

Technical Description: Nintendo Switch

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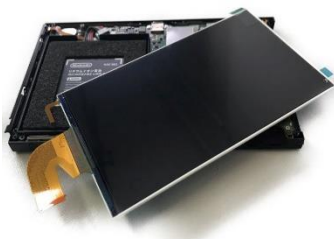
Intro: The Nintendo Switch came out in the Spring of 2017 and is considered the 7<sup>th</sup> game console created by the Japanese company Nintendo. The console began its development around 2012 after the release of Wii U, which was considered a failure due to the declining revenues. The developers were trying to combine many features of the past with new technologies to make gaming more accessible and friendly to a bigger audience. Yoshiaki Koizumi was considered the consoles' main producer, but the idea and concept of the console were made by younger employees in the company that had better knowledge of what the audience was expecting from a modern console. Listening to the audience's feedback is one important step toward success, and it surely paid off in the end. The concept of the Switch was like the one of the Wii U, but it has a more versatile hybrid concept. The main unit is connected to a docking station hooked to the TV through an HDMI cable. If the user wishes to use the console as a handheld the main unit can be removed from the docking station and be used as an iPad touchscreen handheld console. The console's worldwide success was vital to the rise of Nintendo and gave the company the chance to challenge opposing companies like Sony and Microsoft in the gaming industry. By 2021 Nintendo has been able to sell approximately 104 million consoles and the number is still going up every holiday sale.

Body/Main Parts: the Nintendo Switch consists of four main components, the "main" console aka an LCD touchscreen tablet that contains the hardware for the console to function, a docking station that is used for charging and connecting the image of the touchscreen to a TV, two Joy-Cons that allow the user to play games in three different ways, the main is the handheld mode which connects the Joy-Cons to the touchscreen, the second is the controller mode which

connects the Joy-Cons to a grip that creates a classic gamepad controller and finally the "Co-Op" option which allows the user to share one of the Joy-Cons with a friend and attach it to a strap attachment accessory that comes with the console bundle and creates a mini controller without having to pay for an additional controller. These parts are considered exterior and are what the average consumer sees before purchasing the product.

### 1. LCD Touchscreen

The LCD Touchscreen is the main attraction of the console. Its versatility and usage give the user many options to use the console-based on preference. The approximate size of the screen is 4 inches high, 9.4 inches long, and around 0.55 inches deep when the Joy-Cons are attached to it. The weight of the screen is around 0.66 lbs, which makes the console lite enough for both kids and adults to use. The console offers a multitouch capacitive touch screen which makes it modern like an iPad or a tablet and the size of the LCD screen is 6.2 inches. The only technology holding the console back compared to its main opponents in the industry is its resolution, which is set at 720P.



(Figure 1, Ashkiti Varshney, 2018)

### 2. Docking Station

The secondary main element of Nintendo's console is the docking station, a feature that truly makes the Switch unique compared to its opposition in the market. Its size is approximately 4.1 inches high, 6.8 inches long, 2.12 inches deep and it weighs slightly more than the screen at

around 0.72 lbs. The dock gives the user the opportunity to change from a handheld mode to a home console mode like a PlayStation or an XBOX console. The dock can connect the main console to a TV through an HDMI cable. The dock includes features such as a USB C connector that charges the battery of the console, a USB C port for its charger, a single HDMI output for TV connection, and 3 additional USB ports for accessories located at the back of the dock behind a plastic cover where the cables are located to make the setup more appealing and cleaner to the eye. The dock has a light on the bottom left side which lets the user see if it is connected to the TV.



(Figure 2, Nintendo, 2017)

### 3. Joy-Con Controller

The Joy-Con controller is the primary controller of the console. Its size is around 4.02 inches, 1.41 inches long, and 1.12 inches deep. The two joysticks weigh around 1.7-1.8 oz. They are unique compared to other controllers in the market compared because they can be separated from the primary controller grip and be used in more than one way. Bluetooth 3.0 is also an important feature of the product that provides a wireless gaming experience. They have a technology that helps them read the motion of the player during specific games and transport them to the screen. The controllers can be attached to the screen or the grip that comes with the console's bundle.

The average life of their battery is 20 hours. Unfortunately, the Joy-Cons have been criticized by the users due to their “cheap” quality which has many problems with the analog stick.



(Figure 3, Michael McWhertor,2017)

#### 4. Joy-Con Grip

The Joy-Con grip gives the opportunity the user to play video games in a casual way, like the ones other consoles have to offer. The size of the grip is around 3.98 inches high, 5.67 inches long, and 1.58 inches deep. The product is just like the rest of the accessories that come with the bundle and weigh approximately .21 lbs. Public reception toward the accessory has been harsh due to being fragile and cheap for a 300 dollar console accessory. Nintendo knew that at the end of the day the average consumer would rather use this “cheap” product rather than buy an additional controller for 60 dollars and the reason is clear. Some users want to play in a more traditional way and do not want to waste more money on a product that was already expensive to buy.

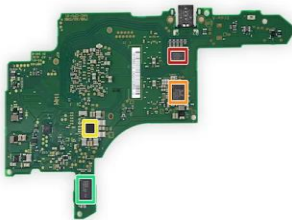


(Figure 4, Nintendo, 2017)

Subparts/ Interior Parts: As mentioned before the main part of the gaming console is the screen aka “The Switch Console”. The console is the brain of the whole system, it is where the most important hardware is located. Its main feature is the ability to go from a handheld to a living room console plugged into a TV, but without its hardware, this would not be possible. The interior of the console consists of a Tegra X1 motherboard from NVIDIA, an Octa-core CPU @1.020 GHz, and an NVIDIA GM20B Maxwell-based GPU. All these important components have made the Switch a reliable and well-performing console for people of all ages.

### 1. Motherboard

The motherboard is considered the most important piece of hardware in every technological device, in simpler terms it is considered the brain of a device that makes everything function the way it is supposed to. The motherboard of the Nintendo Switch consists of an 8-core chip, but it is designed so well that only 4 cores are used most of the time to minimize power consumption, and therefore the battery life of the console increases. The motherboard has chips that support every technological necessity for the 21st century such as Wi-Fi, Bluetooth, and Wireless charging.



(Figure 5, Mark Patrick, 2017)

## 2. CPU

The CPU is the second most important piece of hardware in a technological device and executes all the information and instructions sent by the motherboard. When it comes to the Nintendo Switch the CPU is something more than a processor, for some major and graphics-heavy games to play properly, the CPU must be very adjustable. For some games to play well in such a small device, the processor has to be almost perfect in all aspects. The power of the CPU used for the Switch might be less than the ones of PS4 and XBOX One but it is stronger than the PS3 and XBOX 360 which makes it the strongest CPU ever used in a handheld console.



(Figure 6, Will Greenwald, 2021)

## 3. GPU

GPUs are always a necessity for gaming consoles, without Graphics Processing Units the gaming consoles would not be able to play games at a decent level. They are like CPUs, but they are designed a bit differently. They are used to render multiple pieces of information at the same time which makes them useful for learning, editing, and gaming. The GPU power of the Nintendo Switch might not be the strongest, but the point is that it does not have to be strong like



the PlayStation or XBOX. Most of the highest selling games on the Nintendo Switch do not need a very high-level graphics card to run smoothly, and most importantly there is no reason for the company to use better GPUs because the screen resolution would not make a difference visually which means that more money would be wasted. The NVIDIA GM20B Maxwell-based GPU consists of a 307.2-768 MHz clock speed and 2 compute units. It might be weak compared to others in the market, but it certainly makes a great job according to the sales of the console.



(Figure 7, Neil Soutter, 2017)

Conclusion: All in all, the construction, concept, and versatility of the Nintendo Switch have justified its success in the market over the years. It combines 3 different modes of gaming which attracts a bigger audience and automatically makes the company a major competitor in the gaming industry. The technical description of this product has shown us that material quality is not always the most necessary when it comes to commercial success. The Nintendo Switch uses hardware a lot weaker compared to the ones of the PlayStation and XBOX, but the number of sales makes Nintendo feel proud of its decision to focus on delivering a well-performing and reliable gaming console that is here to stay for many years to come.

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