**Tutorial 8**

**Reading and writing registers in the ROD on the fly**

*November 2022*

The best way to read and write master or slave registers is logging into the PPC in the master and using the devmem command because this is known to work well at the time of writing.

Addresses are defined in ibl\_slv\_reg.vhd that can be found in the repo (Pixel/src/dataTaking[or calibration]/slv\_register). More addresses can be defined here if registers are to be added.

Log into master (C3\_S8 shown here)

ssh root@rod-pix-c3-s08-master

Password- r88t

devmem absolute\_address [size(b/h/w) (value for write)]

ROD Base addresses-

ROD Master= 0xD0800000

ROD Slave North = 0xD0000000

ROD Slave South = 0xD0040000

absolute address= base + (address\*0x4)

Examples:

reading reg 0x814 in slave south

*absolute address = 0xD0040000 + (0x814\*0x4) = 0xD0042050*

devmem 0xD0042050

writing reg 0x814 in slave south

devmem 0xD0042050 w 0x0000000F

There are more ways to possibly read and write specific registers through HCP and VME. Some operations in HCP are not currently working properly. VME commands are not included in the current version but have been used (copied over from older versions) in the SmartL1 forwarding branch. These are useful in case tests have to be automated. These commands are run from the sbc.

Occupancy read – link <https://gitlab.cern.ch/atlas-pixel/daq/atlaspixeldaq/-/blob/Sanjukta_SmartL1/RodDaq/IblUtils/Vme/src/Occupancy_Desynch_countersRead.cxx>

there are some working commands to Dump select registers from the ROD

HCP\_dumpRodRegisters --rodName ROD\_C1\_S7

For BOC-

BOC2\_DumpRegisters -H rod-pix-c1-s07-bocctl