Open Hardware/Modding: RISC-V, EDA, ACEINNA, Arduino and ESP32

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- **Open Source Processors: Fact Or Fiction?** [3]

    Open source processors are rapidly gaining mindshare, fueled in part by early successes of RISC-V, but that interest frequently is accompanied by misinformation based on wishful thinking and a lack of understanding about what exactly open source entails.

    Nearly every recent conference has some mention of RISC-V in particular, and open source processors in general, whether that includes keynote speeches, technical sessions, and panels. What?s less obvious is that open ISAs are not a new phenomenon, and neither are free, open processor implementations.

- **Will Open-Source EDA Work?** [4]

    Open-source EDA is back on the semiconductor industry?s agenda, spurred by growing interest in open-source hardware. But whether the industry embraces the idea with enough enthusiasm to make it successful is not clear yet.

    One of the key sponsors of this effort is the U.S. Defense Advanced Research Projects Agency (DARPA), which is spearheading a number of programs to lower the cost of chip design, including one for advanced packaging and another for security. The idea behind all of them is to utilize knowledge extracted from millions of existing chip designs to make chip engineering

more affordable and predictable.

- [**Why Autonomous Vehicle Developers Are Embracing Open Source**](#)[5]

  There's a growing trend of autonomous vehicle developers open-sourcing their software tools and hardware, even for applications outside of automotive.

- [**Rugged open-source inertial measurement unit sensor offers affordable and rugged solution**](#)[6]

  ACEINNA offers the new OpenIMU300RI. The device is a rugged, open-source, sealed-package, 9-DOF IMU for autonomous off-road, construction, agricultural and automotive vehicle applications. This new open-source IMU enables engineers to simply optimise an attitude, navigation or other algorithm for their vehicle/application and run it in on the IMU.

  [...]

  ?Different vehicle platforms have different dynamics,? explains James Fennelly, product manager at ACEINNA. ?To get the best performance, the attitude, navigation or other algorithm needs to be tailored for each vehicle platform and application. The ACEINNA OpenIMU300RI open-source platform gives designers a flexible and simple-to-integrate IMU solution that can be easily optimized for a wide range of vehicles and applications.?

- [**Open Source ESP32 3D Printer Board Supports Marlin 2.0 Firmware**](#)[7]

- [**The Octopus is a 5K full frame open source camera that lets you swap out sensors**](#)[8]

  Now that digital imaging sensors are starting to become more freely available to the masses, all kinds of open source projects have been popping up that use them. Most of them are typically fairly limited to things like the Raspberry Pi or development boards like the Arduino and ESP32.

  But now, there is a new and pretty serious looking open source camera out there. It?s called the Octopus, it has interchangeable sensors that go up to 5K full frame, it?s fully programmable and runs on the open source operating system, Linux.

- [**ScopeFun open source all-in-one instrumentation**](#)[9]

ScopeFun has launched a new project via Crowd Supply for their open source all-in-one instrumentation hardware aptly named the ScopeFun. ScopeFun Has been created to provide an affordable platform that offers the following tools : Oscilloscope, Arbitrary waveform generator, Spectrum analyzer, Logic analyzer and Digital pattern generator .

The hardware supports any accompanying software runs on Windows, Linux, and Mac and also provides a Server Mode that supports remote connections over an IP network. ?A Xilinx Artix-7 FPGA and a Cypress EZ-USB FX3 controller allow the board to interface with a PC while maintaining fast data rates. Samples are buffered using 512 Megabytes of DDR3 SDRAM.

- **Bloom Chair is an open source furniture that lets you design your own piece**[10]

    Call it modular, call it DIY, call it I-have-control-over-my-interiors; the purpose of the Bloom Chair is to let you customize your chair, just the way you like it to be. It?s a collaborative effort between you and the manufacturer, where you get to download the modular design, cut it yourself and finally assemble it. While you make your piece, you have the liberty of modifying the pattern and making the end-shape define your vision. Haffun!

Hardware OSS

Source URL: http://www.tuxmachines.org/node/125395

Links:
[1] http://www.tuxmachines.org/taxonomy/term/39
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[6] https://www.electropages.com/2019/06/rugged-open-source-inertial-measurement-unit-sensor-offers-affordable-and-rugged-solution
[7] https://www.cnx-software.com/2019/06/26/open-source-esp32-3d-printer-board-marlin-2-0-firmware/
[8] https://www.diyphotography.net/the-octopus-is-a-5k-full-frame-open-source-camera-that-lets-you-swap-out-sensors/
[9] https://www.geeky-gadgets.com/scopefun-24-06-2019/
[10] https://www.yankodesign.com/2019/06/26/bloom-chair-is-an-open-source-furniture-that-lets-you-design-your-own-piece/