



PlayStation 4 Teardown

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INTRODUCTION

After seven long years, the Sony PlayStation finally gets a 4 on the box. Join iFixit as we tear it open and see what changed—and if it was worth the wait. We flew out to meet our partners-in-awesome, [Chipworks](#), and [snagged one of the first North American consoles](#) for a tag-team teardown.

Keep on the up-and-up with the latest repair and teardown news via [Instagram](#), [Facebook](#), and [Twitter](#).

[video: <http://www.youtube.com/watch?v=2Frp0rFYD4I>]

TOOLS:

- [TR9 Torx Security Screwdriver](#) (1)
- [Phillips #0 Screwdriver](#) (1)
- [Phillips #1 Screwdriver](#) (1)
- [Tweezers](#) (1)

Step 1 — PlayStation 4 Teardown



- We'd like to send out a big thank you to our friends at [Chipworks](#) for hosting our remote teardown of the newest Sony Play-device, the Play-Doh.
 - Available in every color combination
 - Infinitely upgradeable, easily modified
 - Perfect for lighting tests

Step 2



- No, but really, we're tearing down the PlayStation 4. Bits we expect to find include:
 - 8-core AMD "Jaguar" x86-64 CPU
 - 1.84 TFLOPS, AMD Radeon Graphics Core Next Engine GPU
 - 8 GB GDDR5 RAM
 - 500 GB removable and upgradable hard drive storage
 - 802.11 b/g/n Wireless and Bluetooth 2.1
 - USB 3.0 + Ethernet 10/100/1000
 - 1.21 Gigawatt Flux Capacitor (okay, this one is more along the lines of a request than an actual expectation)

Step 3



- What kind of hardware has a 7-year gestation? We can hardly open the box fast enough. The first peek reveals:
 - Another box. Moving on.
 - PS4 console (if this is missing from your box, please contact your Sony Computer Entertainment representative)
 - DualShock 4 controller
 - Power cable
 - HDMI cable
 - Micro-USB cable
 - Mono headset with mic, switch, and shirt clip

Step 4



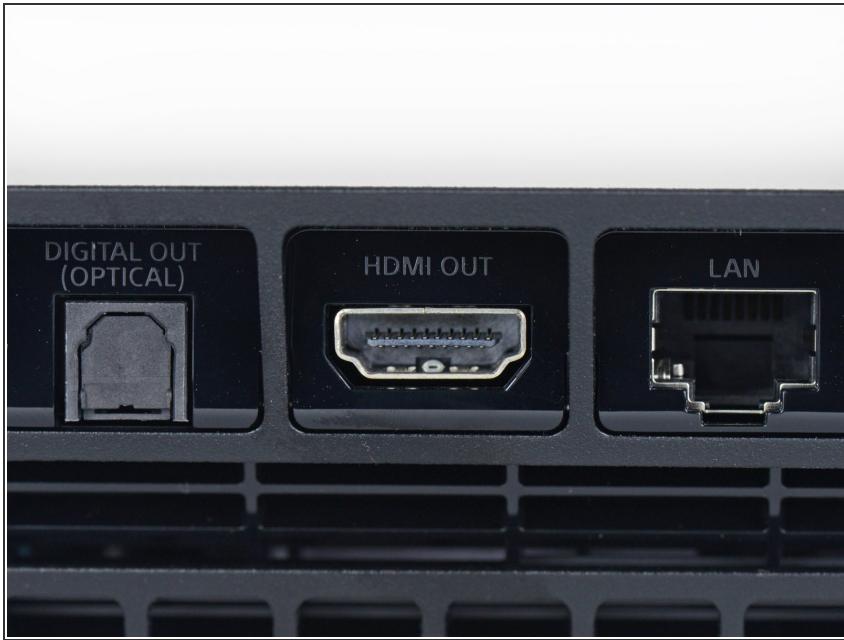
- Here at iFixit, we're stalwart opponents of the [black box](#) mentality. What goes on inside consumer electronics should not be an incomprehensible (nor non-repairable) mystery.
 - That being said, we must concede that the PS4 is one darn good looking black box.
- Seven years of design innovation bring the PS4 a distinctly more geometric body, an indicator light bar, and more subtle logo labeling than last time round.
- We also find:
 - Slot-loading Blu-ray/DVD disc drive
 - Two powered USB 3.0 ports
 - Some fine print touting the PlayStation's pals—HDMI, DTS, Dolby, and Blu-ray.

Step 5



- Now that you've unboxed your shiny new [monolith](#), you'll be wanting to connect it to something. 'Round back, Sony supplies some portage:
 - Power inlet
 - Digital optical audio out
 - HDMI
 - Ethernet
 - Proprietary auxiliary port for connecting external devices, such as the PlayStation Camera

Step 6



- [Reports](#) have been trickling in around the internet about some PlayStation 4s malfunctioning.
- One such hardware problem, as noted by [Kotaku](#), prevents the PS4 from outputting a video signal to the display.
- According to Kotaku, it seems a "piece of metal in the system's HDMI port was supposed to have been flush with the bottom of the port but instead had been bent upward, obstructing some of the pins in the port."
- This "obstructing piece of metal... had actually knocked some of the 'teeth' out of the HDMI wire—the one bundled with that PS4."

TL;DR—If your PS4 is having issues outputting video, make sure the HDMI port isn't bent or damaged.

Step 7



- We're happy to see Sony give [power to the people](#) with the PS4's hard drive: it's user-replaceable.
- We'll have a detailed guide shortly for those intrepid gamers who fancy a bigger drive or a zippy SSD—but for now, rest easy knowing all that stands between you and hard drive [nirvana](#) is a plastic cover and some screws.

Step 8



- Out comes the 5400 RPM, 500 GB, SATA II mechanical hard drive, provided by HGST (a Western Digital subsidiary).
- With just a single screw securing the caddy, replacing this drive is easy-peasy.
- Not only is this hard drive user-replaceable, but it's a standard 2.5" (a.k.a. laptop-sized) SATA drive, meaning you can replace or upgrade your storage with any off-the-shelf drive you like, so long as it meets these [standards](#): no thicker than 9.5 mm, and no smaller than 160 GB. *Users rejoice!*

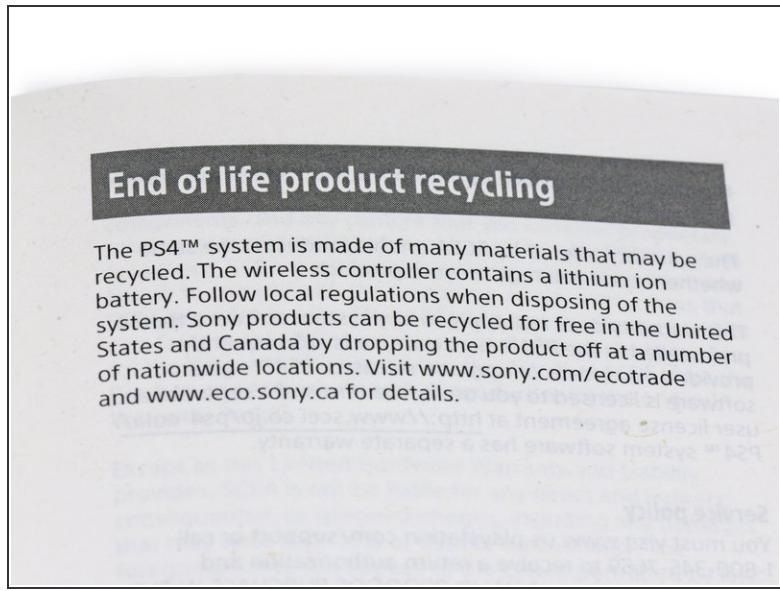
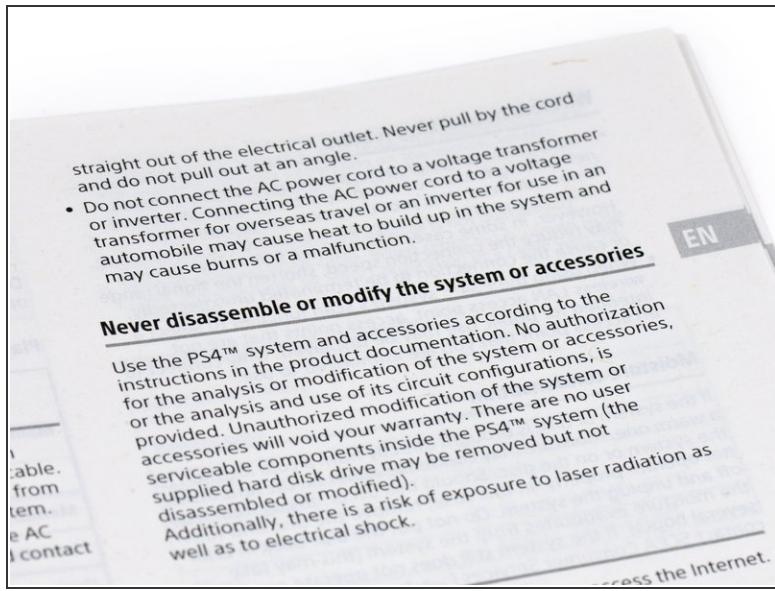
ⓘ But this is a bittersweet expansion win; the PS4 will not support external USB storage, drastically limiting the console's usefulness as a media center.

Step 9



- Digging deeper demands we dispose of some dastardly stickers. Paying no mind to their menacing anti-repair messages, we quickly discard them with the help of our [trustworthy tweezers](#)...
- ...only to be confronted with some mildly devious Security Torx screws.
- Lucky for us, specialty screws ain't no thang, as we bust out our [Pro Tech Screwdriver Set](#).
- While we're happy this isn't a stick-up (of the adhesive type), this mischief won't go unnoticed when it comes time to assign a repairability score.

Step 10



- *We interrupt this teardown to bring you a special news bulletin:*
- The dreaded anti-repair Empire has issued some propaganda against your rights to disassemble, modify, hack, improve, individualize, and do-whatever-the-bleep-you-want-because-it's-your-device.
- [It's a trap!](#) This propaganda claims to be green, but we have doubts about just how [recyclable](#) this device is.
- We want you—to rise up and revolt! Repair is the future. It is your right. Raise your [manifesto](#) high, and join the [Repair Alliance!](#)
- *And now back to your regularly scheduled program...*

Step 11



- Happily ignoring our user manual's edict, we move right along...
- ...and remove the four T9 Security Torx screws, allowing us to pop the hood on the fourth generation model of the Sony PlayStation. Our eyes widen as we wait for a first look at what makes this beauty purr.
- And yet, we're seeing nothing but tightly packed feelings of nostalgia. Just look how things have [changed](#).

Step 12



- In Sony's self-made [PlayStation 4 teardown](#), Director of Engineering Yasuhiro Ootori gave us a look at the custom-designed, 85 mm diameter, centrifugal fan:
 - "The volume of air and the generated pressure, as well as the direction of airflow, are all part of the exclusive PS4 design."

- In this exclusive video, our Chief Information Architect, [Miroslav Djuric](#), presents his own take on this marvel of engineering.

Step 13



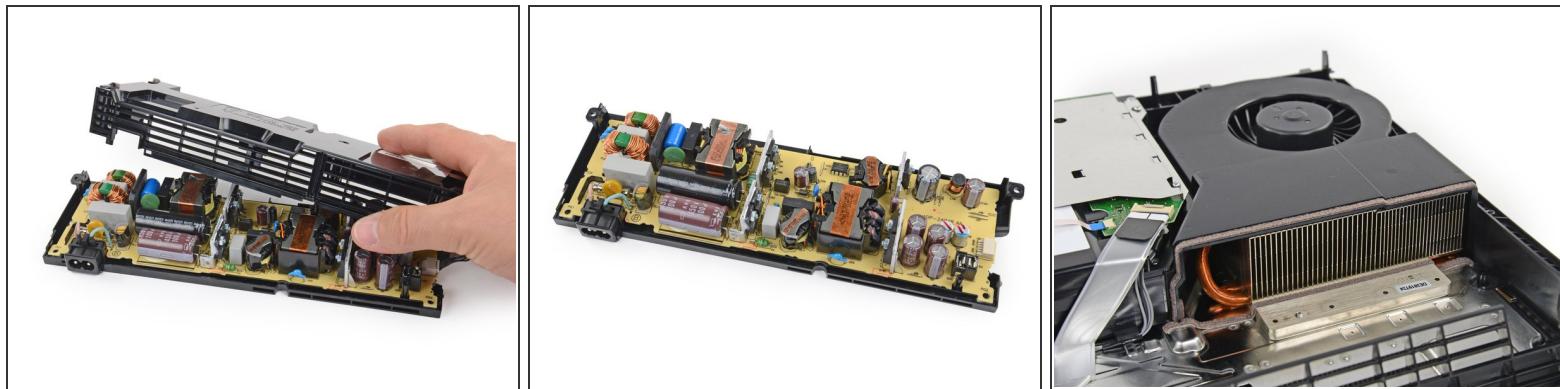
- Our remote-controlled teardown engineer unscrews and pops out some nifty retaining brackets...
- ...whilst enjoying a much-deserved, and distinctly Canadian, snack with our pals at [Chipworks](#).

Step 14



- Brackets and donuts dispatched, we turn our attention to freeing the power supply.
- No brick to trip over on your power cable— this power supply is [still nestled right inside the case](#).
- The power supply is rated at an AC Input of 100-240 volts. This means you can take your game around the world with your trusty PS4 always at your side; just remember to bring your power socket adapters.

Step 15



- You haven't escaped this teardown, yet, power supply. Time to divulge your juicy secrets.
- Ridding the power supply of its housing reveals just what we expected: big capacitors, none of which gave the flux we were looking for.
- It looks like this power supply is only moving forward in time. *(sigh)*
- Now that the power supply has been removed, you can finally [clean your fan.](#)

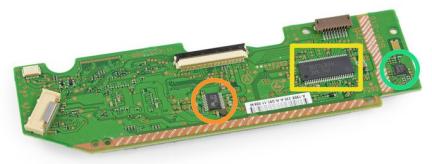
ⓘ Having an internal power supply means that the PS4 will need to keep its cool—making fan cleaning important maintenance.

Step 16



- The Blu-ray/DVD drive is our next target, held in place by a couple screws.
- Unfortunately, the PS4 is **NOT** backward-compatible with PS3, PS2 or PS1 games. This drive [may spin your old discs](#), but it won't play them.
- Oddly enough, it won't play music CDs, either, although this appears to be a mere software limitation that [Sony plans to fix](#) in a later update.
- But who needs an optical drive at all anymore, now that we've harnessed the [power of the cloud?](#)
- That being the case, Sony plans to launch a game-streaming service in 2014 powered by [Gaikai](#) tech, which will let you play PS3 games on a PS4. All the processing will be done 'in the cloud' by Sony's servers, with just the video transmitted to your actual console.
- That's all well and good, but let's get down to what we really care about: Can we play [Crash Bandicoot](#)?

Step 17



- This is the story of an optical drive and his board... Join them on a journey of discovery, to find out just what they're made of.
- We found a few ICs on the optical drive board:
 - Renesas SCEI RJ832841FP1
 - Mitsumi 312 3536A
 - ROHM BD7763EFV 325 T62 Motor Driver IC
 - STM8ED 9H A07 VG MYS 331Z

Step 18

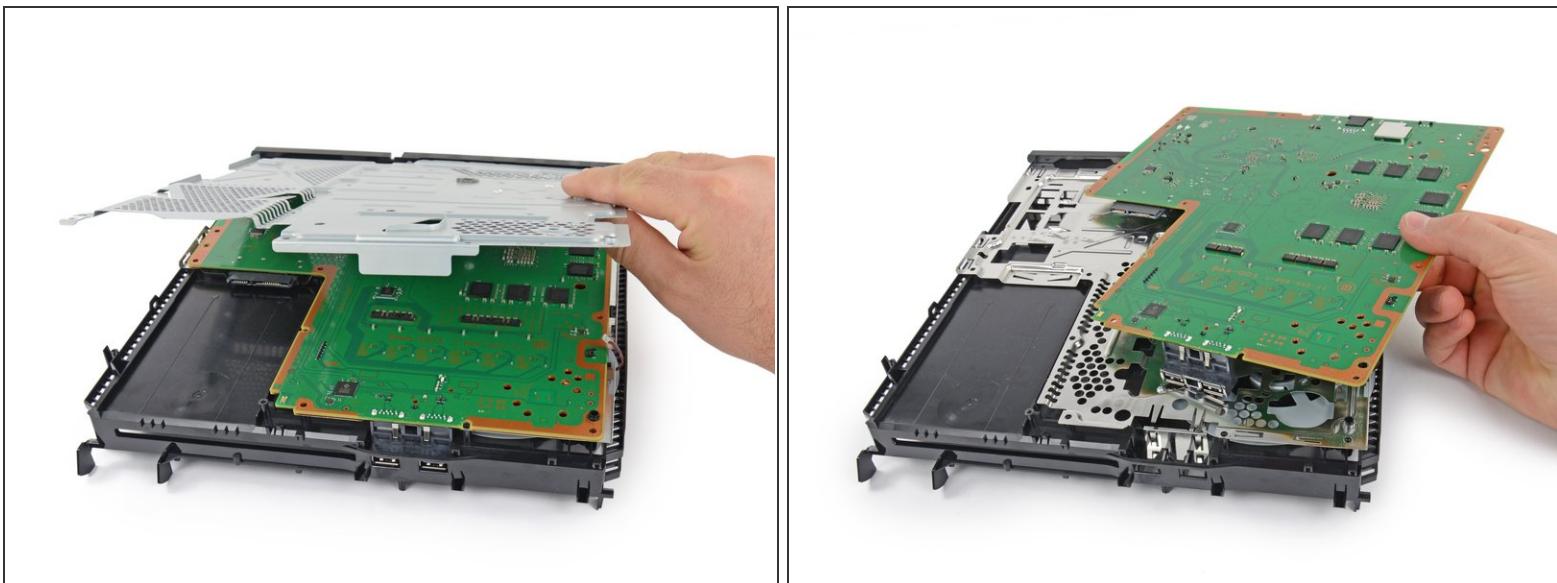


- In a race for the motherboard, we tear through a few screws securing the PS4's body.
- We're peeling off panels like we're remodeling a vintage 1960s den.

● We're so close; we can almost taste the chips (secretly, we're hoping they're [Fully Loaded Baked Potato flavor](#)).

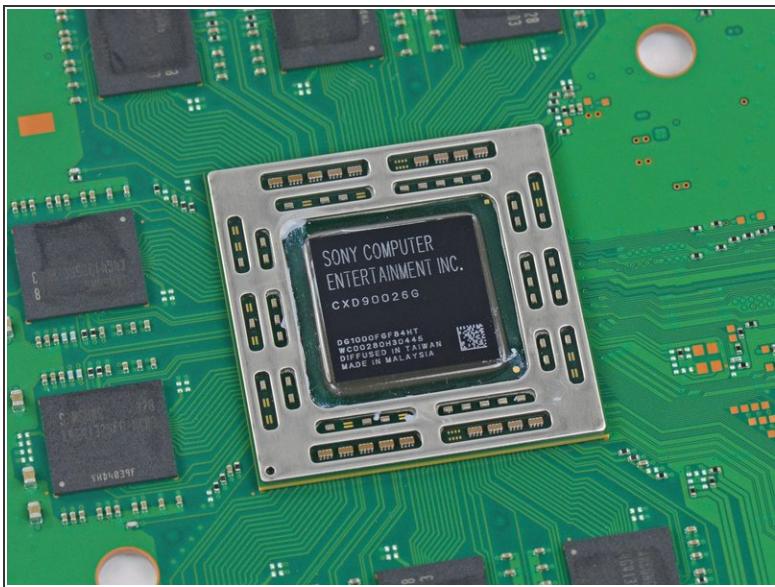
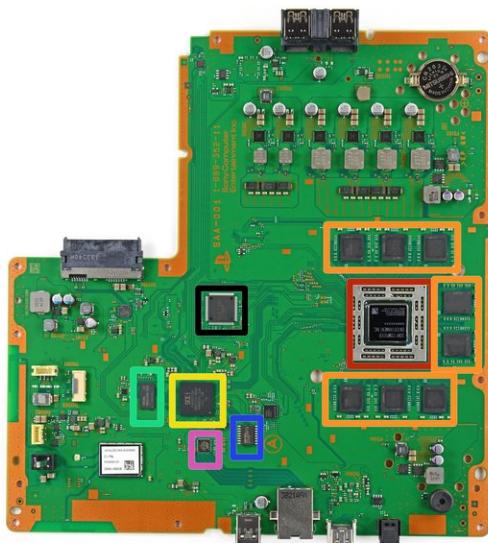
- Soon, motherboard, [soon](#).

Step 19



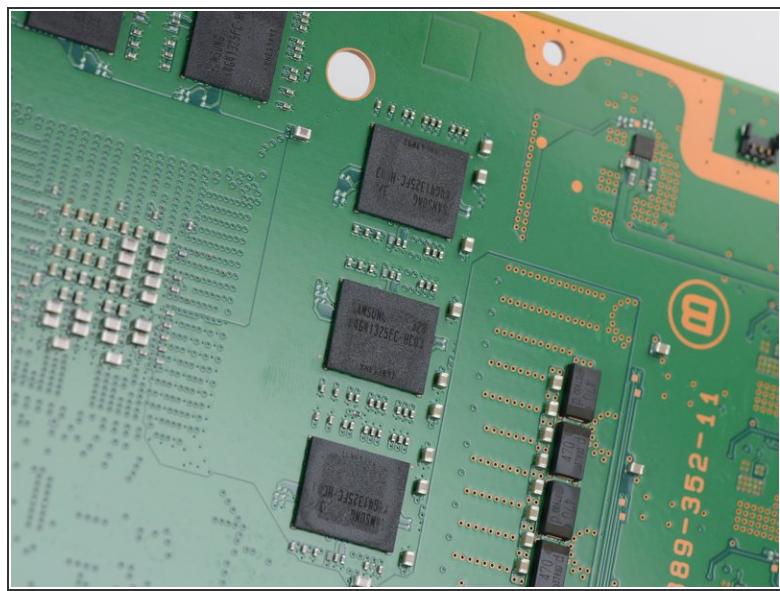
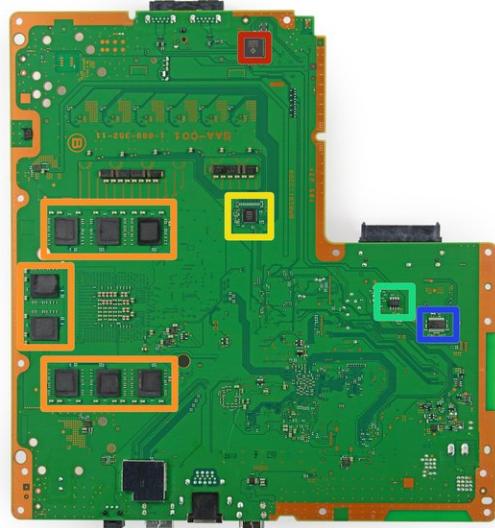
- At long last, we get to crack open that [glorious briefcase](#) of brainpower and withdraw our treasure.
- Unlike the motherboards we see in ever-slimming handheld devices, the PS4's motherboard flaunts uncluttered, rolling, green plains of fiberglass.

Step 20



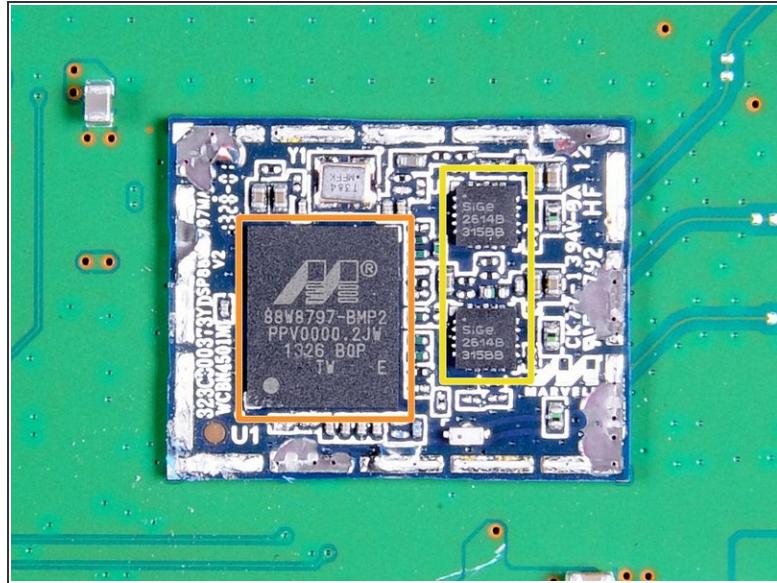
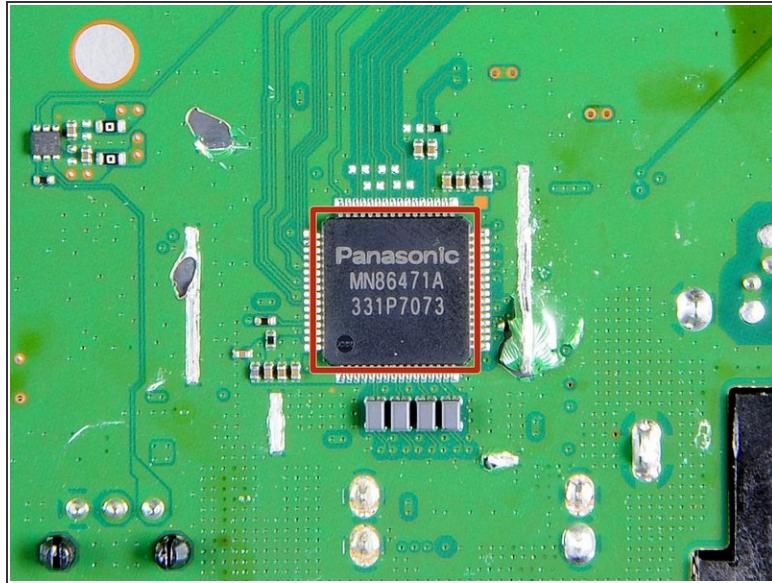
- Fields of fresh ICs ripe for the picking!
- SCEI (Sony Computer Entertainment, Inc.) CXD90026G SoC (includes AMD "Jaguar" Cores and AMD Radeon GPU)
- Samsung [K4G41325FC-HC03](#) 4 Gb (512 MB) GDDR5 RAM (total of 8 x 512 MB = 4 GB)
- SCEI CXD90025G Secondary/Low Power Processor for Network Tasks
- Samsung [K4B2G1646E-BCK0](#) 2Gb DDR3 SDRAM
- Macronix [MX25L25635FMI](#) 256Mb Serial Flash Memory
- Marvell [88EC060-NN82](#) Ethernet Controller
- SCEI 1327KM44S

Step 21



- They say the ICs are always greener on the other side...
- Genesys Logic [GL3520](#) USB 3.0 Hub Controller
- Samsung [K4G41325FC-HC03](#) 4 Gb (512 MB) GDDR5 RAM (total of $8 \times 512 \text{ MB} = 4 \text{ GB}$)
- International Rectifier 35858 N326P IC2X
- Macronix [25L1006E](#) CMOS Serial Flash Memory
- 39A207 1328 E1 3FU

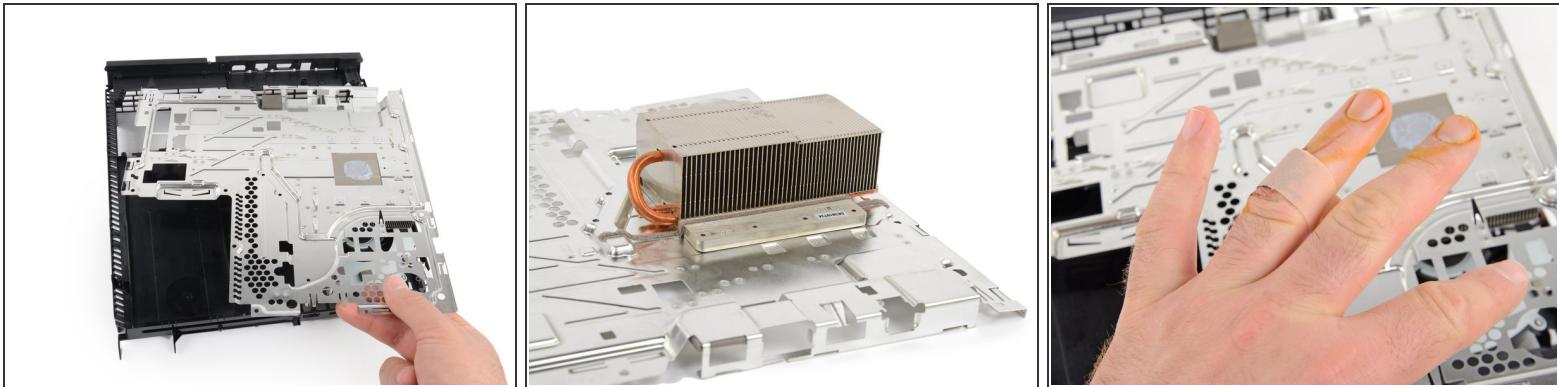
Step 22



- What's that behind door number one, you ask?
 - Panasonic [MN86471A](#) HDMI Communication LSI
- And door number two?
 - Marvell Wireless [Avastar 88W8797](#) 7 Integrated 2x2 WLAN/Bluetooth/FM Single-Chip SoC
 - Skyworks 2614B 315BB

ⓘ These images are courtesy of Chipworks. Thanks guys!

Step 23



- The case is starting to look sparse as we evacuate the EMI shielding.
- Determined to stay connected, the heat sink clung to the EMI shielding for dear life. It would not come apart.
- Believe us. We tried. It fought back.
- [Band-aids](#) don't make for the prettiest of teardown photos, but we wear our repair scars with pride!
- Our honorable teardown martyr commented, "This EMI shield is great, as in cheese grater."

Step 24



- At long last, the PS4's biggest fan!
- *ⓘ* Okay, yes, that was a bad pun. But it is a pretty great fan. Look at those curves.
- Beauty is one thing, but this fan's also got function: it's designed to run [smarter and quieter](#) than the old PS3's wheezy windmill, spooling up and down gradually to keep the decibel count low.

Step 25



- Every self-respecting new device needs its own scandalgate. So as we near the end of our PS4 disassembly, we'll take a moment to share our own confirmation of [wobblegate](#).
- The confirmation: Yes, it wobbles if you push on it.
- The solution: Don't push on it.

Step 26



- Teardown finally complete, we throw the pieces down on the table in victory.
- And then neaten up the pile a bit, because our Moms are watching.

 Hi, Mom!

Step 27 — Final Thoughts



- Sony PlayStation 4 Repairability Score: **8 out of 10** (10 is easiest to repair):
 - No adhesive makes disassembly and reassembly easy.
 - The non-proprietary hard drive is easy to access and replace, and replacing it will not void your warranty.
 - Security screws and tamper-evident seals discourage users from disassembling and repairing their PS4.
- You'll need to disassemble quite a bit of the device to access the fan for cleaning, and even more for replacement.
- The sharp mid-plane could cause some damage to your fingers if you're not careful during disassembly.

To reassemble your device, follow these instructions in reverse order.