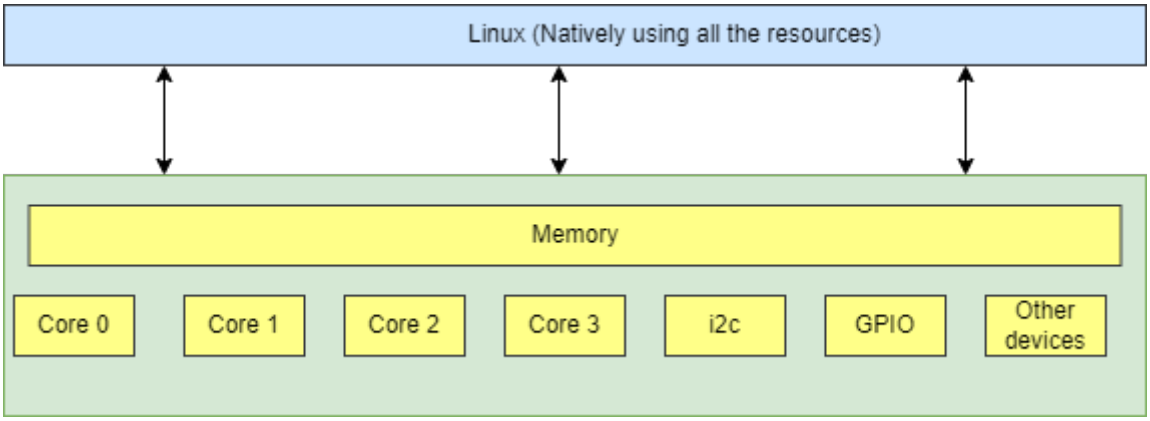
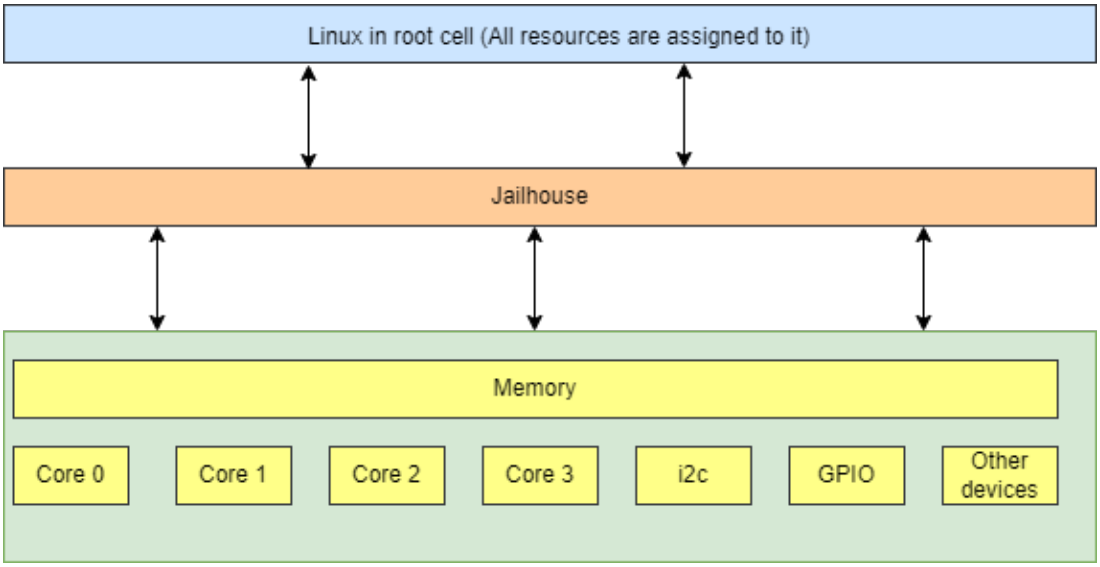

JAILHOUSE HYPERVISOR

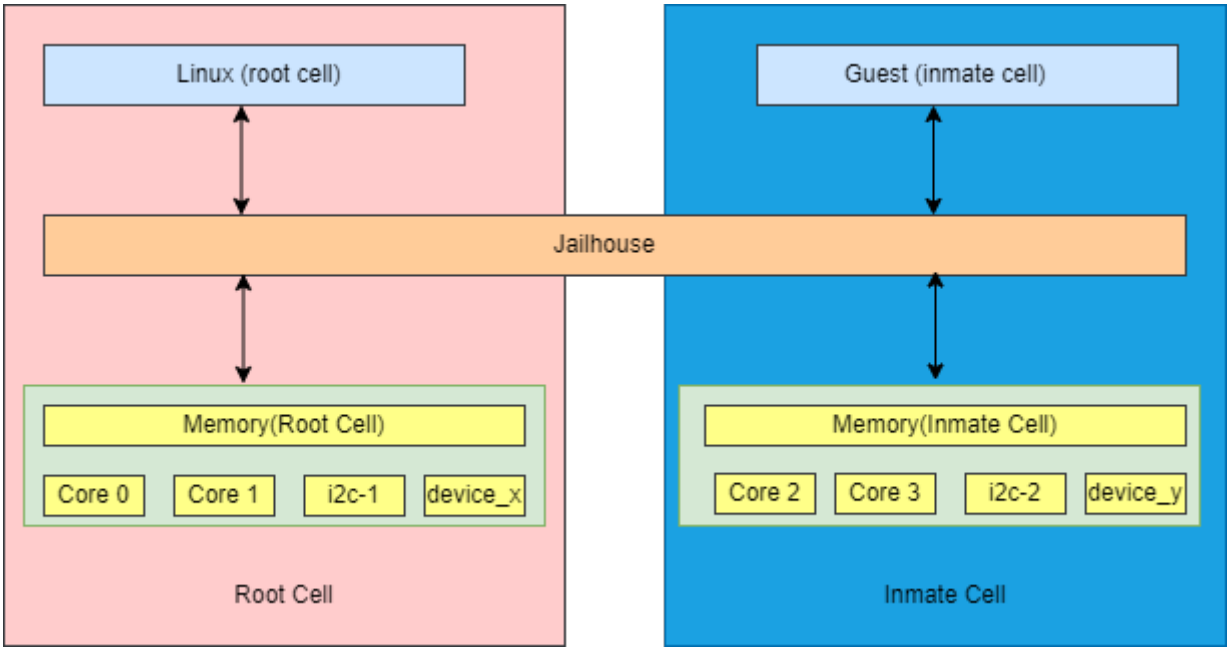
Jailhouse is a static partitioning hypervisor that runs bare metal binaries. It cooperates closely with Linux. Jailhouse doesn't emulate resources that don't exist. It splits existing hardware resources into isolated compartments called "cells" that are wholly dedicated to guest software programs called "inmates". One of these cells runs the Linux OS and is known as the "root cell". Other cells borrow CPUs and devices from the root cell as they are created.



Before Jailhouse is enabled



After the jailhouse is enabled



After a cell is created

Building Default Image for TI-Am62xx-evm

i) git clone https://git.ti.com/git/arago-project/oe-layersetup.git tisdk
ii) cd tisdk
iii) ./oe-layertool-setup.sh -f configs/processor-sdk/processor-sdk-09.00.00-config.txt
Note: choose config.txt file which is related to our board.
iv) cd build
v) . conf/setenv
vi) echo 'TI_EXTRAS="tie-jailhouse"' >> conf/local.conf
vii) MACHINE=am62xx-evm bitbake -k tisdk-jailhouse-image

Building Jailhouse Hypervisor for TI-Am62xx-evm

The steps to download and build the AM62x wic Image containing Jailhouse (tisdk-jailhouse-image) using Yocto build environment are as listed below :

i) git clone https://git.ti.com/git/arago-project/oe-layersetup.git tisdk

ii) cd tisdk

iii) ./oe-layertool-setup.sh -f configs/processor-sdk/processor-sdk-09.00.00-config.txt
Note: choose config.txt file which is related to our board.

iv) . conf/setenv

v) export TOOLCHAIN_PATH_ARMV7=$HOME/arm-gnu-toolchain-11.3.rel1-x86_64-arm-none-linux-gnueabihf

vi) export TOOLCHAIN_PATH_ARMV8=$HOME/arm-gnu-toolchain-11.3.rel1-x86_64-aarch64-none-linux-gnu
Note: This exported Toolchains first we have to download and fetch from that path.

vii) echo 'TI_EXTRAS="tie-jailhouse"' >> conf/local.conf

viii) For complete image build --- MACHINE=am62xx-evm bitbake -k tisdk-jailhouse-image
To clean complete image --- MACHINE=am62xx-evm bitbake -c cleanall tisdk-jailhouse-image

ix) For recipe build --- MACHINE=am62xx-evm bitbake recipe-name
To clean recipe --- MACHINE=am62xx-evm bitbake -c cleanall recipe-name

x) The image will be created at:
build/deploy-ti/image/am62xx-evm/tisdk-jailhouse-image-am62xx-evm.wic.xz
xi) Extract the tisdk-jailhouse-image-am62xx-evm.wic.xz image and flash tisdk-jailhouse-image-am62xx-evm.wic.xz to SD card using balena and boot AM62x from the SD card.

Important Links:

https://software-dl.ti.com/processor-sdk-linux/esd/AM62X/latest/exports/docs/linux/Foundational_Components/Hypervisor/Jailhouse.html

https://software-dl.ti.com/processor-sdk-linux/esd/AM62X/09_00_00_03/exports/docs/linux/Foundational_Components/Hypervisor/Jailhouse.html