



## **cuPHY Software Architecture Overview**

The cuPHY library software stack is shown in the figure below. It consists of L2 adapter, cuPHY driver, cuPHY CUDA kernels that process PHY channels and cuPHY controller.

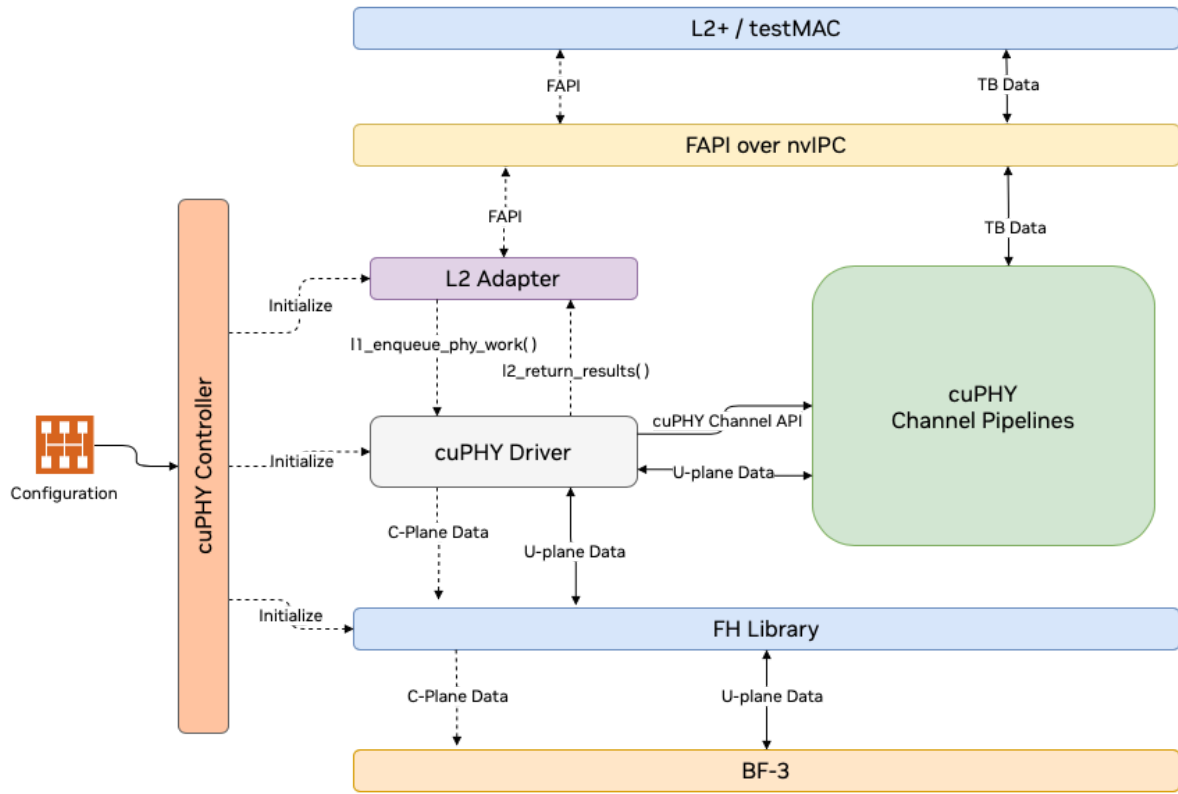
The interface between the L2 and L1 goes through nvipc interface, which is provided as a separate library. L2 and L1 communicate using FAPI protocol [6]. L2 adapter takes in slot commands from the L2 and translates them into L1 tasks, which are then consumed by cuPHY driver. Similarly, L1 task results are sent from cuPHY driver to L2 adapter, which are then communicated to L2.

The user transport block (TB) data in both DL and UL directions go through the same nvipc interface. The data exchange directly happens between cuPHY and L2 with the control of cuPHY driver.

cuPHY driver controls execution of cuPHY L1 kernels and manages the movement of data in and out of these kernels. The interface between the cuPHY L1 kernels and the NIC is also managed by the cuPHY driver by using the FH driver, that is provided as a library.

cuPHY controller is the main application that initializes the cell configurations, FH buffers and configures all threads that are used by L1 control tasks.

The functionality of each of these components is explained in more detail in the [Components](#) section.



## cuPHY Software Stack

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