

Electronics Online Challenge

We chose the iPhone 5s for the competition because frankly, it was the only device that was unserviceable and available. In addition it had a higher chance of having a TI component compared to other electronics which would save time from research or disassembly.

Since the people working on this project have little to no experience in the art of disassembly in electronics, we went online for help. After some searching, we found the only TI component in the phone and targeted our disassembly there first. The TI component we looked for was the TI Touch IC 343S0645 that can be found in the logic board. In addition we only focused our attention on the front side of the logic board simply because there are too many components on the phone to list here.

The logic board is the motherboard of the iPhone 5s. In addition, the logic board mostly contains IC (integrated circuits). The components we are looking for that can be found in the logic board of the iPhone 5s are the front-facing camera, and other myriad of components and chips that help with other functions of the phone work.

The function of the TI Touch IC 343S0645 is to basically connect the touchscreen to the phone in terms of it allowing the phone to interpret data from the touchscreen.

The SK Hynix NAND chip is basically where the phone stores data. It is important for flash memory. Flash memory is a solid state chip that stores memory without having to use another power source. There are two types of flash memory which are NOR Flash and NAND Flash.

The TriQuint part of the board is a semiconductor. A semiconductor has both the capability to be a conductor and an insulator. Its main function is to control the electric current.

The Qualcomm MDM9615M LTE Modem is the baseband chip that allows for the usage and support of LTE.

Apple 338S1216 is a PMIC (power management integrated circuit) that according to the QNOVO website, provides “voltage rails to the logic board” and helps with the battery consumption.

The Broadcom BCM5976 allows for the touch screen to interact with the phone.

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Unfortunately, there wasn't much information specifically for Skyworks 77810, but the company, Skyworks is known to be in the semiconductors industry that is for radio frequency and wireless communications. From this, we can assume that Skyworks 77810 is responsible for the mobile communication system in the iPhone 5s.

Lessons learned:

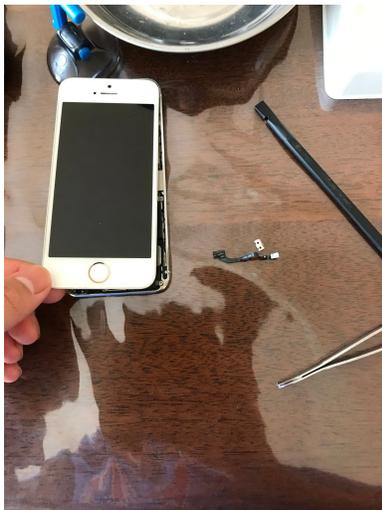
Even after taking apart the logic board, we have learned to appreciate electronics more in our daily lives. A lot of thought has been put into electronics even if some are considered ancient today. We also learned that the functionality of each chip in the logic board is very important for the iPhone to function. Without one chip, the iPhone would need a chip replacement in the logic board which can get complicated if the correct tools are not used so it's best to replace the logic board.

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Pictures and disassembly of iPhone 5s



Description: This is the front and the back face of the iPhone 5s.



Description: This picture shows the front screen of the iPhone 5s being taken out from the whole phone assembly.

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Description: This picture shows the components inside the phone after disconnecting the screen from the iPhone assembly.

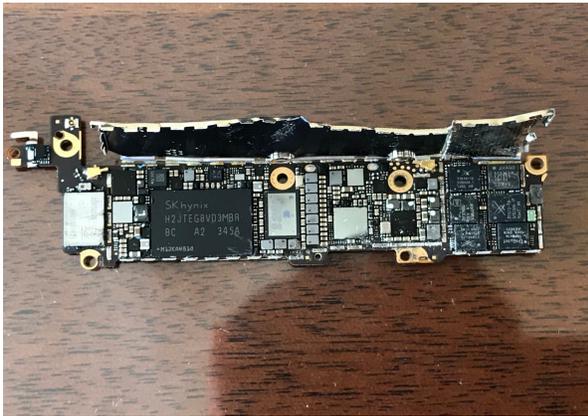


Description: The logic board has been taken out from the iPhone along with the SD card slot. The TI chip is in the logic board.

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Description: The logic board is covered with a long shield protecting important components inside especially the TI chip.



Description: The logic board is open with the different chips in the logic board important for the function of the iphone 5s.

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Description: The TI 343S0645 chip boxed in red is the only TI component in the iPhone 5s which is important for the touchscreen interface. Other chips can be found such as the SK Hynix H2JTDG8UD3MBR 128 gb (16gb) NAND Flash in the logic board.