

Udoo

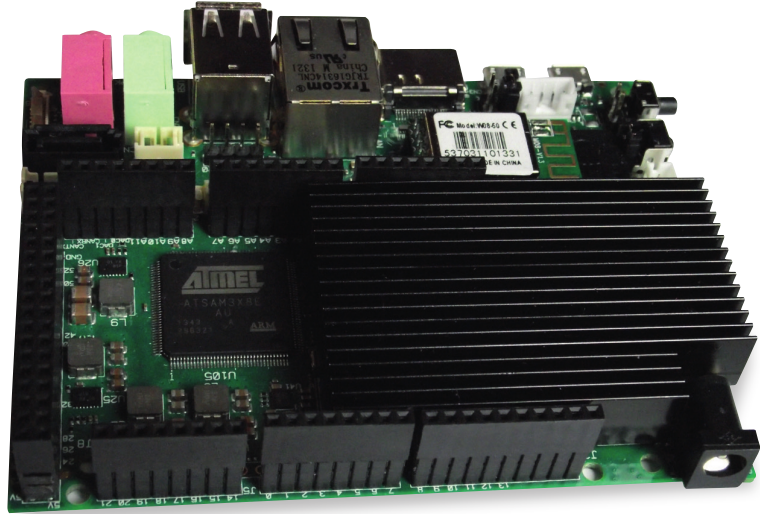
You do like small ARM computers? So does everyone these days, it seems, including Ben Everard.

The Udoo is a small ARM-based machine that runs Linux (both traditional desktop Linux and Android), and has some programmable input/output pins exposed. If that sounds familiar, it's because that's exactly what the Raspberry Pi is. The Pi has proven extremely popular, but for all its uses, it's a little lacking in hardware grunt. That's the niche that the Udoo is aimed at: simple, accessible Linux-based hacking, on a board that packs a little more punch than its fruit-based counterpart.

The CPU is a quad-core 1GHz ARM v7 (a dual-core version is also available). See the box below for benchmarks – these show that each of the Udoo's cores is more powerful than the Raspberry Pi on its own. While benchmarks provide quantitative data, qualitative data about computer performance is harder to capture. The Udoo has enough power to make the desktop feel snappy, and tasks that swamp the Pi (like browsing JavaScript-heavy websites or unzipping packages) are handled with relative ease. Put simply, it feels an order of magnitude quicker than the Pi. However, it's still no match for most x86 machines.

The Udoo uses a separate microcontroller to handle the inputs and outputs. In fact, the microcontroller and pin layout is identical to the Arduino Due, with 76 IOs including 12 analogue inputs and two analogue outputs. However, unlike most Arduino boards, the Due (and Udoo) use 3.3 volts rather than 5, so hardware designed for 5V boards won't work.

Connectivity doesn't just come in the form of IO pins: the Udoo also has a SATA connector (quad-core version only) to allow regular hard drives to connect; an LVDS connector for touchscreens (especially good if you want to build your own tablet – Udoo sells 7- and 15-inch screens); and a USB OTG connection. It also has a camera connection (camera module sold




separately). Network access is accounted for with Wi-Fi and Gigabit Ethernet on the Quad-core version.

The extra power of the Udoo comes at a cost. It's more expensive, bigger and draws more power than the Pi. All of these make it a significantly worse option for projects where the board will be included into the project physically.

Desktop replacement?

The comparison to the Pi, though, is a bit unfair. The Udoo is more than three times the cost, and while it is still cheap compared to a PC at around £110 (including taxes and shipping to the UK), that takes it out of the impulse buy range for many people.

Boards like the Udoo live or die based on whether they get enough mindshare. If there are plenty of tutorials and books available, it becomes easy to work around the limitations and compromises that are essential to all small board computers. If they don't, using them becomes more hassle than not. A quick Google search brings up about 40,000 results for 'Udoo tutorial', compared with 180,000 for 'Beaglebone tutorial' and over seven million for 'Raspberry Pi tutorial'. That's a lot less, but then the Udoo is the youngest of the three. The Udoo website explicitly pitches it as a competitor to the Raspberry Pi, and it's hard to ignore that, but we can definitely see a useful future for this device on its own merits. 

An Udoo is almost exactly twice the size of a Raspberry Pi, and it packs many more connectors into that space.

Udoo vs RPi performance

Benchmark	Udoo	RPi normal	RPi max overclocked
Blowfish	47.43	99.00	68.58
Cryptohash	22.39	9.07	13.28 *
Fibonacci	11.49	26.07	18.16
N Queens	41.64	84.97	69.07
FFT	48.94	149.16	101.19
Raytracing	49.02	130.38	89.84

Hardinfo benchmarks. This compares a single core of the four-core Udoo against the only core on the Raspberry Pi.

* More is better. For all others, less is better

DATA

Web
www.udoo.org
Developer
SECO USA Ltd and Adilab
Price
£73–99

LINUX VOICE VERDICT

The Udoo is good value for money if you're ready for a home hacking board with more power than a Pi.

