

LiteDIP: bridging the gap between open source hardware, and open source operating systems

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Most GPUs now have open source drivers, and the trend is for all of them to be treated not as a curiosity, but instead being full-featured and providing an excellent user experience. To further push the open source philosophy, we need to look at the next frontier: Open Source Hardware.

While usual hardware development is prohibitively expensive, reconfigurable hardware (FPGA) is accessible to every hobbyists! This type of hardware has historically been very expensive and unable to provide the necessary performance to achieve any sort of satisfactory user experience, but the cost has dropped dramatically in the past 20 years, and the rise of hardware blocks such as PCIe, DDR memory controllers, and ultra-fast transceivers have enabled the creation of open PCIe display controllers capable of reaching 4K and more for a reasonable amount of money.

Writing open source drivers for such hardware is however a little tricky since users will likely want to mix-and-match the different open source blocks to tailor the features to their liking, and even do this at run time!

In this talk, I will introduce the idea behind LiteDIP, my project of creating a library of discoverable IP blocks for FPGAs along with their Linux driver which would enable users to configure and deploy their own System on Chip in ~10 minutes.

GSoC, EVoC or Outreachy

No

Code of Conduct

Yes

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