

Sail River Gen III (WS-FAD-00111)

Driver Threat Model

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1.0 Drivers

1.0 Drivers

All the drivers have the same architecture and has common header file o_ru_driver.h

1.1 Wrapper Top Driver

The Wrapper Top Driver creates device for wrapper top module. The module has single instance and has multiple resource such as frame_sync, ecpr, oran, pattern_buffer, prach. These registers can be accessed from hps for configuration.

1.1.1 Imported Modules

1.1.2 Accessed Resources

Resource	Description	Content
physical_resource	to memory map the resource address	start_address, size_in_bytes
interrupt_signal_info	Has the data for irq handlers	signal_number, user_application_pid, signal_data
device_instance_structure	Structure for devices and resources	Has device info, proc_dir info, address info, interrupt info, uio info

Table 1 Accessed Resources

1.1.3 Exported APIs

1.1.4 Consumers

Consumers	API Function	Use Case
platform_driver library	driver_platform_probe	common probe device to request memory, irq and register character device for individual driver
	driver_platform_remove	removes and unregister char device, unmap resources
char_device library	char_device_open	Called when device file is opened in user space
	char_device_mmap	Called when device file is mmaped in user space
	char_device_ioctl	Called when we write ioctl command in user space, used to do some specific operations
	char_device_release	Called when device file is closed in user space
device_vma_library	device_vma_open	called when the process opens a VMA

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1.0. Drivers

	device_vma_close	called when the process closes a VMA
	device_vma_fault	called when fault VMA in accessed
device_irq_library	device_irq_handler	Called when interrupt is called
	device_uio_irq_handler	Called when uio registered interrupt is called
uio_library	uio_open	Open uio device
	uio_release	Close uio device

Table 2 Consumers

1.0 Drivers**1.2 Sysid Driver**

The Sysid Driver creates device for sysid module. The module has single instance and has multiple resource sysid, timestamp. These registers can be accessed from hps for configuration.

1.2.1 Imported Modules**1.2.2 Accessed Resources**

Refer Table 1 Accessed Resources

1.2.3 Exported APIs**1.2.4 Consumers**

Refer Table 2 Consumers

1.3 Cap Buf Driver

The Cap_Buf Driver creates device for Capture Buffer module. The module has a single instance and has multiple resources like Interface selection, channel selection, etc... These registers can be accessed from hps.

1.3.1 Imported Modules

1.3.2 Accessed Resources

Refer Table 1 Accessed Resources

1.3.3 Exported APIs

1.3.4 Consumers

Refer Table 2 Consumers

2.0 Document Revision History

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Date	Version	Changes
2025-05-20	0.0.1	Initial release.

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