

## [Ben Heck Shows You How To Build an Apple-1 Replica From Scratch \(http://gizmodo.com/ben-heck-shows-you-how-to-build-an-apple-1-replica-from-1656803971\)](http://gizmodo.com/ben-heck-shows-you-how-to-build-an-apple-1-replica-from-1656803971)



[Andrew Liszewski \(http://andrewliszewski.kinja.com\)](http://andrewliszewski.kinja.com)

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Filed to: [BEN HECK \(/TAG/BEN-HECK\)](#) 11/10/14 11:08am (<http://gizmodo.com/ben-h>)

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Few of us have the \$905,000 needed to purchase one of the remaining original Apple-1 computers that \*Steve Wozniak built in Steve Jobs' garage, but modder-extraordinaire Ben Heck has the next best thing: a new [three-part series of \(https://www.youtube.com/watch?v=ZXllm5JWWAs\) tutorial videos \(https://www.youtube.com/watch?v=ZXllm5JWWAs\)](https://www.youtube.com/watch?v=ZXllm5JWWAs) showing you how to build a fully-functional Apple-1 replica from scratch.

Or, at least, mostly from scratch. Because the Apple-1 ushered in an era of computing where the machines could be cheaply built from readily-available parts. Instead of farming out a custom-designed CPU to a factory in Taiwan (and having to commit to ordering 100,000 units) off-the-shelf components could instead be wired up together to get the same results. Just keep in mind this is an 8-bit computer you're building, not a DIY MacBook Pro, so don't get your hopes too high of what it will be able to do.

\*Update: Steve Wozniak clarified exactly how the Apple-1 came to be in the comments:

*Actually, there was no design nor construction of this computer in any garage. It was designed and built in my HP cubicle at night and in my Cupertino apartment. The designs were passed out freely with no copyright notice so that others could build a useful computer at low cost. Others even had hand-built versions of this computer before Steve Jobs even knew it existed. He came into town and I DRAGGED HIM to the Homebrew Computer Club where I showed off this computer every meeting. Steve saw the crowd gathered around me and suggested that we create a PC board that could be manufactured for \$20 and sell them for \$40 as a company. We'd been selling my fun devices for 5 years so this was just a formalization step. Steve Jobs did do the business end of getting the thing productized, but at first it was just to be a PC board alone, with no parts on it. When you have no money, you have no money, and you work from home. Paul Terrell of the Byte Shop believed in this market and he put up the money [risk] to build stocked and working PC boards. But since we were showing the Apple ][ privately before ever shipping an Apple I, it was to be a short term product. The Apple I wasn't designed to be a computer as much as modifying my hand-built terminal (Arpanet days) to be a computer.*

*We sold maybe 100. Jobs did all the business, getting parts, getting sales, getting publicity, from his bedroom. The manufacturing was done in Santa Clara at the same place the PC boards were made. The garage had a bench but was only really needed part of a day each week to check out the boards and make sure they worked.*

*Not only do you start in a home when you are young with no money, but 7 of the first 10 Apple people (some, like Allen Baum, did incredibly help but were never employees directly) went to Homestead High School.*



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Andrew Liszewski's Discussions ([http://gizmodo.com/ben-heck-shows-you-how-to-build-an-apple-1-replica-from-](http://gizmodo.com/ben-heck-shows-you-how-to-build-an-apple-1-replica-from-1656803971)

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**Steve Wozniak** (<http://stevewoz.kinja.com>) ▶ Andrew Liszewski

11/10/14 11:24am (<http://gizmodo.com/actually-there-was-no-design-nor-construction-of-this-1656815329>)

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Always love your random pop ins. =)

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