

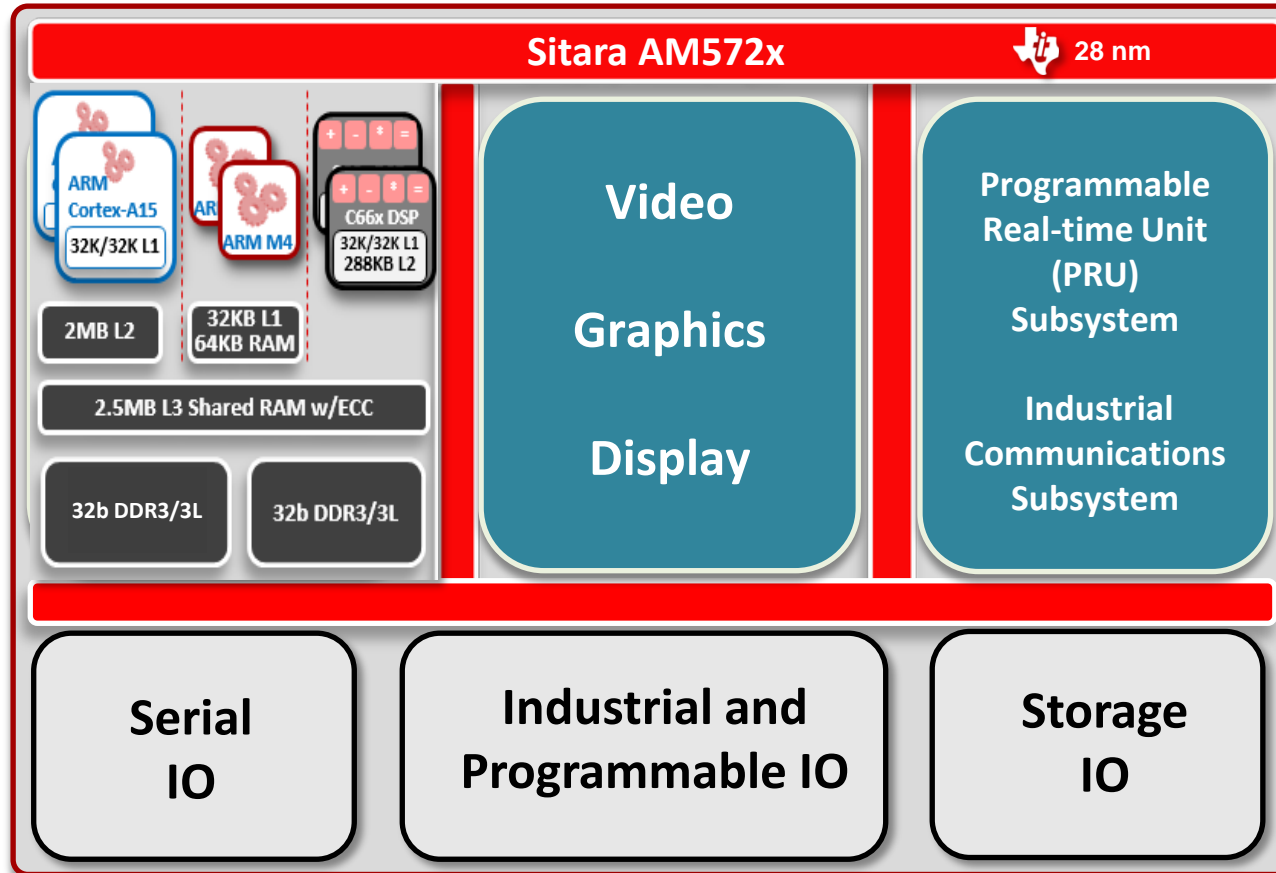


Building and Running Inter-Processor Communication (IPC) Examples on the AM572x GP EVM

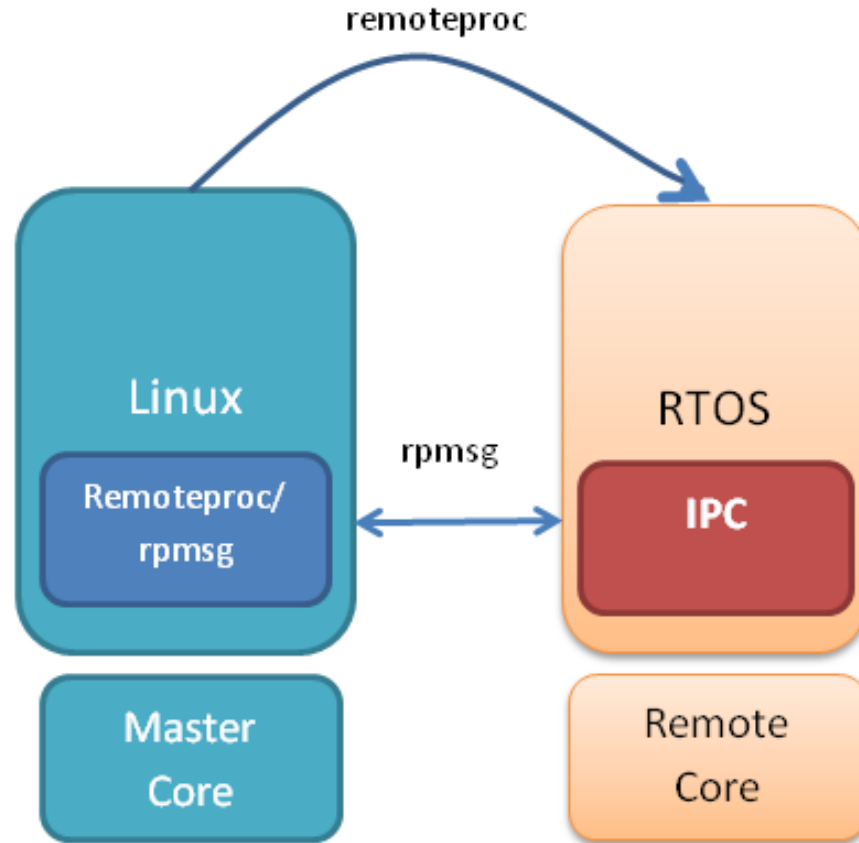
Sahin Okur

Embedded Processor Catalog Applications

IPC Introduction



IPC Introduction

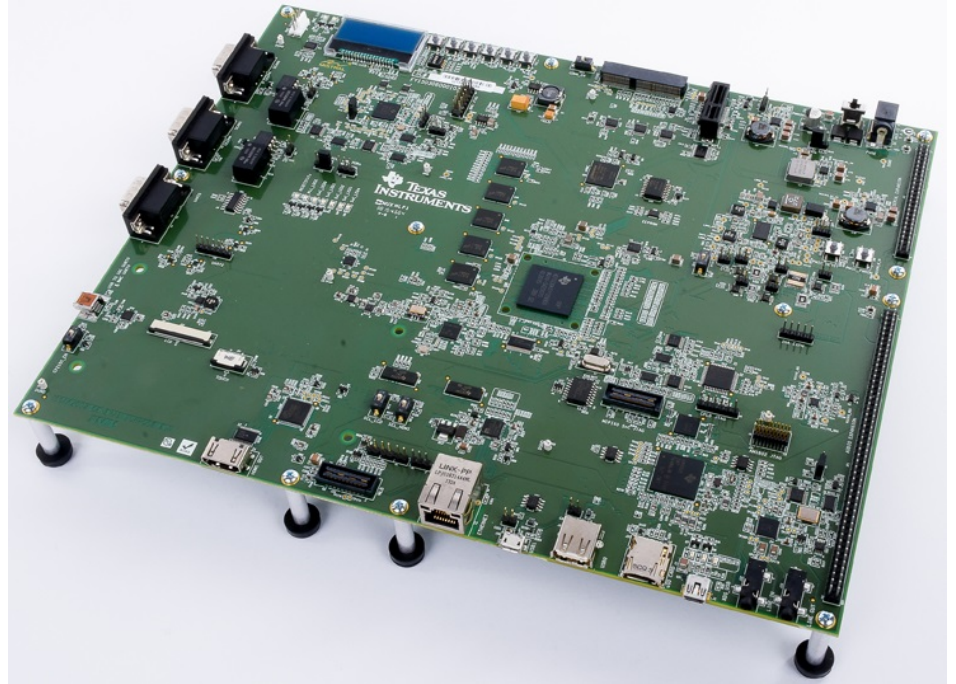


Hardware

AM572x/AM571x EVM

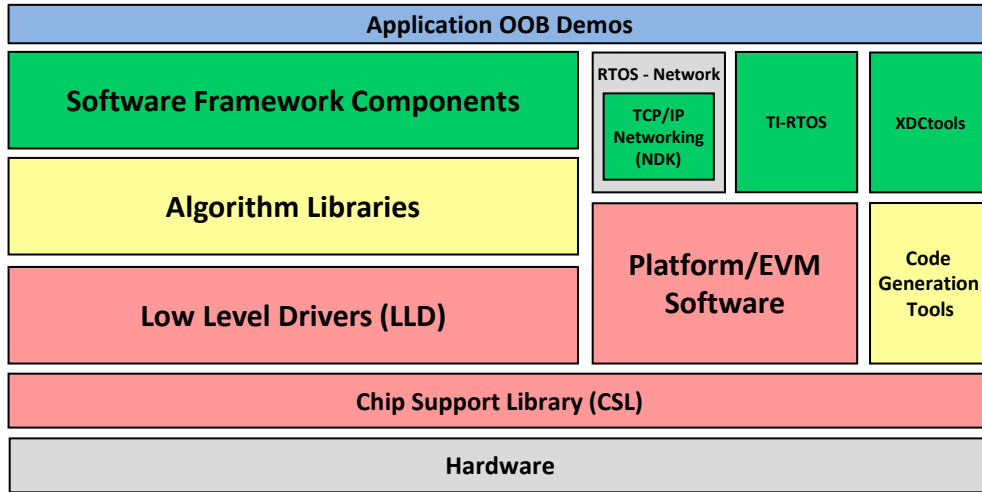
or

66AK2Gx EVM

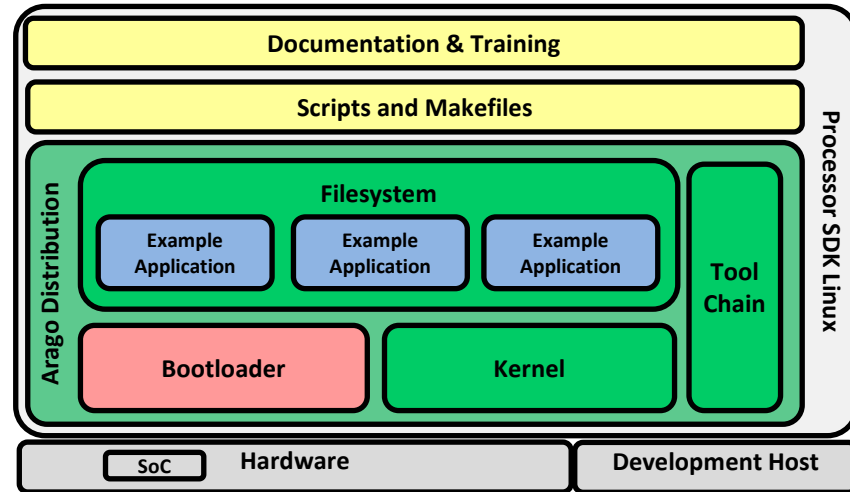


Software

Processor SDK RTOS



Processor SDK Linux

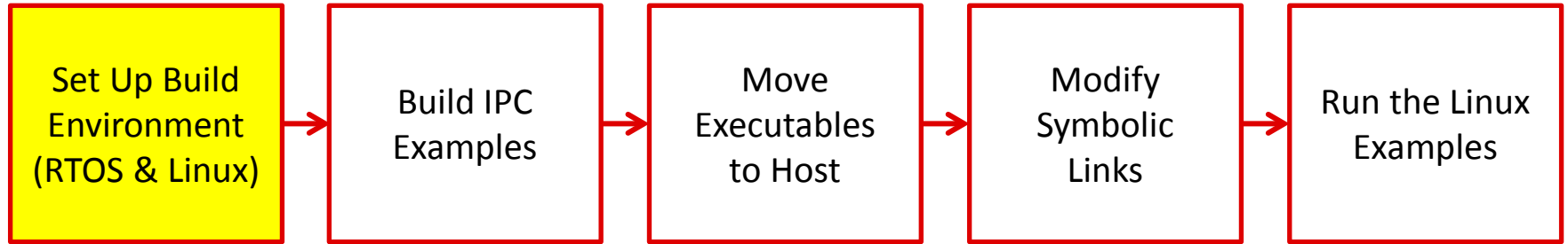


Download here: <http://www.ti.com/tools-software/processor-sw.html>

Steps



Set Up Build Environment



IPC Quick Start Guide:

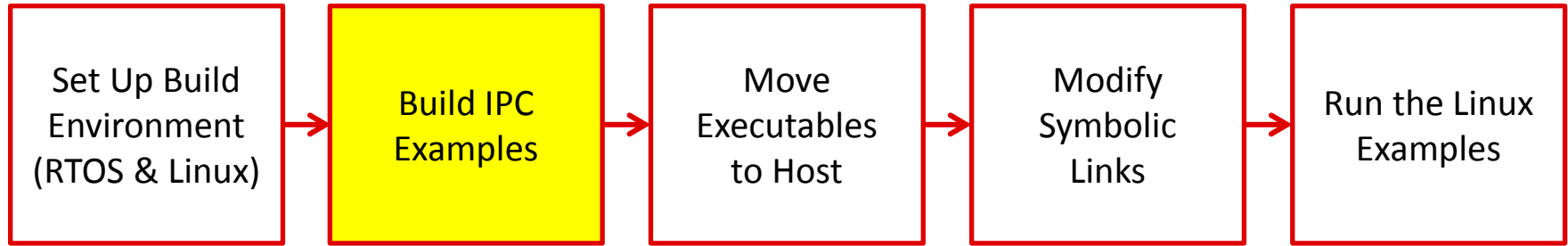
[http://processors.wiki.ti.com/index.php/Processor SDK IPC Quick Start Guide](http://processors.wiki.ti.com/index.php/Processor_SDK_IPC_Quick_Start_Guide)

Set Up Processor SDK RTOS Build Environment



- `$ export SDK_INSTALL_PATH = <RTOS_SDK_INSTALL_DIR> (TI folder by default)`
- `$ export TOOLS_INSTALL_PATH = <RTOS_SDK_INSTALL_DIR> (TI folder by default)`
- `$ cd <RTOS_SDK_INSTALL_DIR>/processor_sdk_rtos_<platform>_x_xx_xx_xx`
- `$ source ./setupenv.sh`

Build IPC Examples: Build IPC BIOS Library



```
$ make ipc_bios
```

Build IPC Examples: Build IPC Linux Library



- `$ export PATH=<sdk path>/linux-devkit/sysroots/x86_64-arago-linux/usr/bin:$PATH`
- `$ cd <LINUX_SDK_INSTALL_DIR>`
- `$ make ti-ipc-linux`

Build IPC Examples: Build IPC Linux Examples



\$ make ti-ipc-linux-examples

MessageQ Executables

- **app_host:**/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/host/bin/debug
- **server_dsp1.xe66:**/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp1/bin/debug
- **server_dsp2.xe66:**/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp2/bin/debug
- **server_ipu1.xem4:**/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu1/bin/debug
- **server_ipu2.xem4:**/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu2/bin/debug

Locate Executables in IPC Directory



- `/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/host/bin/debug/app_host`
- `/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp1/bin/debug/server_dsp1.xe66`
- `/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp2/bin/debug/server_dsp2.xe66`
- `/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu1/bin/debug/server_ipu1.xem4`
- `/home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu2/bin/debug/server_ipu2.xem4`

Move Executables to TFTP Boot Directory



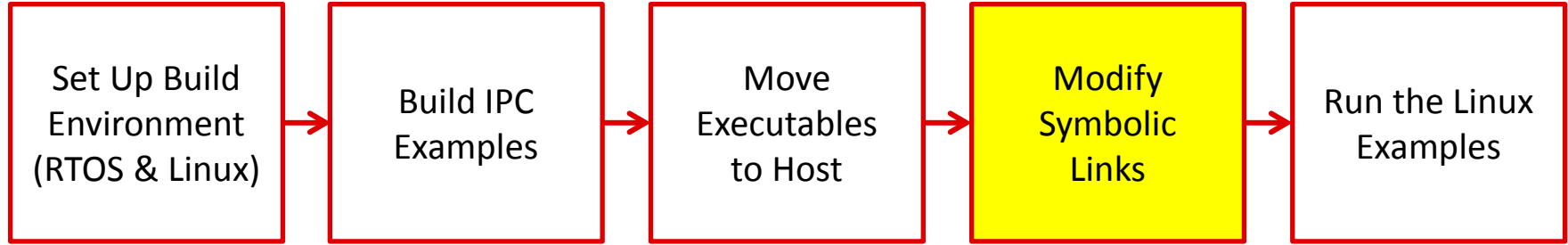
- `$mv /home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/host/bin/debug/app_host /tftboot`
- `$mv /home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp1/bin/debug/server_dsp1.xe66 /tftboot`
- `$mv /home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/dsp2/bin/debug/server_dsp2.xe66 /tftboot`
- `$mv /home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu1/bin/debug/server_ipu1.xem4 /tftboot`
- `$mv /home/sitara/ti/ipc_3_46_00_02/examples/DRA7XX_linux_elf/ex02_messageq/ipu2/bin/debug/server_ipu2.xem4 /tftboot`

Get Executables From TFTP Boot Directory



- `root@am57xx-evm:~# tftp -g 128.247.59.48 -r app_host`
- `root@am57xx-evm:~# tftp -g 128.247.59.48 -r server_dsp1.xe66`
- `root@am57xx-evm:~# tftp -g 128.247.59.48 -r server_dsp2.xe66`
- `root@am57xx-evm:~# tftp -g 128.247.59.48 -r server_ipu1.xem4`
- `root@am57xx-evm:~# tftp -g 128.247.59.48 -r server_ipu2.xem4`

Modify Symbolic Links



Firmware Image Formats

DSP image files: “dra7-dsp1-fw.xe66” “dra7-dsp2-fw.xe66”

IPU image files: “dra7-ipu1-fw.xem4” “dra7-ipu2-fw.xem4”

Modify Symbolic Links



- `root@am57xx-evm:~# ln -sf /home/root/server_dsp1.xe66 /lib/firmware/dra7-dsp1-fw.xe66`
- `root@am57xx-evm:~# ln -sf /home/root/server_dsp2.xe66 /lib/firmware/dra7-dsp2-fw.xe66`
- `root@am57xx-evm:~# ln -sf /home/root/server_ipu1.xem4 /lib/firmware/dra7-ipu1-fw.xem4`
- `root@am57xx-evm:~# ln -sf /home/root/server_ipu2.xem4 /lib/firmware/dra7-ipu2-fw.xem4`

Run the IPC Examples



- `root@am57xx-evm:~# chmod +x ./app_host`
- `root@am57xx-evm:~# ./app_host DSP1`

For More Information

- IPC User's Guide: [http://processors.wiki.ti.com/index.php/IPC Users Guide](http://processors.wiki.ti.com/index.php/IPC_Users_Guide)
- Processor SDK IPC Quick Start Guide:
[http://processors.wiki.ti.com/index.php/Processor SDK IPC Quick Start Guide](http://processors.wiki.ti.com/index.php/Processor_SDK_IPC_Quick_Start_Guide)
- Processor SDK for AM57x Sitara Processors:
<http://www.ti.com/tool/processor-sdk-am57x>
- For questions about this training, refer to the E2E Community Forums for Sitara Processors at http://e2e.ti.com/support/arm/sitara_arm/f/791/t/277411



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