KCU1500 FW images for Real-Time Inspection

Ruckman, Larry <ruckman@slac.stanford.edu>

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To: Coffee, Ryan <coffee@slac.stanford.edu>

Cc: Herbst, Ryan T. <rherbst@slac.stanford.edu>; Kim, Kukhee <khkim@slac.stanford.edu>; Skoufis, Michael <skoufis@slac.stanford.edu>; Kim, Kuktae <ktkim@slac.stanford.edu>; Williams Jr., Ernest L. <ernesto@slac.stanford.edu>; Fronk, Nathan C <ncfronk@slac.stanford.edu>; Russell, J.J. <russell@slac.stanford.edu>

Hi Ryan Coffee,

Here's a "DMA loopback" Firmware (FW) image and "PRBS" FW image:

https://github.com/slaclab/pgp-pcie-apps/releases/download/XilinxKcu1500_v1.8.2/XilinxKcu1500DmaLoopback-0x01080200-20211028191115-ruckman-5fb1bab_primary.mcs
https://github.com/slaclab/pgp-pcie-apps/releases/download/XilinxKcu1500_v1.8.2/XilinxKcu1500DmaLoopback-0x01080200-20211028191115-ruckman-5fb1bab_secondary.mcs

https://github.com/slaclab/pgp-pcie-apps/releases/download/XilinxKcu1500_v1.8.2/XilinxKcu1500PrbsTester-0x01080200-20211028191330-ruckman-5fb1bab_primary.mcs
https://github.com/slaclab/pgp-pcie-apps/releases/download/XilinxKcu1500_v1.8.2/XilinxKcu1500PrbsTester-0x01080200-20211028191330-ruckman-5fb1bab_secondary.mcs

The KCU1500 uses a "dual QSPI" boot. This is two discrete boot memory ICs. That's why there are two files per FW image (primary and secondary).

You have two options for programming the KCU1500: JTAG or PCIe.

Here's a link for the instructions for programming via JTAG:
https://docs.google.com/presentation/d/10eIsAbLmslcNk94yV-F1D3hBfxudBf0EFo4xjcn9qPk/edit?usp=sharing

To program the KCU1500 via PCIe, you need SLAC FW already install on the card. You can confirm that the KCU1500 has SLAC FW on it by using a "lspci" command:

```
$ lspci -nn | grep SLAC
04:00.0 Signal processing controller: SLAC National Accelerator Lab TID-AIR AXI Stream DAQ PCIe card [1a4a:2030]
```

If the "grep" does not show the [1a4a:2030] PCIe device, then the KCU1500 does not have SLAC FW on it and will need to use the JTAG instructions above.

Here's how to load the SLAC PCIe kernel driver:
https://github.com/slaclab/pgp-pcie-apps#how-to-load-the-driver

After the kernel driver is load, here are the instructions for reprogramming the KCU1500 via PCIe:
https://github.com/slaclab/pgp-pcie-apps/blob/master/README.md#how-to-reprogram-the-pcie-firmware-via-rogue-software

From,
Larry Ruckman
TID Electronics Systems Department Head
SLAC National Accelerator Laboratory
2575 Sand Hill Road, M/S 96
Menlo Park, CA 94025
Office: 650-926-5761