Sony PlayStation Teardown

A special 25th-anniversary teardown of the original Japanese PlayStation game console, performed by iFixit in December of 2019.

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INTRODUCTION

Originally developed as part of a joint venture between Sony and Nintendo to make a CD-equipped SNES console, PlayStation is now one of the world's most recognized brands. In honor of its 25th anniversary, we got our hands on the unit that started it all, the Japan-only SCPH-1000 model. And we're celebrating the only way we know how—time to tear it down!

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TOOLS:

- Phillips #1 Screwdriver (1)
- Spudger (1)

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Step 1 — Sony PlayStation Teardown

- You youngsters may not remember, but the PlayStation was only available in Japan during its first year on the market. Here in America, we awaited its arrival with bated breath. Let's recall what we were waiting for:
  - MIPS R3000 33.9 MHz, 32-bit RISC CPU
  - 32-bit GPU
  - 2 MB RAM
  - 1 MB VRAM
  - 16-bit 24-channel PCM stereo sound
  - 2x CD-ROM Drive

- (i) Fun fact: this PlayStation is commonly referred to as the "PSX" because "PlayStation X" was its codename during development. The name stuck even after the X was officially dropped. Interestingly enough, Sony later released a DVR/PS2 combo in Japan called the PSX, but you probably never heard of it.

Step 2

- From several feet away, our fancy Japanese model (on the right) looks identical to the original North American unit. But upon closer inspection, our peepers notice a few slight differences:

  - The inside of the CD trays are nearly identical, save for some small differences in the plastic molding.

  - The most noticeable cosmetic difference is the PlayStation logos on the lids. The Japanese model sports a bit of green instead of the PlayStation Blue we're used to seeing, as well as a brownish color in the negative space of the logo.

- (i) What does all this mean? We'll have to run some benchmarks, but we're guessing these rare colors add about 30 horsepower to your car in Gran Turismo. Or, if you're a skater, 15% gnarlier tricks in Tony Hawk's Pro Skater.

Step 3

- Turning the console to its backside reveals a plethora of ports. A [two-port MacBook Pro](#), this is not.

- Our Japanese is a bit rough, but if we had to guess, these labels are probably trying to tell us something about the ports.

Step 4

- Oh yeah, we've got an English version, too! Let's decrypt these labels and take a closer look at all the connection options we have:

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- **Parallel I/O:** Funnily enough, Sony never released an official product that took advantage of the parallel port, but many third-parties made cheat devices for it.

- **Serial I/O:** This port is used to link two PlayStations together for multiplayer on separate TVs, but only certain games supported it.

- **RCA Out:** These ports provided a non-proprietary method for connecting the PlayStation to the TV.

- **RFU DC Out:** Since many older TVs didn't have RCA ports, this port was used to plug in an RF modulator, which would convert the video and audio to an RF signal in order to communicate with the TV.

- **S-Video Out:** This elusive port only appeared on the original SCPH-1000 Japanese model. Depending on the TV, many argue the dedicated S-Video port provides a better image quality than the other output options.

- **AV Multi Out:** This was Sony's proprietary connector for video and audio output. The development of RCA, S-Video, and RF cables for this port phased out all of the other outputs over the years.

- **AC In:** The PlayStation uses a standard C7/C8 cable and connector, with the North American model using a polarized version. Sony has used this AC connector on all of its PlayStations thus far.

Step 5

- Stacked up against its contemporary nostalgia machine, the *PlayStation Classic*, our original PlayStation is a veritable giant.

- The PSC does an honorable job of culling all the memorable bits of its namesake's design and cramming them into a cute little gray box. We appreciate the attention to detail—everything from the vents along the side of the console to the "memory card" slots seem to be present and accounted for.

- One omission we simply cannot overlook, however, is the un-open-able CD lid. Why, Sony, would you taunt us with a real, push-able *Open* button if it does not, in fact, open anything? Perhaps that's why sales [never took off](#).

  (i) What's that? Oh, right ... This is a teardown! Let's get back to it.

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Step 6

- Alright, how do we get inside this thing? Maybe it has something to do with these arrows ...
  - Turns out each screw holding the two halves of the console together is marked with a helpful little arrow!

  - (i) After a year of glued-shut and otherwise hard-to-open devices, these helpful pointers are a wonderful breath of fresh air. Well, actually the air is pretty dusty in here—this thing is old. But you get the point.

- We won't need every bit (spoiler alert: we only need one) for this trip down ~~Rocky Pass~~ memory lane, but we're still glad we brought our trusty Mako driver kit along for the ride.

Step 7
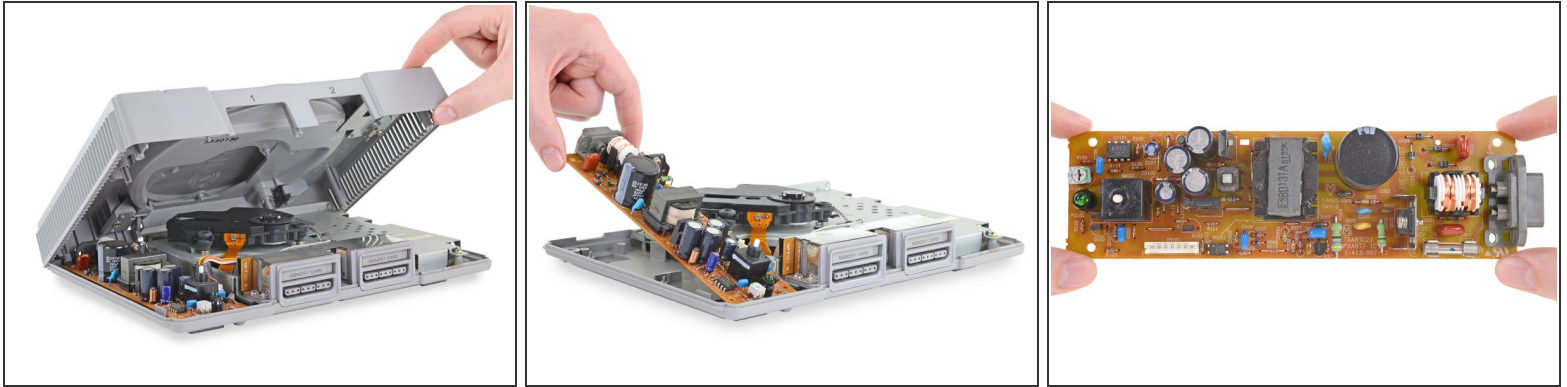
- We lift the lid off of this curious console, secretly hoping that gems will come flying out for us to collect.

  - Unfortunately we are left empty-handed in the gems department, but there is some pretty cool stuff in here. No dragons, though.

- First things first, let's carefully dispose of this power supply before we get zapped.

- (i) This internal power supply is an absolute unit, taking up roughly 20% of the console's footprint. But despite the PlayStation's relatively small size (compared to modern consoles, at least), Sony was able to cram this thing in here seemingly without breaking a sweat.

  - Speaking of breaking a sweat—90's silicon didn't run as hot as today's hardware does, but it's still impressive to see an internal power supply, a whole optical drive assembly, *and* everything on the main board (more on that later), all running in a fanless configuration.

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Step 8
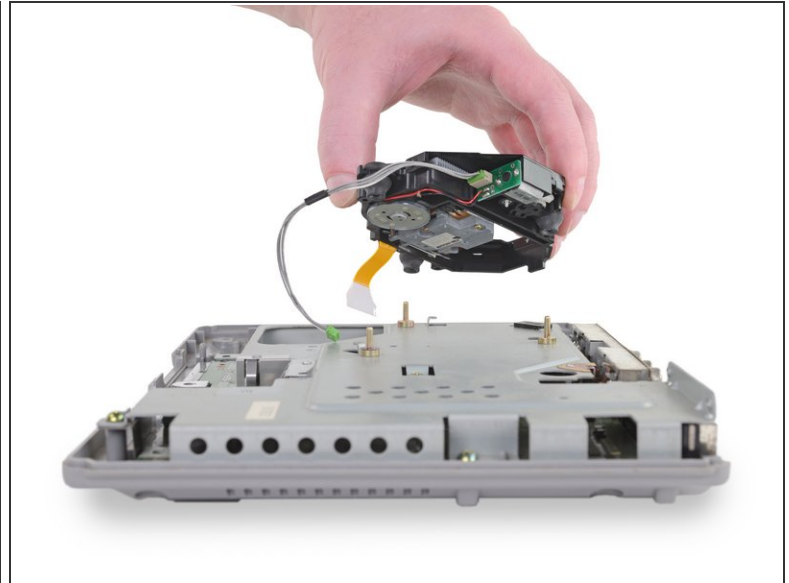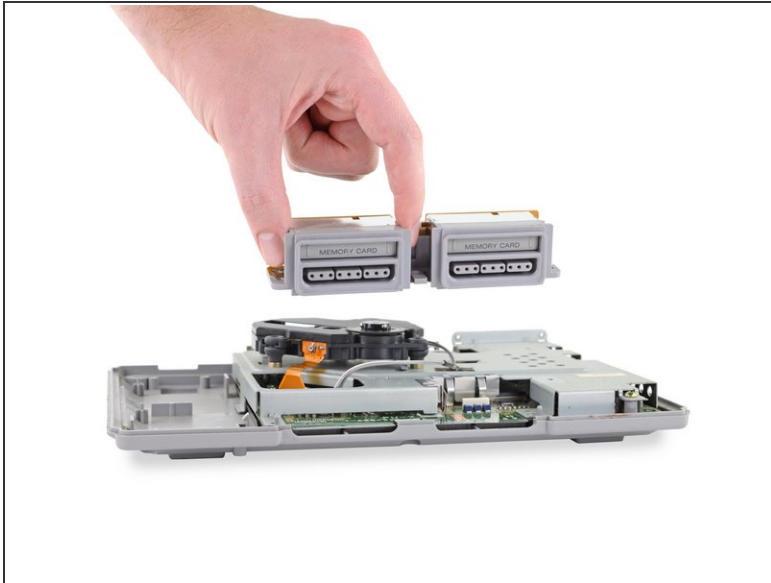
- Next up, the controller ports and memory card slots come out as one assembly.

  - ⓘ These slots won't take your fancy 512 GB micro SD cards, but the 1 MB PlayStation memory cards *were* split into 15 separate memory blocks, so you could save your progress for multiple games on one card. Definitely beats memorizing [passwords](#) or hoping the [coin-cell battery](#) in your game cartridge doesn't kick the bucket.

- The CD laser and motor assembly rests on three pegs secured in place by rubber grommets. This allows the entire mechanism to move around slightly and absorb vibrations from the spinning disc.

  - ⓘ Some argue that early models with RCA jacks [offered superb audio quality when playing music CDs](#), but it's a subject that's been debated for as long as the console has been around.

- In case your mother never taught you: *NEVER TOUCH THE LENS*.

Step 9
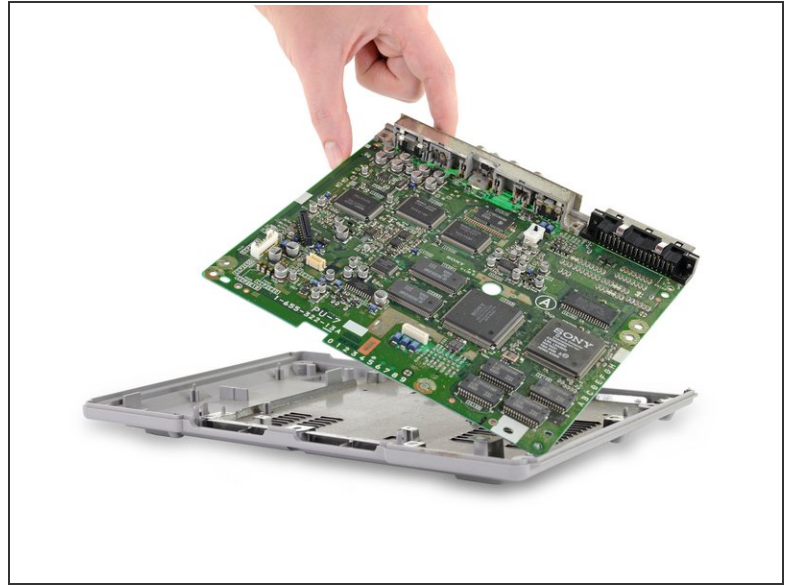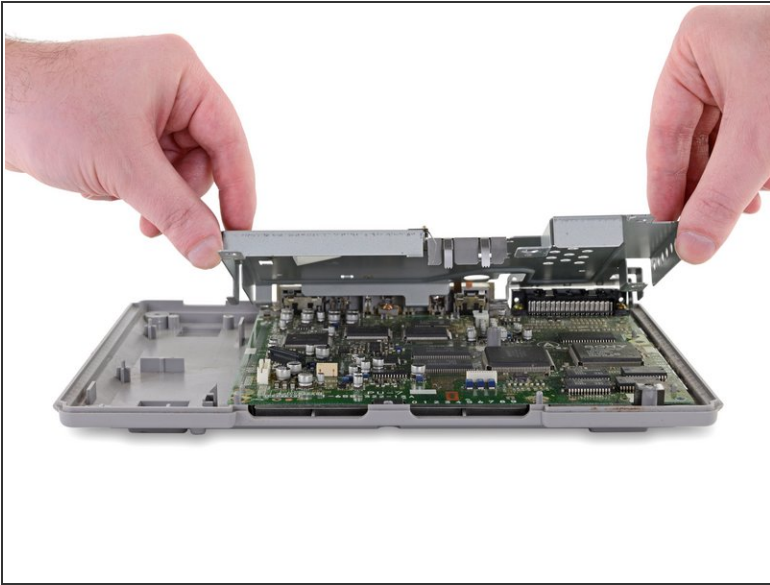
- With nowhere left to turn, we lift up the giant metal shield hiding the motherboard to reveal the main act.

- Like Lara Croft, we carefully lift this dusty relic from its home, hoping we haven't tripped some sort of booby trap.

    - To our relief, it appears we haven't sprung any traps—the coast is clear; now let's assess this treasure we've found.

Step 10
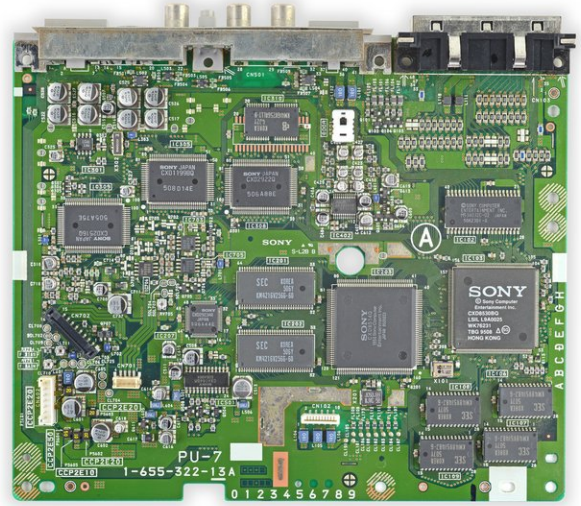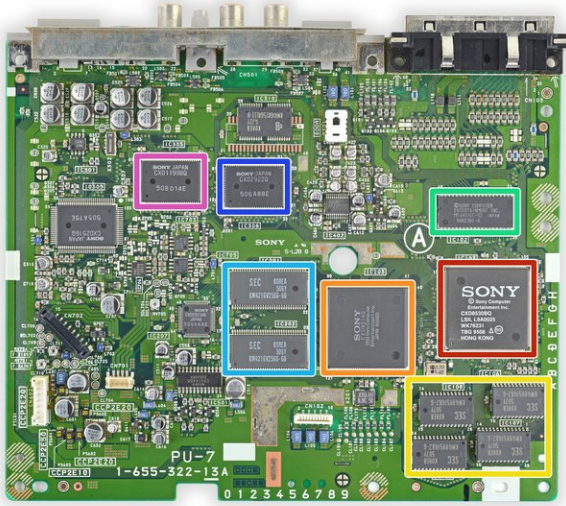
- All it takes is one look to be sure we've struck gold here—this thing has more chips than three bags of Tostitos Scoops…

  - Sony CXD8530BQ CPU (designed by MIPS)

  - Sony CXD8514Q GPU (designed by Toshiba)

  - Samsung KM48V514BJ-6 (4 x 512 KB) DRAM

  - Sony M534032C-02 ROM

  - Samsung KM4216V256G-60 (2 x 512 KB) VRAM

  - Sony CXD2922Q SPU

  - Sony CXD1199BQ CD decoder

Step 11
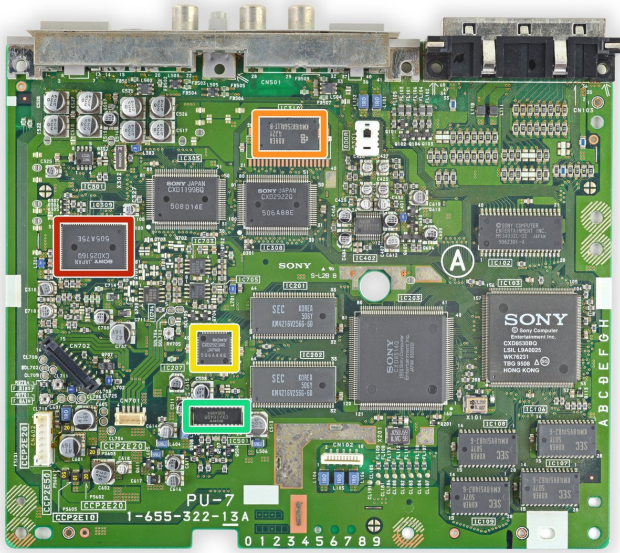
- We couldn't get out all the chips in one single breath, so here are a few more:
  - Sony CXD2516Q CD digital signal processor
  - Samsung KM416V256ALLT-8 audio RAM
  - Sony CXD2923AR digital-to-analog converter
  - Sony CXA1645M video encoder

Step 12
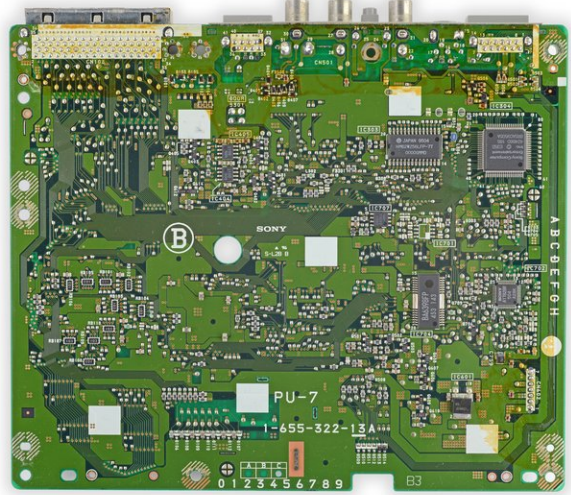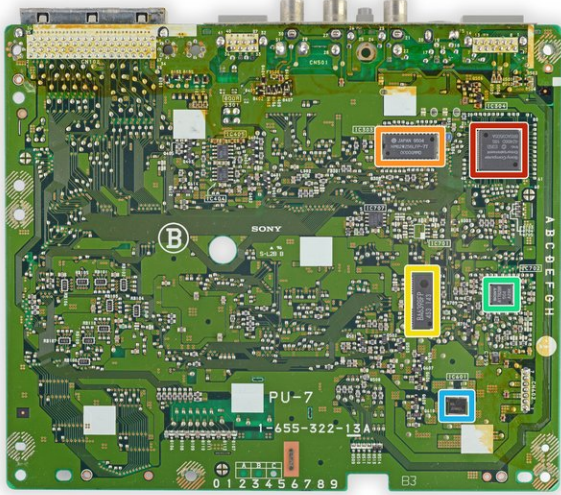
- Hol' up. Flipping the motherboard over reveals a few more chips…
  - Sony E35D 424660 185 BRSAC9505A CD controller
  - Hitachi HM62W256LFP-7T CMOS SRAM
  - Rohm BA6398FP 4-channel BTL driver
  - Sony A1782BR RF signal processing servo amplifier
  - Toshiba TA78M05F Power Supply IC

- It's amazing how far gaming consoles have come in 25 years. The PlayStation 4 has nearly 50x the processing power and 4,000x more RAM than this ancient fossil—and the PS4 Pro runs laps around the PS4. *And* we've already got a feeling 2020's PS5 will be even better.

Step 13

- And that's it! There's not much inside this original PlayStation, which is a testament to Sony's design and engineering chops—or maybe technology was just simpler back then... Probably a bit of both.

- It's hard to remember a time when Sony wasn't a game console maker, and it's easy to see why: they nailed a lot of the essentials on their first try.

- That, plus a steady stream of award-winning games has led to PlayStation's rise to the top of the best-selling-console list multiple times over the course of the last couple decades. The original PlayStation is currently #5 on that list, even though it remains #1 in many of our hearts.

- And with that, it's time to end this special 25th anniversary teardown from the past. If you need us, we'll be with a certain web-slinging crime fighter. First, though, let's give this thing a repairability score.

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Step 14 — Final Thoughts
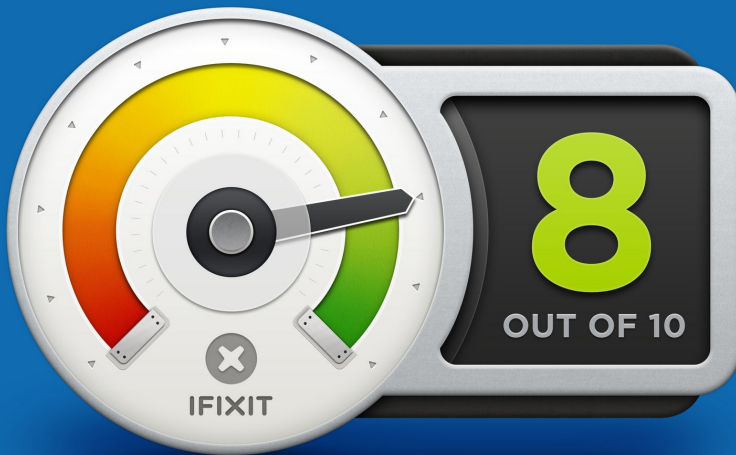
- The Sony PlayStation (SCPH-1000) earns an **8 out of 10** on our repairability scale (10 is easiest to repair):
  - The console is made up of few components, and each one is straightforward to remove and replace.
  - Only a Phillips screwdriver and a spudger are needed for complete disassembly.
  - The optical drive is one of the easiest components to remove—a good sign knowing these were prone to fail on older models.
  - Because the PlayStation has been around the block several times, repair and service information is [widely available](#), although likely much to Sony's chagrin.
  - All of the I/O ports on the back of the console are soldered to the motherboard.