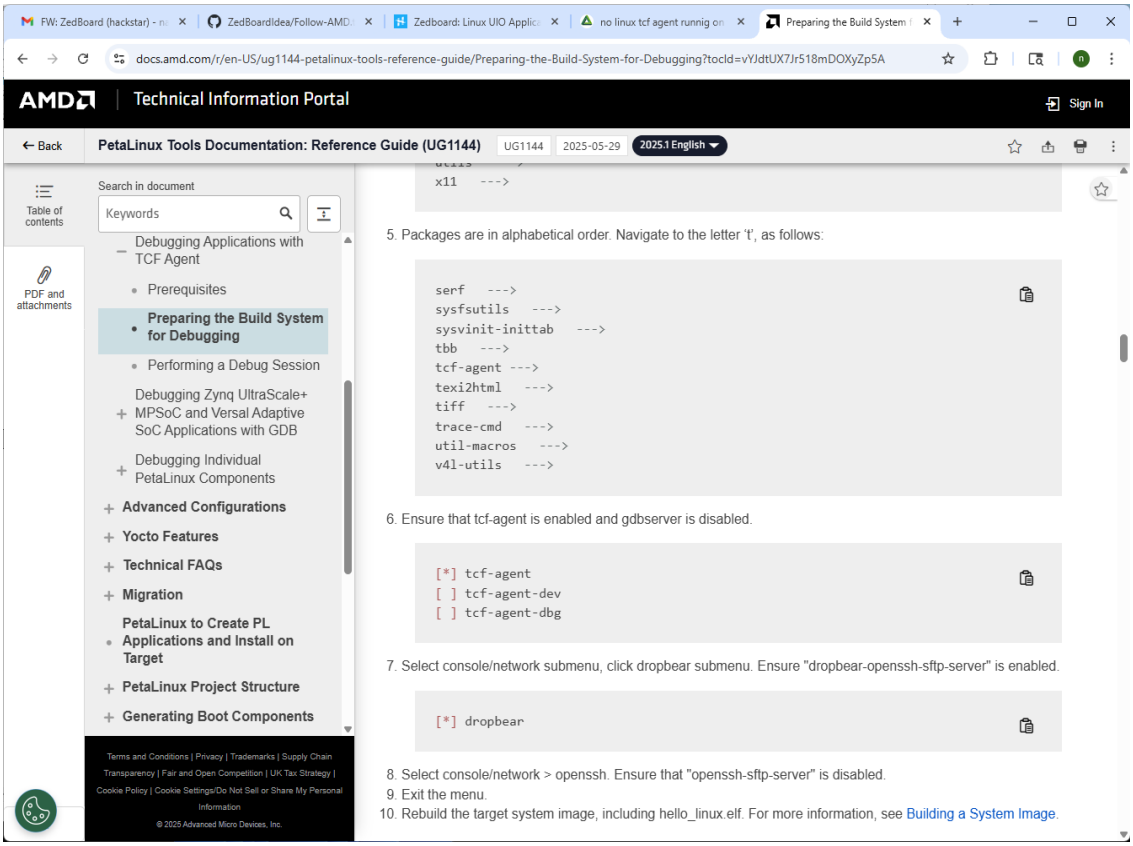
Performing a Debug Session
Debugging Zynq UltraScale+ MPSoC and Versal Adaptive SoC Applications with GDB
Debugging Individual PetaLinux Components
Advanced Configurations
Yocto Features
Technical FAQs
Migration
4. Select misc submenu:
admin --->
audio --->
base --->
baseutils --->
benchmark --->
bootloader --->
console --->
devel --->
fonts --->
kernel --->
libs --->
misc --->
multimedia --->
net --->
network --->
optional --->
power management --->
utils --->
x11 --->
5. Packages are in alphabetical order. Navigate to the letter 't', as follows:


FW: ZedBoard (hackstar) - n
ZedBoardIdea/Follow-AMD
Zedboard: Linux UIO Applic
no linux tcf agent runnig on
Preparing the Build System
docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Preparing-the-Build-System-for-Debugging?tocId=vYJdtUX7Jr518mDOXyZp5A
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Advanced Configurations
Yocto Features
Technical FAQs
Migration
PetaLinux to Create PL Applications and Install on Target
PetaLinux Project Structure
Generating Boot Components
x11 --->
5. Packages are in alphabetical order. Navigate to the letter 't', as follows:
serf --->
sysfsutils --->
sysvinit-inittab --->
tbb --->
tcf-agent --->
texi2html --->
tiff --->
trace-cmd --->
util-macros --->
v4l-utils --->
6. Ensure that tcf-agent is enabled and gdbserver is disabled.
[*] tcf-agent
[ ] tcf-agent-dev
[ ] tcf-agent-dbg
7. Select console/network submenu, click dropbear submenu. Ensure "dropbear-openssh-sftp-server" is enabled.
[*] dropbear
8. Select console/network > openssh. Ensure that "openssh-sftp-server" is disabled.
9. Exit the menu.
10. Rebuild the target system image, including hello_linux.elf. For more information, see Building a System Image.
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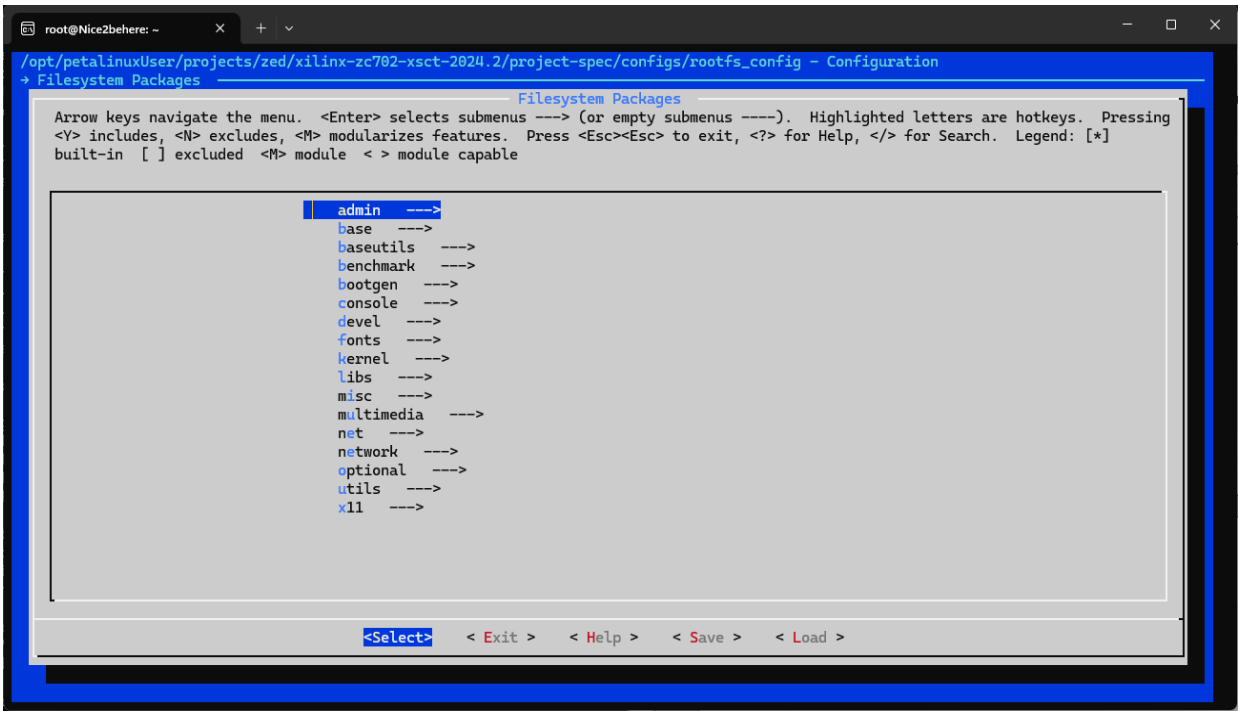
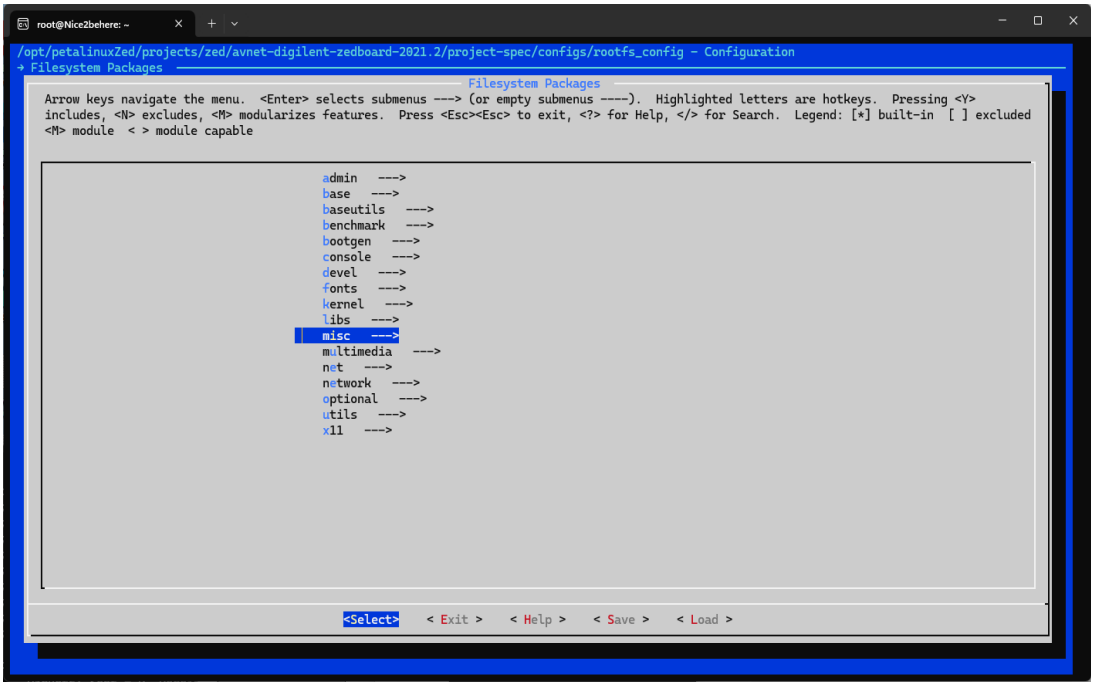
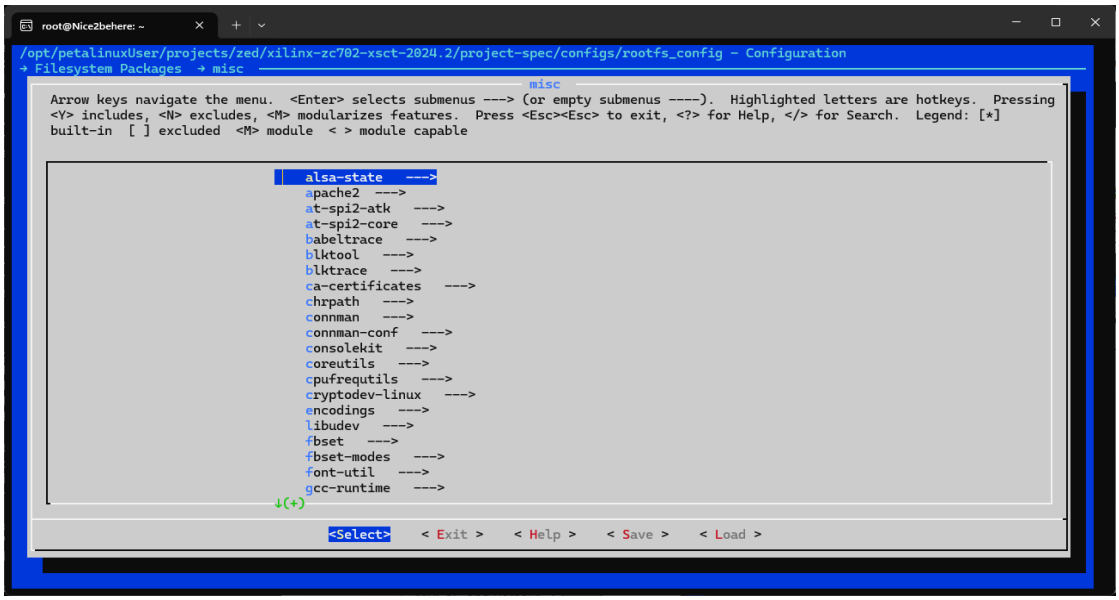
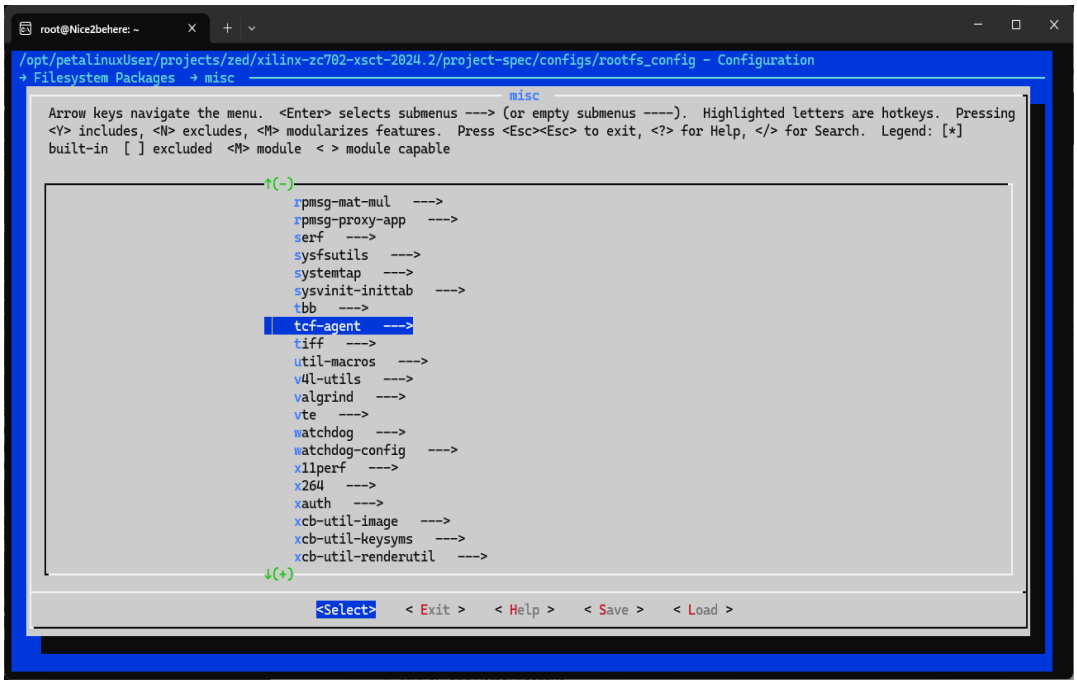
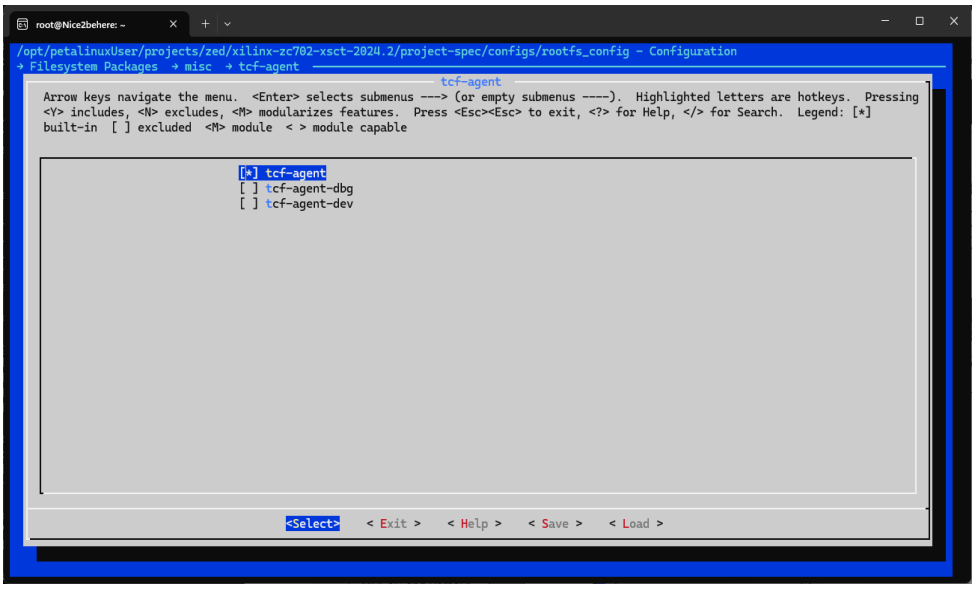

root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages
Filesystem Packages
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
admin --->
base --->
baseutils --->
benchmark --->
bootgen --->
console --->
devel --->
fonts --->
kernel --->
libs --->
misc --->
multimedia --->
net --->
network --->
optional --->
utils --->
x11 --->
<Select>
< Exit >
< Help >
< Save >
< Load >


root@Nice2behere: ~
/opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages
Filesystem Packages
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
admin --->
base --->
baseutils --->
benchmark --->
bootgen --->
console --->
devel --->
fonts --->
kernel --->
libs --->
misc --->
multimedia --->
net --->
network --->
optional --->
utils --->
x11 --->
<Select> < Exit > < Help > < Save > < Load >


root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages → misc
misc
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
alsa-state --->
apache2 --->
at-spi2-atk --->
at-spi2-core --->
babeltrace --->
blktool --->
blktrace --->
ca-certificates --->
chrpath --->
connman --->
connman-conf --->
consolekit --->
coreutils --->
cpufrequtils --->
cryptodev-linux --->
encodings --->
libudev --->
fbset --->
fbset-modes --->
font-util --->
gcc-runtime --->
↓(+)
<Select> < Exit > < Help > < Save > < Load >

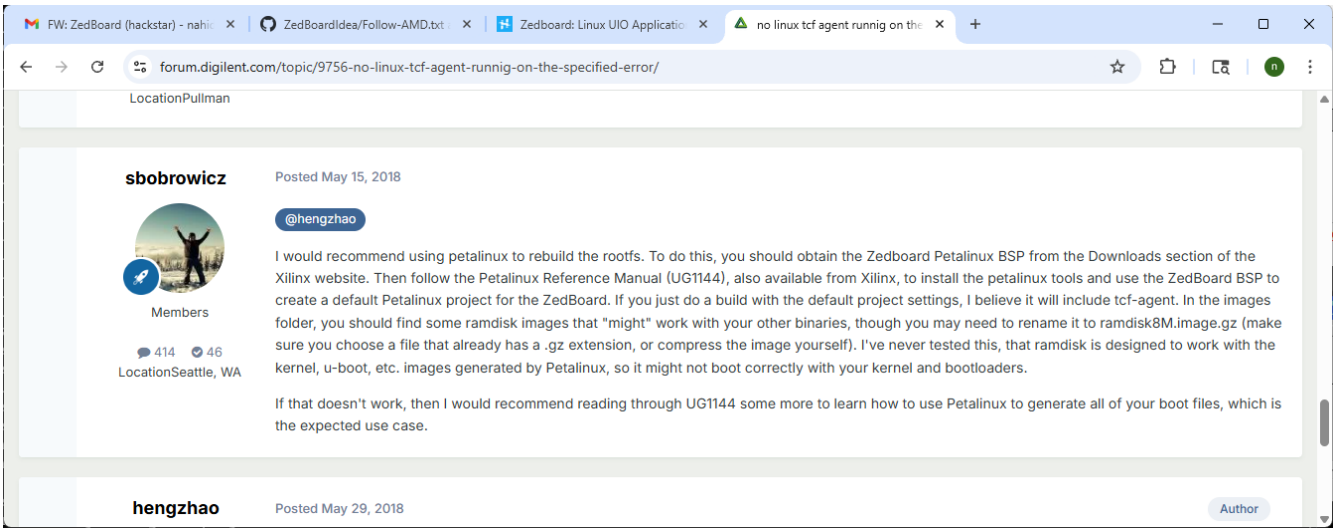

root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages → misc
misc
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
↑(-)
rpmsg-mat-mul --->
rpmsg-proxy-app --->
serf --->
sysfsutils --->
systemtap --->
sysvinit-inittab --->
tbb --->
tcf-agent --->
tiff --->
util-macros --->
v4l-utils --->
valgrind --->
vte --->
watchdog --->
watchdog-config --->
x11perf --->
x264 --->
xauth --->
xcb-util-image --->
xcb-util-keysyms --->
xcb-util-renderutil --->
↓(+)
<Select> < Exit > < Help > < Save > < Load >


root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages → misc → tcf-agent
tcf-agent
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
[*] tcf-agent
[ ] tcf-agent-dbg
[ ] tcf-agent-dev
<Select> < Exit > < Help > < Save > < Load >

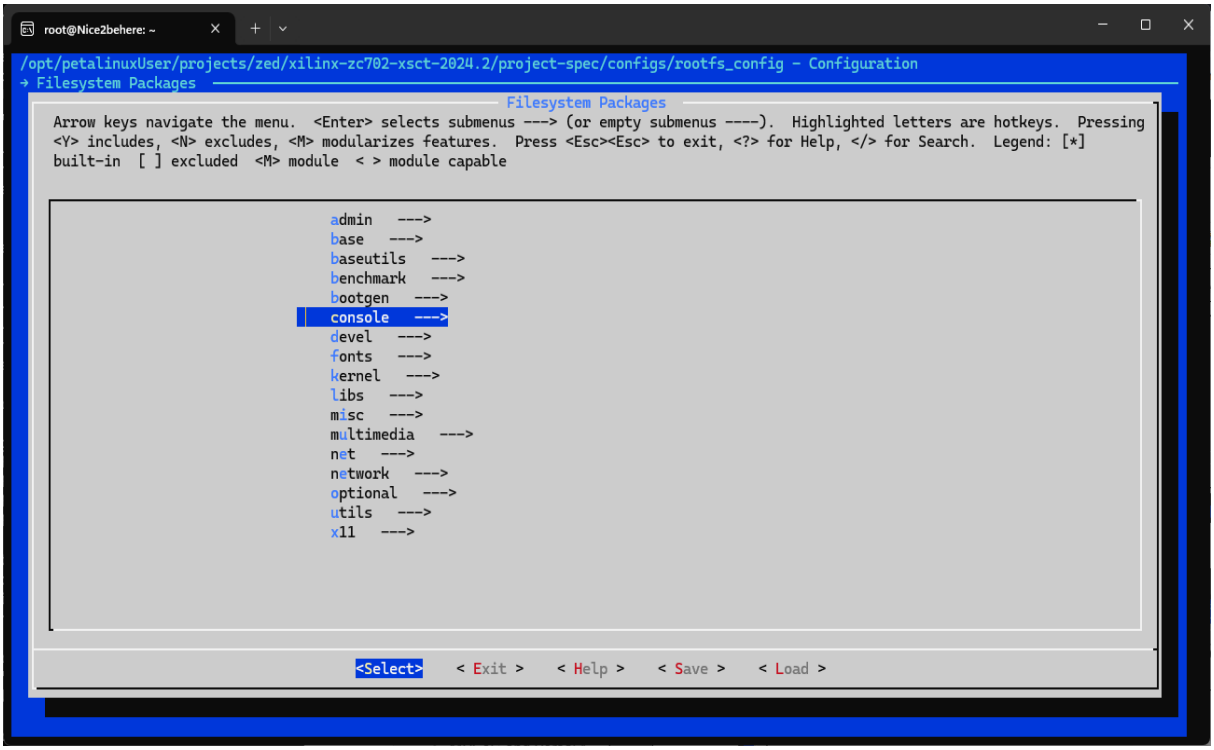
So, TCF is by default selected, by xilinx-zc702-xsct-v2024.2-11110212.bsp.

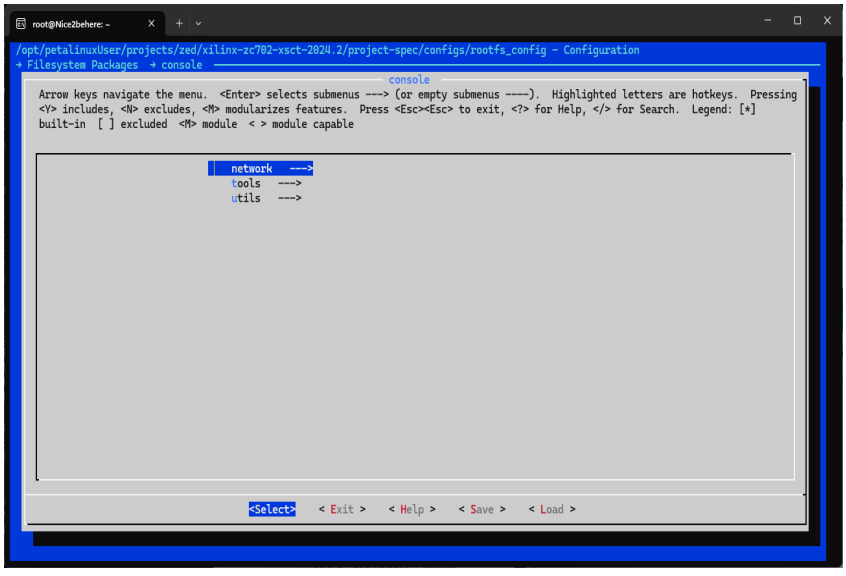
But we are not running that filesystem in our SD CARD since we have downloaded DIGILENT 2021.1 (avnet-digilent-zedboard-v2021.1-final.bsp)
and
2021.2 (avnet-digilent-zedboard-v2021.2-final.bsp)
unzipped and used those files.

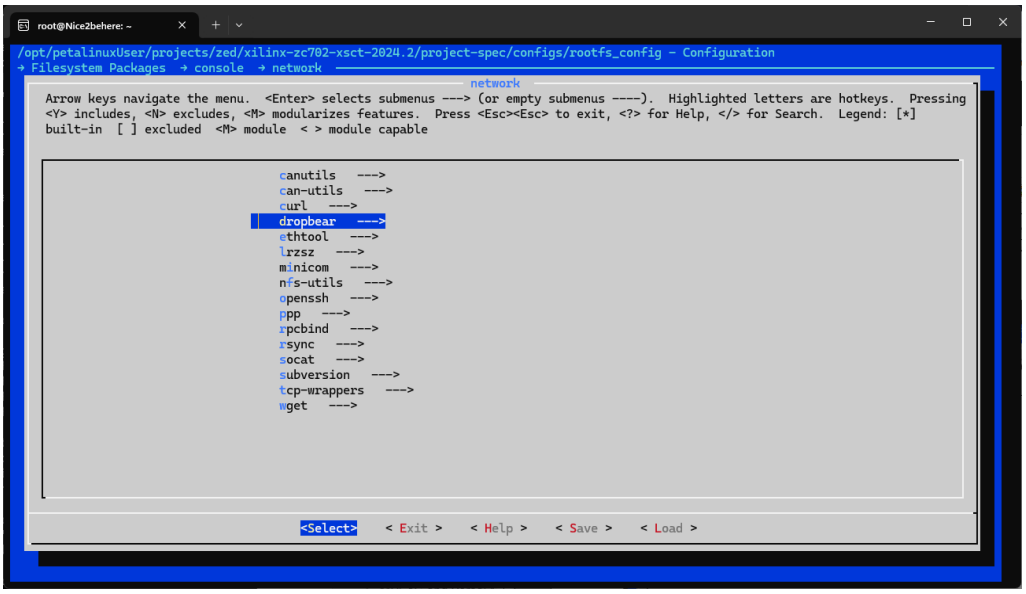
URL: https://forum.digilent.com/topic/9756-no-linux-tcf-agent-runnig-on-the-specified-error/

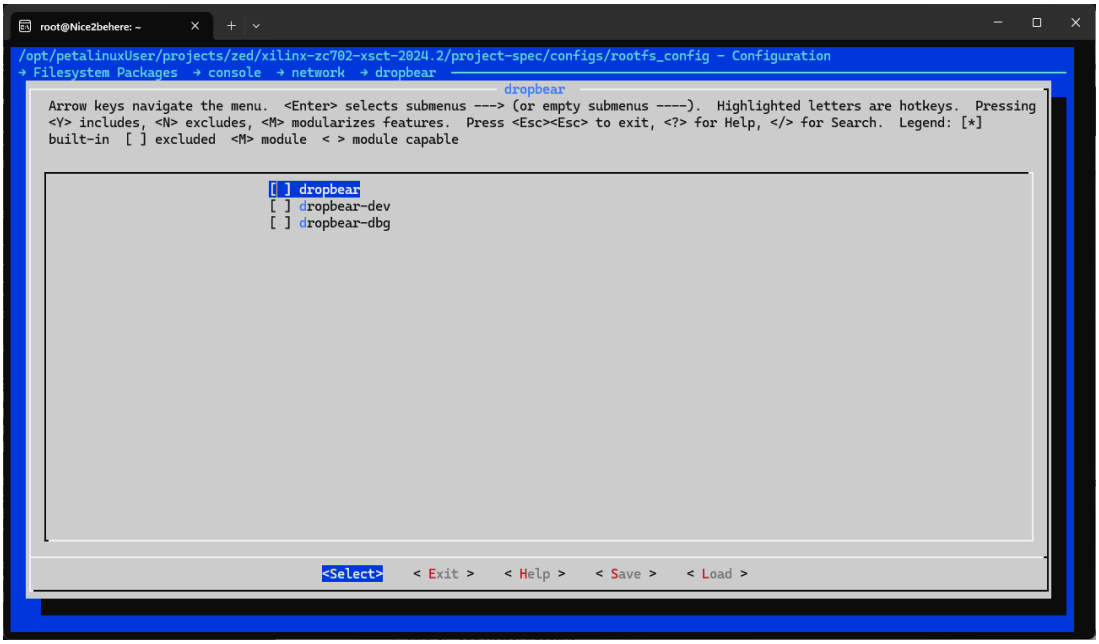


Console->network->dropbear
Dropbear is not selected. But is selected petalinux-build does not work for
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$

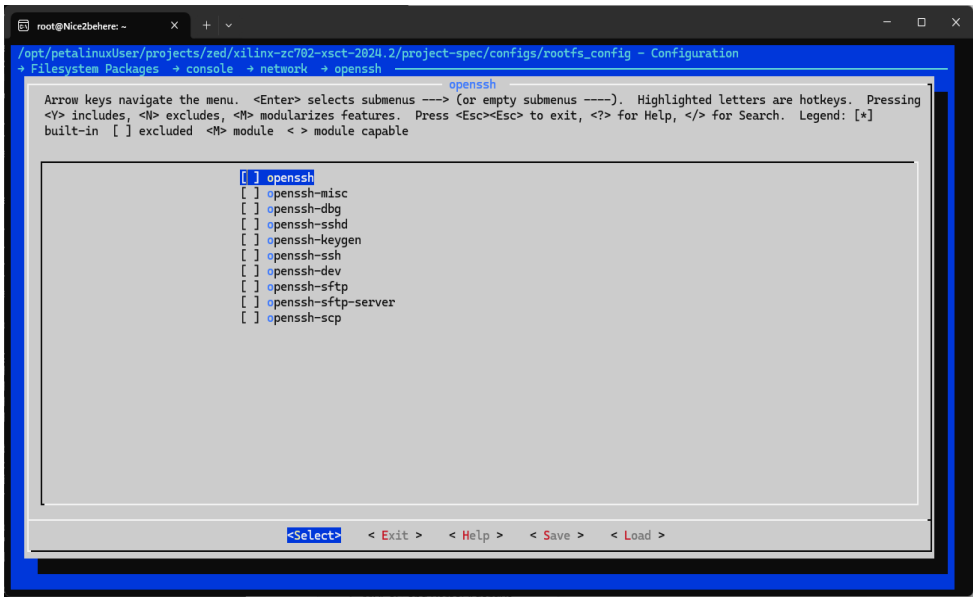

root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages
Filesystem Packages
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
admin --->
base --->
baseutils --->
benchmark --->
bootgen --->
console --->
devel --->
fonts --->
kernel --->
libs --->
misc --->
multimedia --->
net --->
network --->
optional --->
utils --->
x11 --->
<Select> < Exit > < Help > < Save > < Load >


root@Nice2behere: ~
/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2/project-spec/configs/rootfs_config - Configuration
→ Filesystem Packages → console
console
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----). Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module < > module capable
network --->
tools --->
utils --->
<Select> < Exit > < Help > < Save > < Load >





Console->network->openssh. "openssh-sftp-server" is disabled.



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Commands:

1) User login
root@Nice2behere:/etc# **login**
Nice2behere login: jabeen
Password:mou..shi

2) Must Run after login if Petalinux was installed before
source /opt/petalinuxUser/settings.sh

Install PetaLinux
./petalinux-v2024.2-11062026-installer.run
(INSTALL AS A USER ./petalinux-v2024.2-11062026-installer.run) was done once

3)
jabeen@Nice2behere:/$ **petalinux-create –help**

jabeen@Nice2behere:/opt/petalinuxUser/projects/zed$ petalinux-create -t project -s ../../libraries/xilinx-zc702-xsct-v2024.2-11110212.bsp

4) Using ilinx-zc702-xsct-v2024.2-11110212.bsp
$ pwd

/opt/petalinuxUser
$ ls -ltra
total 48
drwxrwxrwx 4 root   root   4096 Apr 11 16:48 ..
-rw-rw-r-- 1 jabeen jabeen   0 Apr 11 16:52 me
drwxr-xr-x 4 jabeen jabeen 4096 Apr 11 16:56 sysroots
drwxr-xr-x 5 jabeen jabeen 4096 Apr 11 16:57 templates
drwxr-xr-x 4 jabeen jabeen 4096 Apr 11 16:57 scripts
drwxr-xr-x 2 jabeen jabeen 4096 Apr 11 16:57 licenses
-rw-r--r-- 1 jabeen jabeen 1461 Apr 11 16:57 .environment-setup-x86_64-petalinux-linux
-rw-r--r-- 1 jabeen jabeen 205 Apr 11 16:57 .version-history
-rw-r--r-- 1 jabeen jabeen 3542 Apr 11 16:57 settings.sh
drwxr-xr-x 4 jabeen jabeen 4096 Apr 11 16:58 components
drwxr-xr-x 9 jabeen jabeen 4096 Apr 12 14:16 .
drwxrwxr-x 3 jabeen jabeen 4096 Apr 12 14:16 projects <---------- I CREATED
drwxrwxr-x 2 jabeen jabeen 4096 Apr 12 14:17 libraries <---------- I CREATED

jabeen@Nice2behere:/opt/petalinuxUser$ ls -l libraries/
total 89464
-rw-r--r-- 1 jabeen jabeen 91611008 Apr 12 14:17 xilinx-zc702-xsct-v2024.2-11110212.bsp

a) petalinux-create

jabeen@Nice2behere:/opt/petalinuxUser/projects/zed$ **petalinux-create -t project -s ../../libraries/xilinx-zc702-xsct-v2024.2-11110212.bsp**

b) petalinux-config
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$ **petalinux-config**
Note: Can not enable dropbear in ' **petalinux-config -c rootfs'** for xilinx-zc702-xsct-2024.2. It fails at **'petalinux-build'.**

jabeen@Nice2behere:/opt/**petalinuxZed**/projects/zed/avnet-digilent-zedboard-2021.2$ **petalinux-config**

ERROR: Layer meta-user is not compatible with the core layer which only supports these series: scarthgap (layer is compatible with gatesgarth)
ERROR: Layer meta-user is not compatible with the core layer which only supports these series: scarthgap (layer is compatible with gatesgarth)

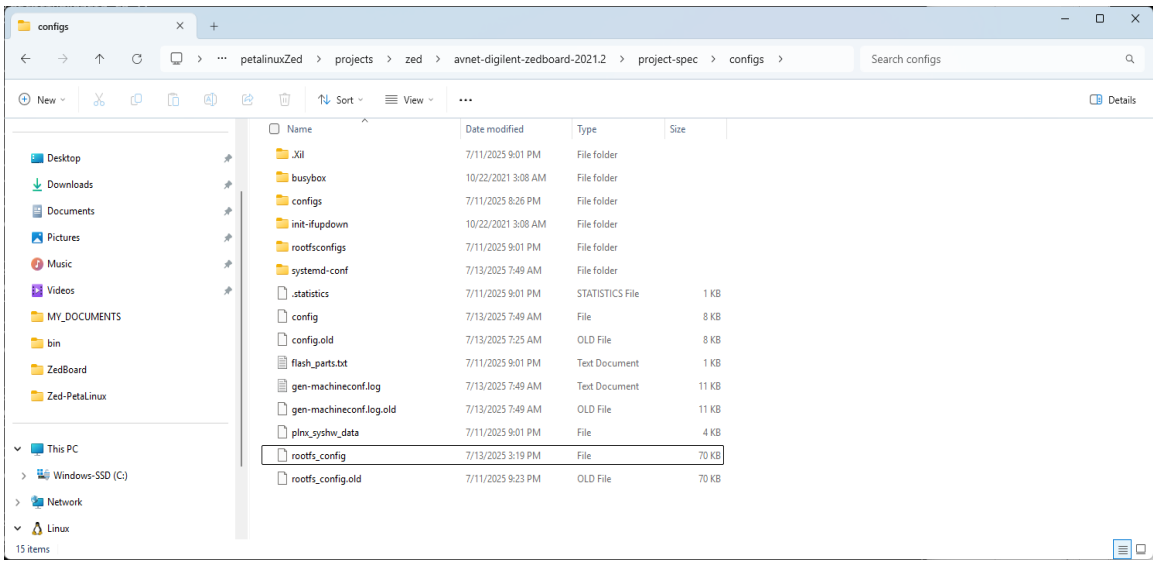
See: https://github.com/meta-rust/meta-rust/issues/451

c) petalinux-build
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$ **petalinux-build**

5) petalinux-config -c rootfs
jabeen@Nice2behere:/opt/petalinuxUser/projects/zed/xilinx-zc702-xsct-2024.2$ **petalinux-config -c rootfs**

jabeen@Nice2behere:/opt/**petalinuxZed**/projects/zed/avnet-digilent-zedboard-2021.2$ **petalinux-config -c rootfs**

```
root@Nice2behere: ~
jabeen@Nice2behere:/opt/petalinuxZed/projects/zed$ cd avnet-digilent-zedboard-2021.2/
jabeen@Nice2behere:/opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2$ petalinux-config
[INFO] Bitbake is not available, some functionality may be reduced.
[INFO] Using HW file: /opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2/project-spec/hw-description/system.xsa
[INFO] Getting Platform info from HW file
[INFO] Menuconfig project
[INFO] Silentconfig rootfs
[INFO] Generating configuration files
[INFO] Generating workspace directory
NOTE: Starting bitbake server...
ERROR: Layer meta-user is not compatible with the core layer which only supports these series: scarthgap (layer is compatible with gatesgarth)
ERROR: Layer meta-user is not compatible with the core layer which only supports these series: scarthgap (layer is compatible with gatesgarth)
[ERROR] Command devtool create-workspace "/opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2/components/yocto/workspace" failed
jabeen@Nice2behere:/opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2$ petalinux-config -c rootfs
[INFO] Bitbake is not available, some functionality may be reduced.
[INFO] Using HW file: /opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2/project-spec/hw-description/system.xsa
[INFO] Getting Platform info from HW file
[INFO] Silentconfig project
[INFO] Menuconfig rootfs
[INFO] Generating configuration files
[INFO] Successfully configured rootfs
jabeen@Nice2behere:/opt/petalinuxZed/projects/zed/avnet-digilent-zedboard-2021.2$
```



6) BOOT.BIN (if needed)

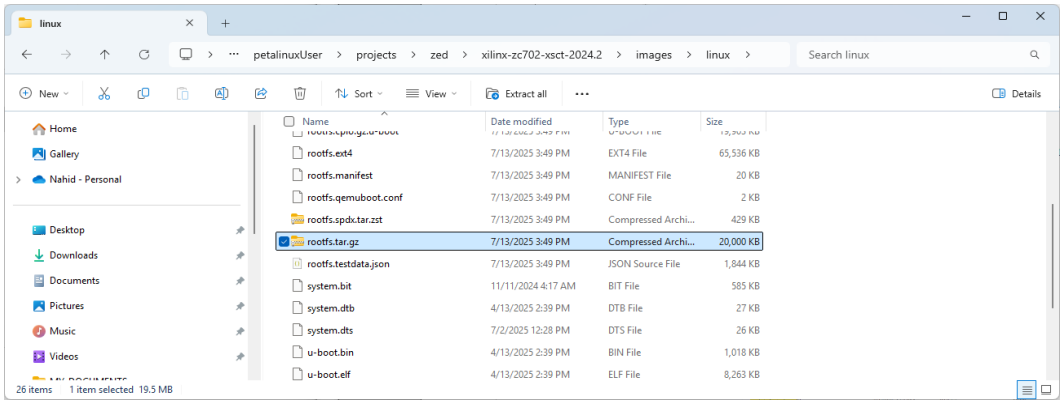
petalinux-package --boot --fsbl ./zynq_fsbl.elf --fpga ./system.bit --u-boot ./u-boot.elf –force

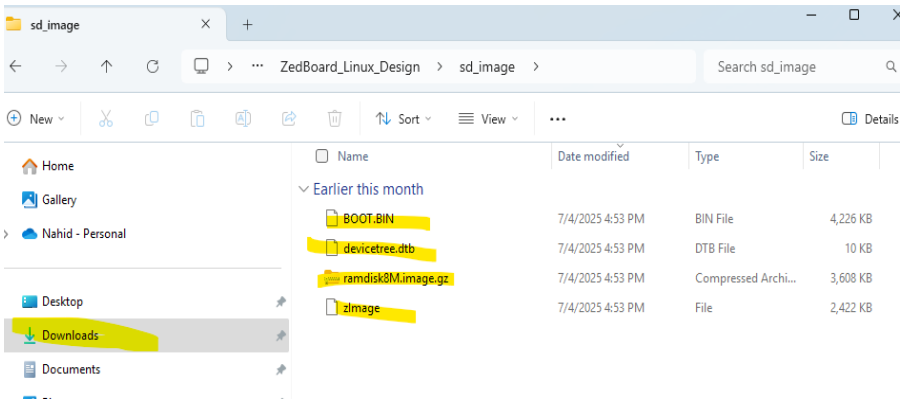
Run

Trial- 1

- With tcf-agent enabled in filesystem **rootfs.tar.gz from petalinux-build.** Copied **rootfs.tar.gz** and renamed to **ramdisk8M.image.gz** then put in SD Card.

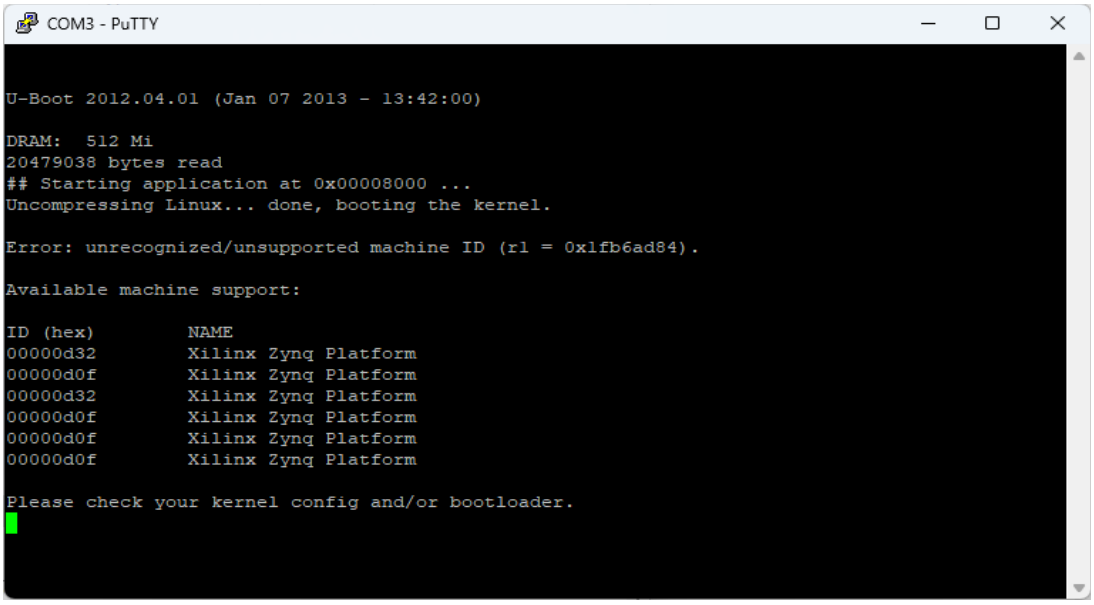
uImage is from Digilent zip
Filesystem is rootfs.tar.gz renamed to **ramdisk8M.image.gz**
UBOOT.bin is from Digilent zip
Device tree is from Digilent zip





jabeen@Nice2behere:/opt/**petalinuxUser**/projects/zed/xilinx-zc702-xsct-2024.2$

Could not boot :-(



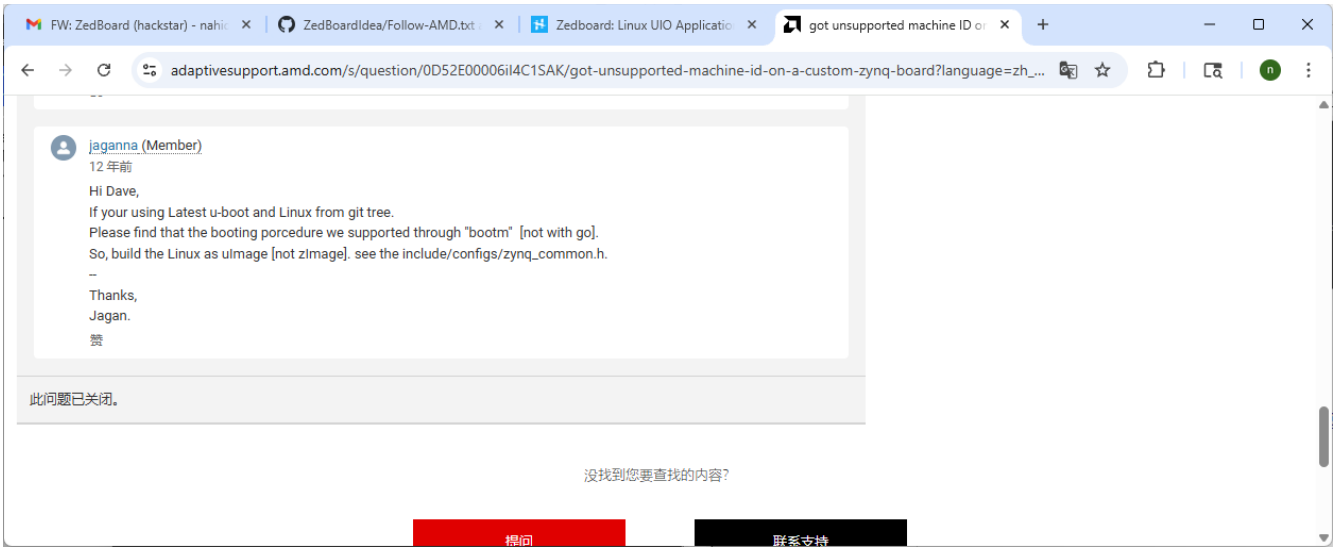
Trial 2

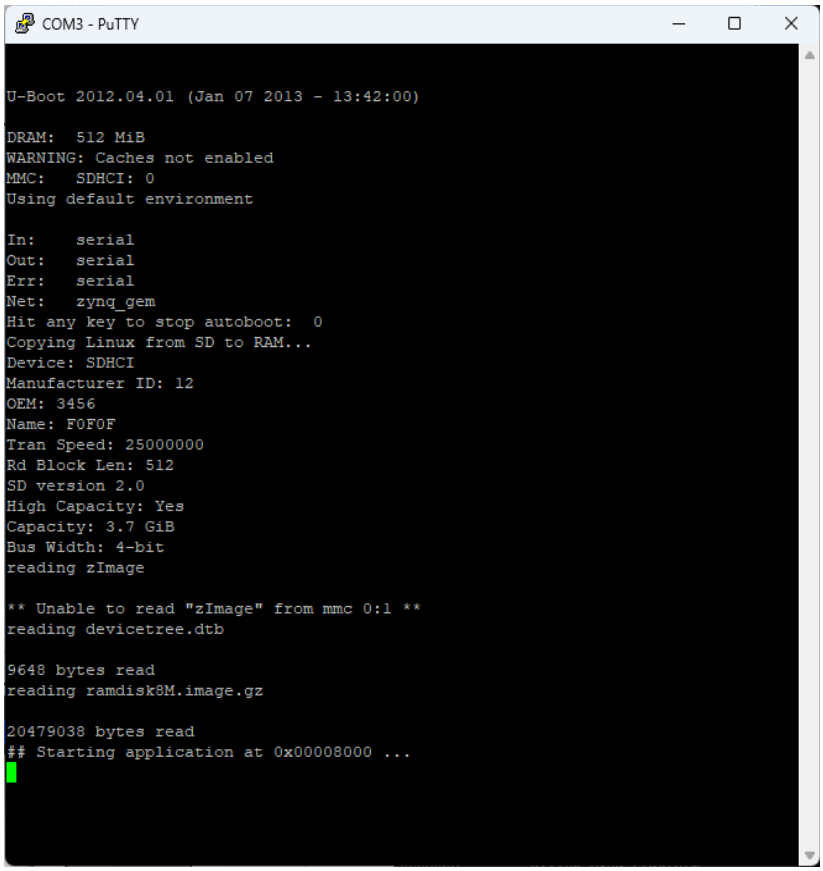
https://adaptivesupport.amd.com/s/question/0D52E00006iI4C1SAK/got-unsupported-machine-id-on-a-custom-zynq-board?language=zh_CN

build the Linux as uImage [not zImage].

Copied **petalinuxUser** uImage to SD Card

Copied **petalinuxUser u**Image to SD Card.
Filesystem is still rootfs.tar.gz renamed to **ramdisk8M.image.gz**
UBOOT.bin is from Digilent zip
Device tree is from Digilent zip

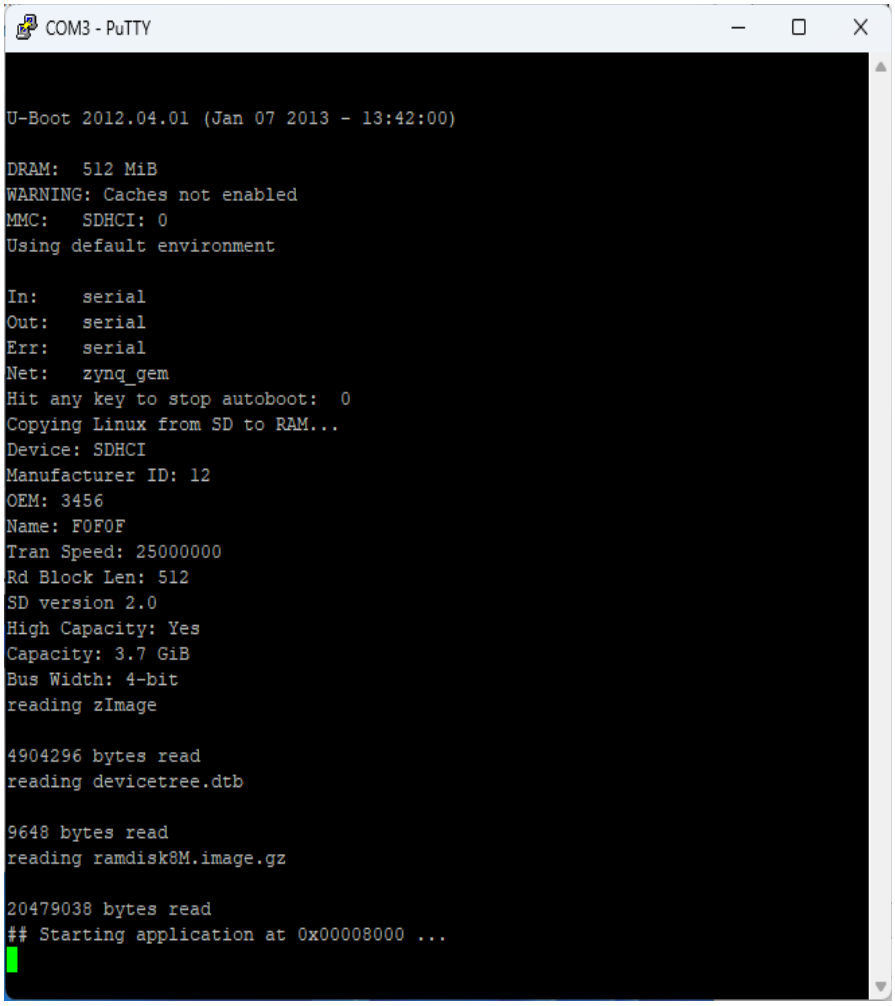




Trial 3

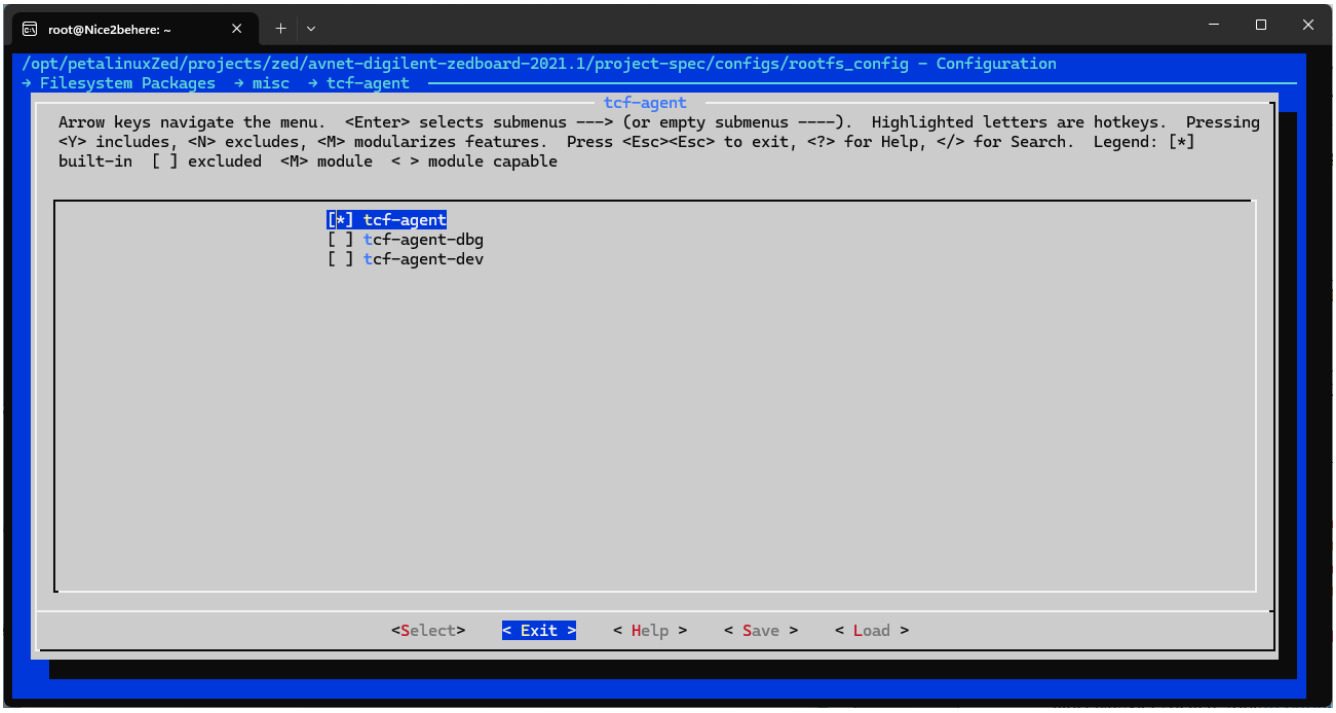
Copied **petalinuxUser zImage** to SD Card.
Filesystem is still rootfs.tar.gz renamed to **ramdisk8M.image.gz**
UBOOT.bin is from Digilent zip
Device tree is from Digilent zip

Does not work :-(

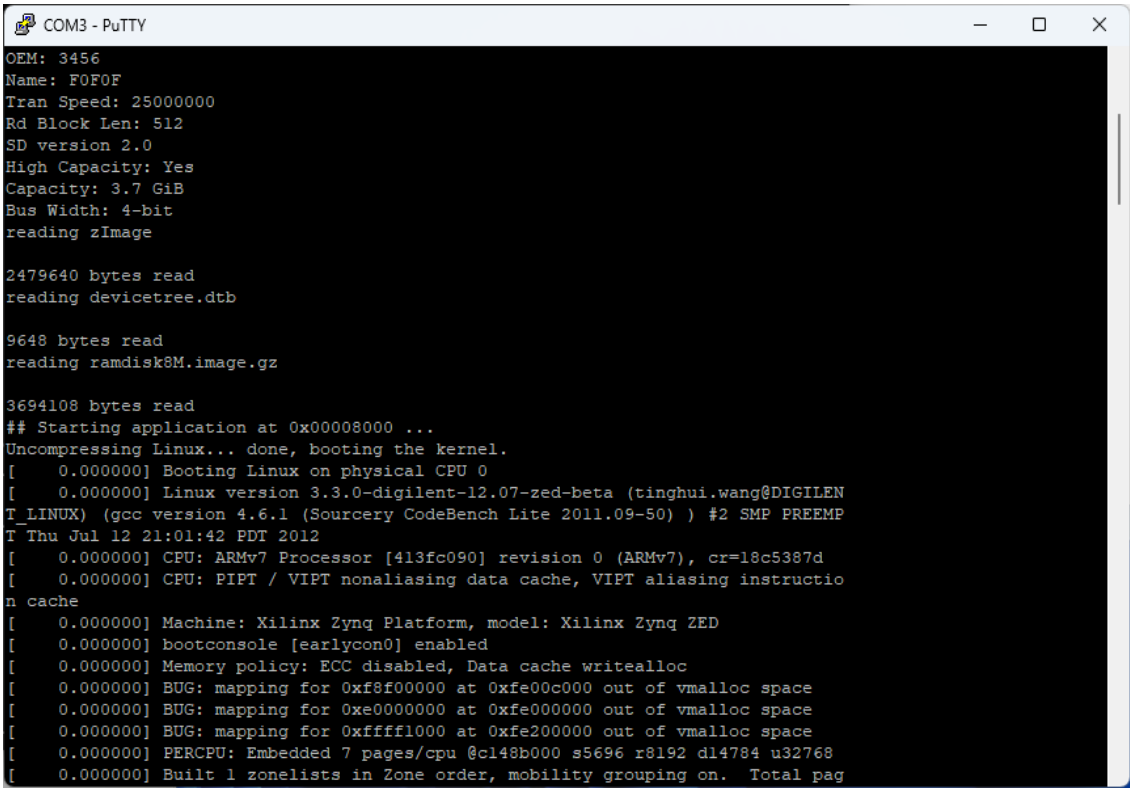


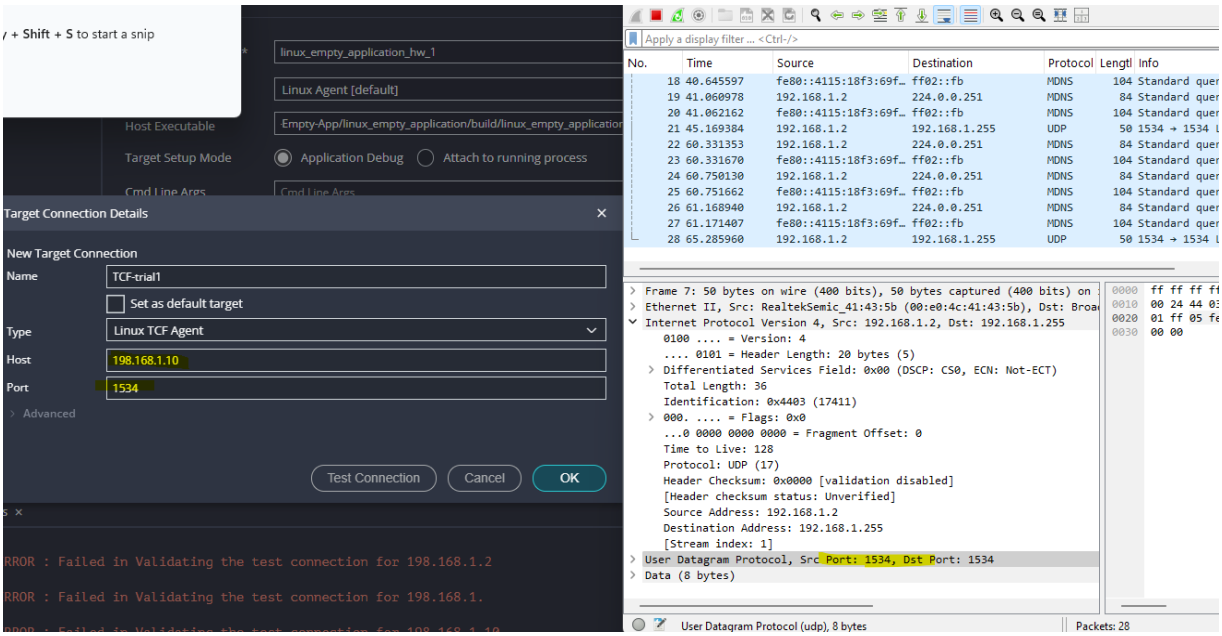
Trail 4

[*] tcf-agent <---------- This should work
[ ] tcf-agent-dbg
[ ] tcf-agent-dev

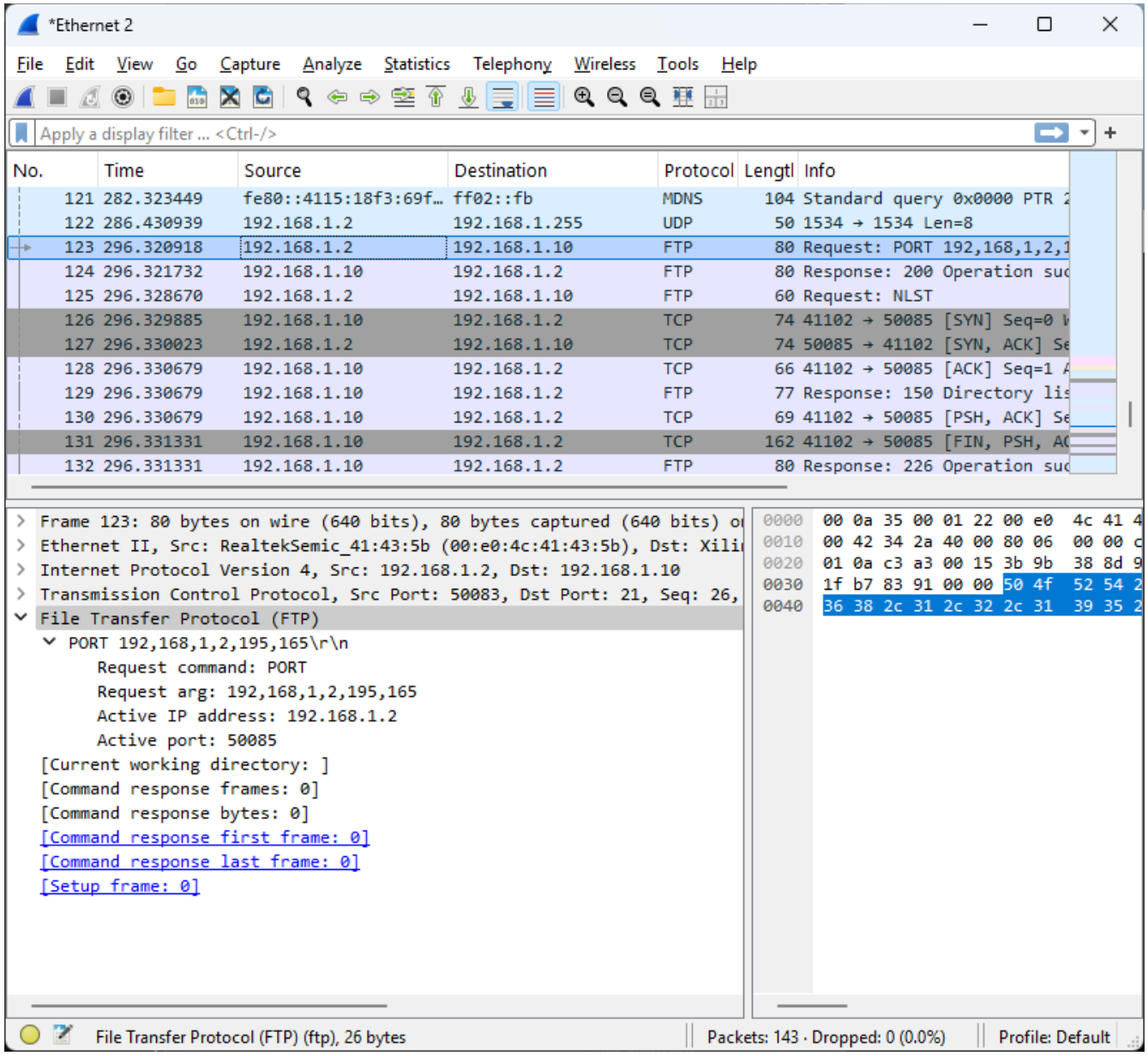


So we should stay with default





ftp port 50085



URL

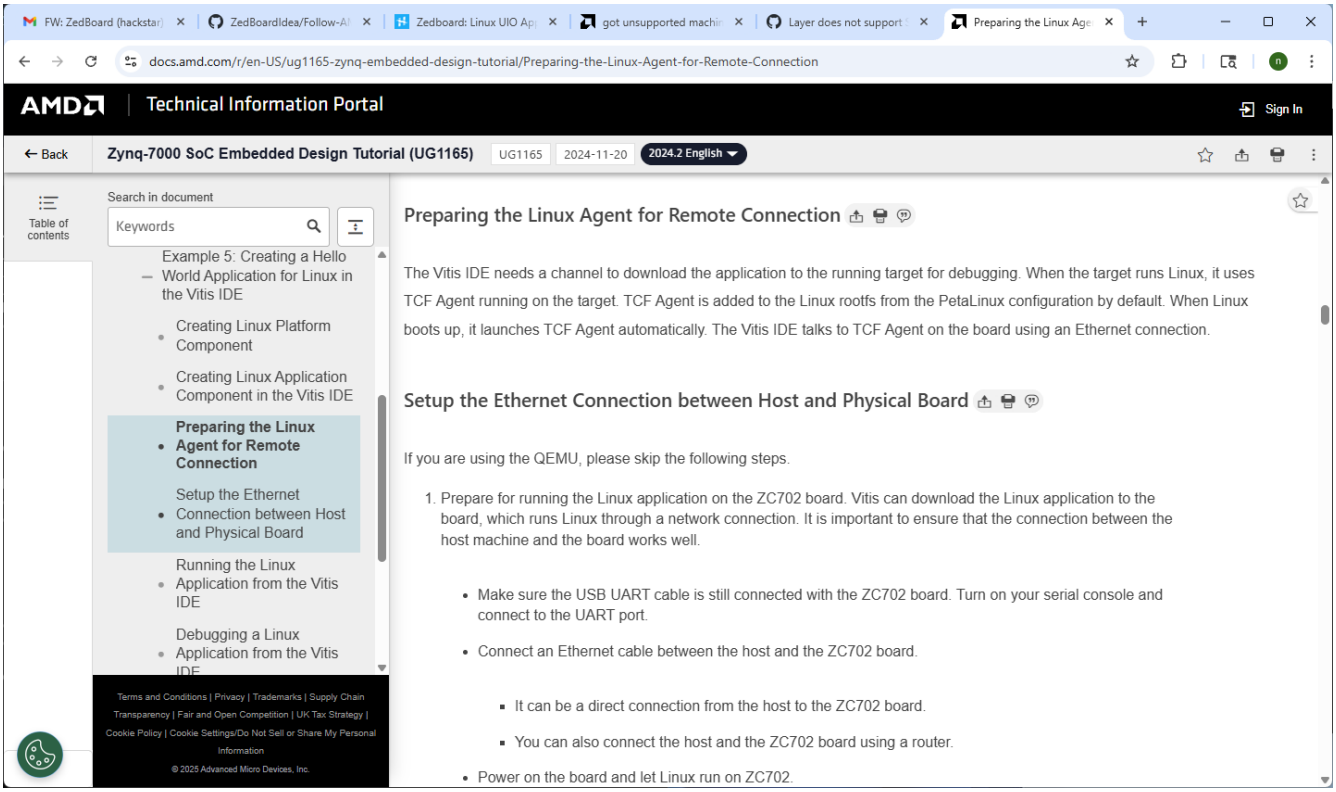
TCF can be to Zed board or **QEMU??**

https://docs.amd.com/r/en-US/ug1165-zynq-embedded-design-tutorial/Setup-the-Ethernet-Connection-between-Host-and-Physical-Board

When QEMU is run we get 127.0.0.1 IP address

```
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:2 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:140 (140.0 B)  TX bytes:140 (140.0 B)
```

or for Zed board



more reading...

https://github.com/Xilinx/Vitis-Tutorials/tree/2024.2/Embedded_Software/Feature_Tutorials/02-Debugging/2-debugging-linux-applications

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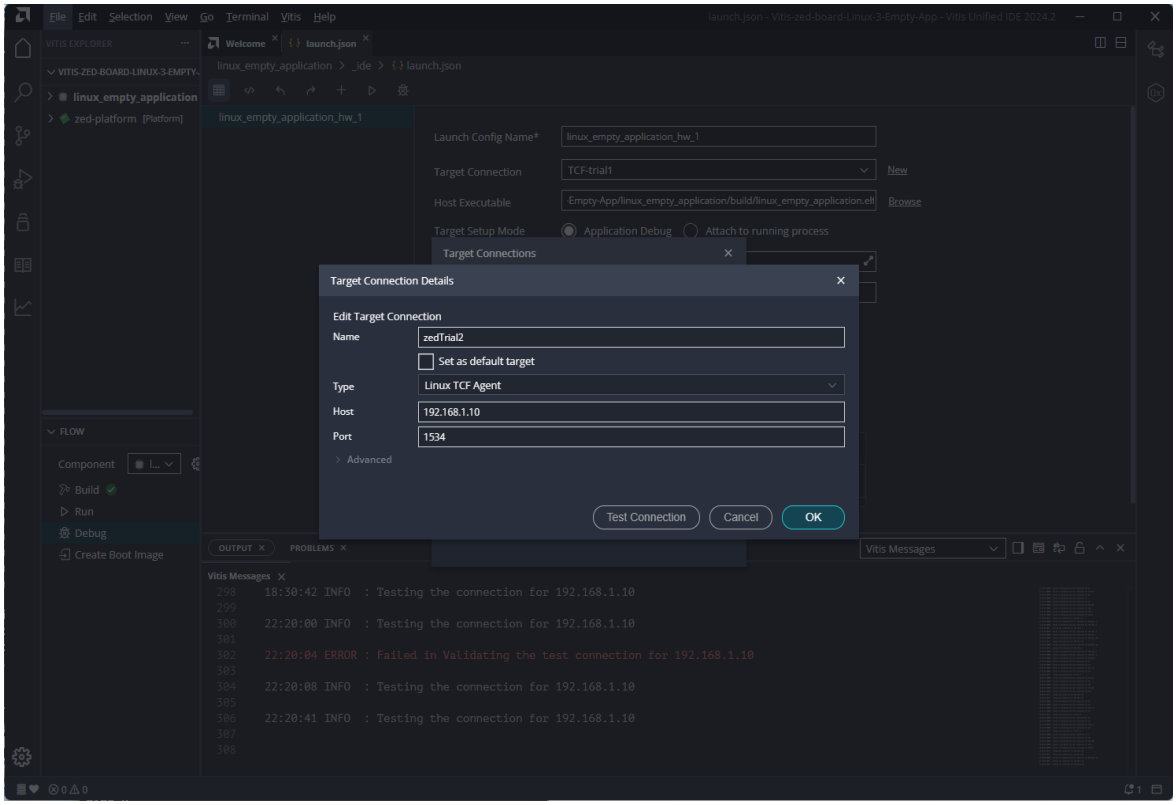
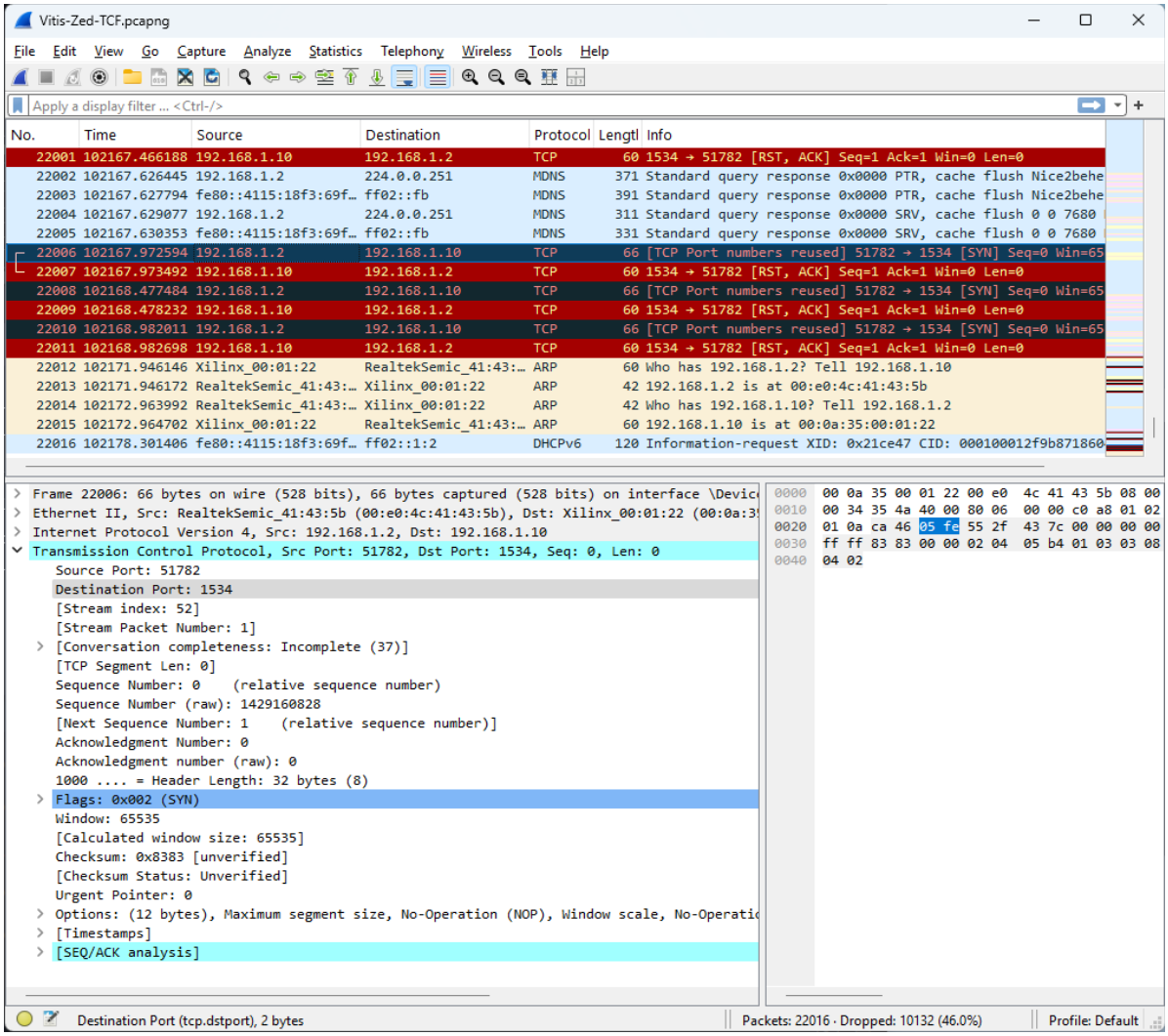
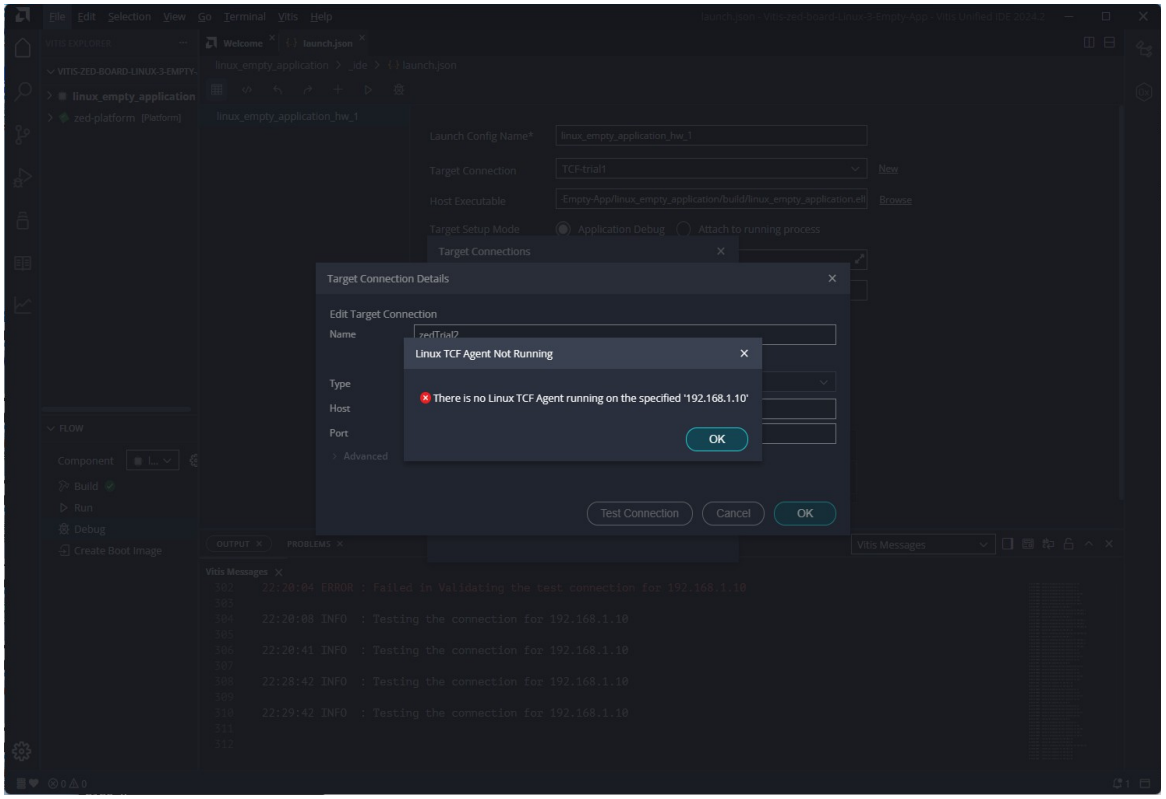
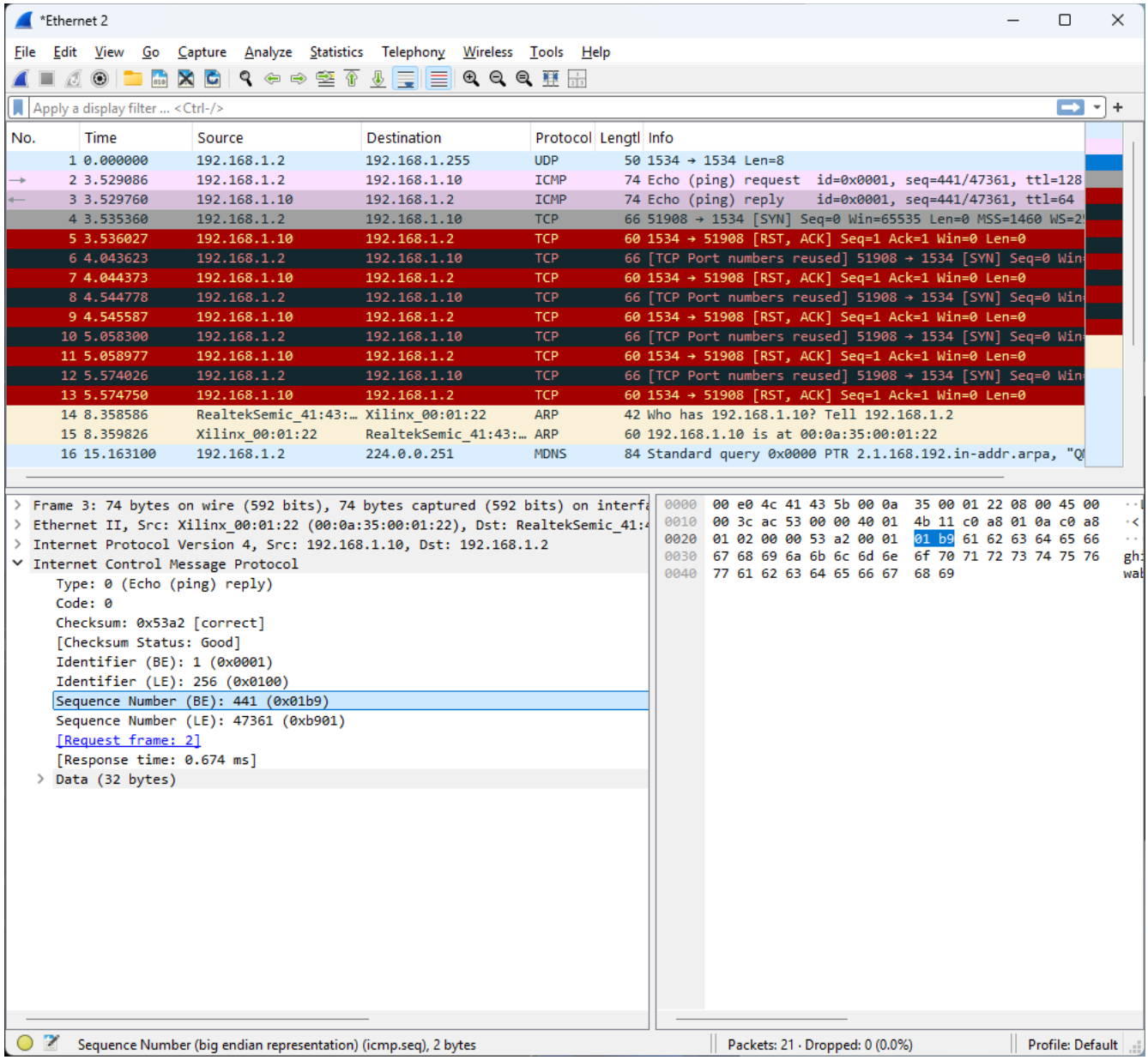

File Edit Selection View Go Terminal Vitis Help
launch.json - Vitis-zed-board-Linux-3-Empty-App - Vitis Unified IDE 2024.2
VITIS EXPLORER
Welcome
launch.json
linux_empty_application > _ide > launch.json
VITIS-ZED-BOARD-LINUX-3-EMPTY-
linux_empty_application
zed-platform [Platform]
linux_empty_application_hw_1
Launch Config Name*
linux_empty_application_hw_1
Target Connection
TCF-trial1
New
Host Executable
Empty-App/linux_empty_application/build/linux_empty_application.elf
Browse
Target Setup Mode
Application Debug
Attach to running process
Target Connections
Target Connection Details
Edit Target Connection
Name
zedTrial2
Set as default target
Type
Linux TCF Agent
Host
192.168.1.10
Port
1534
Advanced
Test Connection
Cancel
OK
FLOW
Component
Build
Run
Debug
Create Boot Image
OUTPUT
PROBLEMS
Vitis Messages
Vitis Messages
18:30:42 INFO : Testing the connection for 192.168.1.10
22:20:00 INFO : Testing the connection for 192.168.1.10
22:20:04 ERROR : Failed in Validating the test connection for 192.168.1.10
22:20:08 INFO : Testing the connection for 192.168.1.10
22:20:41 INFO : Testing the connection for 192.168.1.10


Vitis-Zed-TCF.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Lengtl Info
22001 102167.466188 192.168.1.10 192.168.1.2 TCP 60 1534 → 51782 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
22002 102167.626445 192.168.1.2 224.0.0.251 MDNS 371 Standard query response 0x0000 PTR, cache flush Nice2behe
22003 102167.627794 fe80::4115:18f3:69f… ff02::fb MDNS 391 Standard query response 0x0000 PTR, cache flush Nice2behe
22004 102167.629077 192.168.1.2 224.0.0.251 MDNS 311 Standard query response 0x0000 SRV, cache flush 0 0 7680
22005 102167.630353 fe80::4115:18f3:69f… ff02::fb MDNS 331 Standard query response 0x0000 SRV, cache flush 0 0 7680
22006 102167.972594 192.168.1.2 192.168.1.10 TCP 66 [TCP Port numbers reused] 51782 → 1534 [SYN] Seq=0 Win=65
22007 102167.973492 192.168.1.10 192.168.1.2 TCP 60 1534 → 51782 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
22008 102168.477484 192.168.1.2 192.168.1.10 TCP 66 [TCP Port numbers reused] 51782 → 1534 [SYN] Seq=0 Win=65
22009 102168.478232 192.168.1.10 192.168.1.2 TCP 60 1534 → 51782 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
22010 102168.982011 192.168.1.2 192.168.1.10 TCP 66 [TCP Port numbers reused] 51782 → 1534 [SYN] Seq=0 Win=65
22011 102168.982698 192.168.1.10 192.168.1.2 TCP 60 1534 → 51782 [RST, ACK] Seq=1 Ack=1 Win=0 Len=0
22012 102171.946146 Xilinx_00:01:22 RealtekSemic_41:43:… ARP 60 Who has 192.168.1.2? Tell 192.168.1.10
22013 102171.946172 RealtekSemic_41:43:… Xilinx_00:01:22 ARP 42 192.168.1.2 is at 00:e0:4c:41:43:5b
22014 102172.963992 RealtekSemic_41:43:… Xilinx_00:01:22 ARP 42 Who has 192.168.1.10? Tell 192.168.1.2
22015 102172.964702 Xilinx_00:01:22 RealtekSemic_41:43:… ARP 60 192.168.1.10 is at 00:0a:35:00:01:22
22016 102178.301406 fe80::4115:18f3:69f… ff02::1:2 DHCPv6 120 Information-request XID: 0x21ce47 CID: 000100012f9b871860
Frame 22006: 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on interface \Devic
Ethernet II, Src: RealtekSemic_41:43:5b (00:e0:4c:41:43:5b), Dst: Xilinx_00:01:22 (00:0a:3
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 192.168.1.10
Transmission Control Protocol, Src Port: 51782, Dst Port: 1534, Seq: 0, Len: 0
Source Port: 51782
Destination Port: 1534
[Stream index: 52]
[Stream Packet Number: 1]
[Conversation completeness: Incomplete (37)]
[TCP Segment Len: 0]
Sequence Number: 0 (relative sequence number)
Sequence Number (raw): 1429160828
[Next Sequence Number: 1 (relative sequence number)]
Acknowledgment Number: 0
Acknowledgment number (raw): 0
1000 .... = Header Length: 32 bytes (8)
Flags: 0x002 (SYN)
Window: 65535
[Calculated window size: 65535]
Checksum: 0x8383 [unverified]
[Checksum Status: Unverified]
Urgent Pointer: 0
Options: (12 bytes), Maximum segment size, No-Operation (NOP), Window scale, No-Operatic
[Timestamps]
[SEQ/ACK analysis]
0000 00 0a 35 00 01 22 00 e0 4c 41 43 5b 08 00
0010 00 34 35 4a 40 00 80 06 00 00 c0 a8 01 02
0020 01 0a ca 46 05 fe 55 2f 43 7c 00 00 00 00
0030 ff ff 83 83 00 00 02 04 05 b4 01 03 03 08
0040 04 02
Destination Port (tcp.dstport), 2 bytes
Packets: 22016 · Dropped: 10132 (46.0%)
Profile: Default


File Edit Selection View Go Terminal Vitis Help
Welcome
launch.json
linux_empty_application
zed-platform [Platform]
Launch Config Name*
linux_empty_application_hw_1
Target Connection
TCF-trial1
New
Host Executable
Browse
Application Debug
Attach to running process
Target Connections
Target Connection Details
Edit Target Connection
Name
Type
Host
Port
Advanced
Linux TCF Agent Not Running
There is no Linux TCF Agent running on the specified '192.168.1.10'
OK
Test Connection
Cancel
OK
FLOW
Component
Build
Run
Debug
Create Boot Image
OUTPUT
PROBLEMS
Vitis Messages
22:20:04 ERROR : Failed in Validating the test connection for 192.168.1.10
22:20:08 INFO : Testing the connection for 192.168.1.10
22:20:41 INFO : Testing the connection for 192.168.1.10
22:28:42 INFO : Testing the connection for 192.168.1.10
22:29:42 INFO : Testing the connection for 192.168.1.10



No connection

There is no Linux TCF Agent running... See: Vitis-Zed-TCF.pcapng