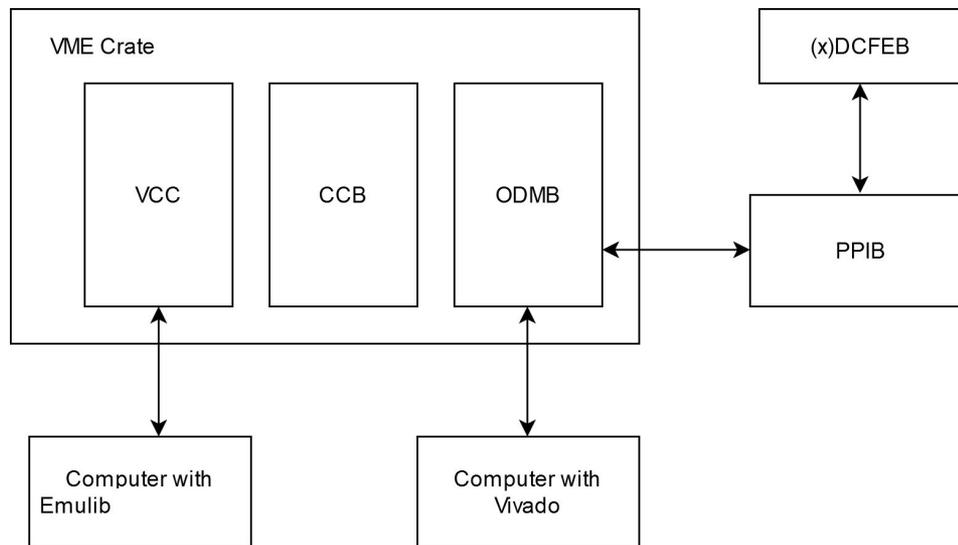


ODMB VME Baseline Testing Instructions

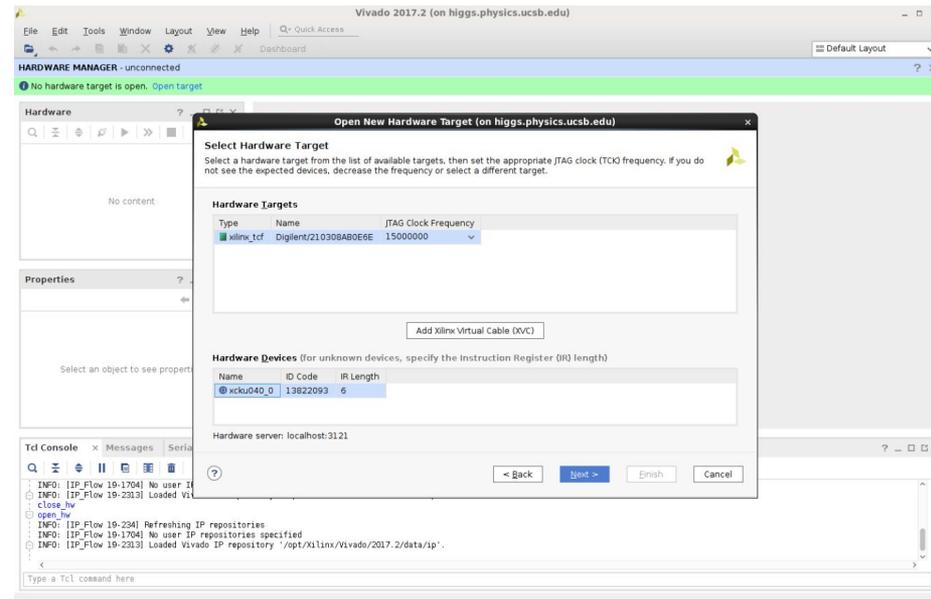
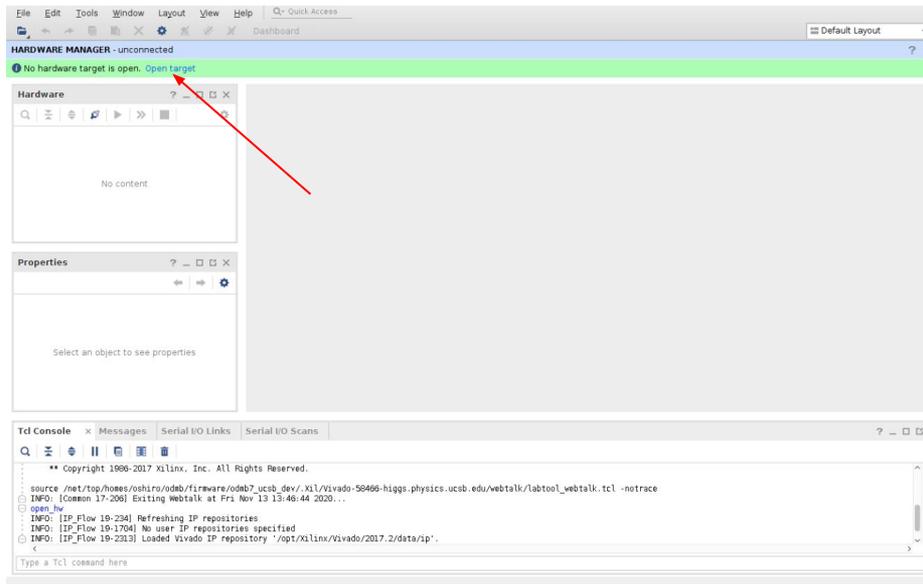
ODMB UCSB Team





To start the baseline VME test, the ODMB7 should be connected as shown above

- Insert ODMB7 into a VME crate with a VCC and CCB
- Connect a computer capable of running Vivado to the JTAG port of the ODMB7 using the Xilinx red box
- Connect a computer capable of running emulib (TriDAS/emu) to the VCC
- Connect the A and B PPIB cables to the corresponding ports on the ODMB7 and attach an (x)DCFEB to one of the PPIB slots
- After connecting everything, the VME crate and (x)DCFEB should then be powered on

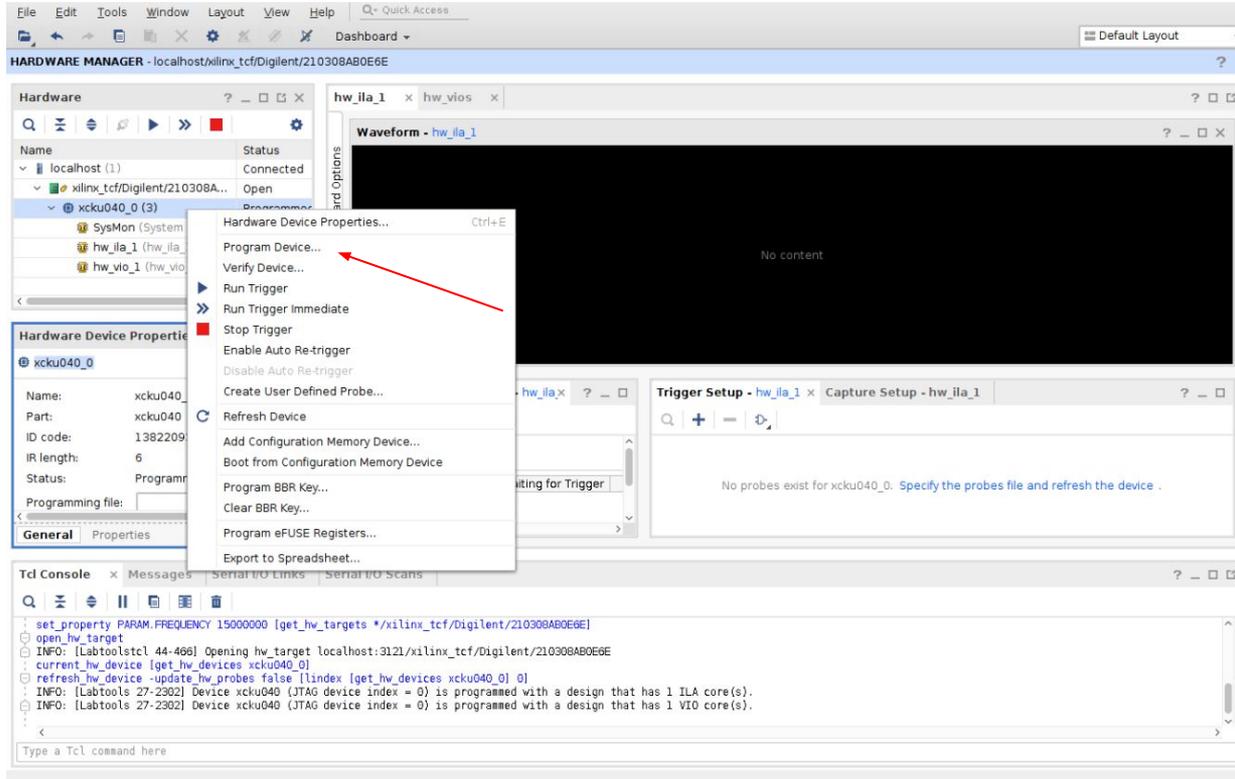


On the computer connected to the ODMB7 via the red box, launch the vivado program

From the first screen select 'open hardware manager' under the tasks box

At the top of the hardware manager interface, click on 'open target' as shown in the left figure and then 'open new target'

The subsequent dialog box is fairly straightforward, you will connect to a local server then select the Xilinx red box and ODMB7. The right figure shows the selection dialog in the case of the KCU105 evaluation board



After opening the ODMB7 as the target, one can program the ODMB7 by right clicking on the device and selecting program device (shown in the case of the KCU105 on the left)

The subsequent dialog will ask for the bit and ltx files, which can be found at

http://hep.ucsb.edu/cms/odmb_noCV/S/firmware/odmb7/preproduction/vme/



Yellow Page Setup



EmuPeripheralCrateConfig
(time stamp: 2020-11-13 13:15:04)

Total Crates: 1
Active Crates: 1

System Utilities
[Check Crate Controllers](#) [Firmware Check](#) [Configuration Check](#) [Expert Tools Page](#) [Crate Power-up Init](#) [Write FLASH All Crates](#)

Crate Utilities
 Current Crate: test_crate
 Choose Crate: [Crate Selection](#)

[Crate Configuration](#) [Crate Tests](#) [Calibration Runs](#)

[Power-up Init](#) [Write FLASH to Crate](#) [Dump Crate Info](#) [Check crate configuration](#)

Logging
[Log all output](#)
[Log Test Summary](#)

Configuration filename: xml/crate-ucsb.xml
[Change Configuration File](#)

CrateConfiguration
(time stamp: 2020-11-13 13:16:18)

[Back to Yellow Page](#)

Current Crate: test_crate, Excluded

- Slot 01 VME Crate Controller [Controller Units](#)
- Slot 02 TMB / RAT / ALCT [TMB Status](#) [TMB Tests](#) [TMB Units](#) [Chamber Tests_ME-1/1/8](#)
- Slot 03 DMB / CFEB [DMB Status](#) [DMB Tests](#) [DMB Units](#)
- Slot 04 TMB / RAT / ALCT [TMB Status](#) [TMB Tests](#) [TMB Units](#) [Chamber Tests_ME-1/1/1](#)
- Slot 05 DMB / CFEB [DMB Status](#) [DMB Tests](#) [DMB Units](#)
- Slot 06 TMB / RAT / ALCT [TMB Status](#) [TMB Tests](#) [TMB Units](#) [Chamber Tests_ME-1/1/8](#)
- Slot 07 DMB / CFEB [DMB Status](#) [DMB Tests](#) [DMB Units](#)
- Slot 08 TMB / RAT / ALCT [TMB Status](#) [TMB Tests](#) [TMB Units](#) [Chamber Tests_ME-1/1/2](#)
- Slot 09 DMB / CFEB [DMB Status](#) [DMB Tests](#) [DMB Units](#)
- Slot 10 TMB / RAT / ALCT [TMB Status](#) [TMB Tests](#) [TMB Units](#) [Chamber Tests_ME-1/1/1](#)
- Slot 11 DMB / CFEB [DMB Status](#) [DMB Tests](#) [DMB Units](#)
- Slot 12 MPFC [MPFC Status](#) [MPFC Units](#)
- Slot 13 CCB [CCB Status](#) [CCB Tests](#) [CCB Units](#)

Next, the computer connected to the VCC, load any drivers necessary for communicating with the VCC (varies by computer, for example, on higgs.physics.ucsb.edu, one can run /odmb/TriDAS/emu/drivers/script/load_igb_emu.sh)

Then, launch XDAQ using an appropriate script (varies by computer, use /odmb/TriDAS/emu/odmbdev/scripts/starthiggs.sh on higgs)

Once XDAQ is launched, it will display a URL that one can access with a web browser to reach the XDAQ web interface

From the web interface, select 'EmuPeripheralCrateConfig', then 'Crate Configuration' (pictured on left), and then the VCC 'Controller Units' button (pictured on right)

To reach the VME access interface, select the 'VME Access' button underneath 'Intermediate Users'

In this document, VME commands will be written in the form:

W/R <command> [<data>]

For example, "W 1934 3C8" or "R 1014"

To run a command from the VME Access interface, select the VME slot into which the ODMB7 is connected from the **board** drop down box, enter the command into the **SubAddr** box, select read or write from the **R/W** box, and enter the data in the **Data** box. Then click **Add to list** and subsequently **Send**.

The example command "R 4100" is shown on the right.

After issuing a read command, the result should appear in the Readback Data box

If one is using a DCFEB for the test, the following commands should be issued. If one is using an xDCFEB, please continue to the next page.

```
R 4100
W 1018 0000
W 1020 ##### ← this value depends on the PPIB slot to which the DCFEB is connected. Use 0001, 0002, 0004, 0008, 0010, 0020, or 0040 for slots 1-7 respectively
W 191C 03C8
W 1F04 0000
R 1014
W 1F08 0000
R 1014
```

For the first, second, and third read commands, the respective Readback Data should be

```
0D3B
B###
DCFE
```

Where **###** depends on the firmware loaded on the DCFEB.

If the ODMB7 does not respond with the expected values, more information on debugging procedures can be found in the document at http://hep.ucsb.edu/cms/odmb_noCVS/firmware/odmb7/preproduction/vme/

If one is using a xDCFEB for the test, the following commands should be issued. If one is using an DCFEB, please consult the previous slide.

```
R 4100
W 1018 0000
W 1020 #### ← this value depends on the PPIB slot to which the xDCFEB is connected. Use 0001, 0002, 0004, 0008, 0010, 0020, or 0040 for slots 1-7 respectively
W 1934 03C8
W 1F30 FFFF
W 1F30 FFFF
W 1F30 FFFF
W 1338 F
W 1F04 0000
R 1014
W 1F08 0000
R 1014
```

For the first, second, and third read commands, the respective Readback Data should be

```
0D3B
B###
DCFE
```

Where ### depends on the firmware loaded on the xDCFEB.

If the ODMB7 does not respond with the expected values, more information on debugging procedures can be found in the document at http://hep.ucsb.edu/cms/odmb_noCVS/firmware/odmb7/preproduction/vme/