Reverse Engineering Online Challenge

Title: What's inside an iPad?

Team: 842T

Location: Chester Springs, PA, USA

Name: Chloe

Final Summary Report

Introduction identifying the electronic device selected and why.

I chose to take apart an iPad for this project. The iPad was not usable anymore, and I got my Dad's permission to dissemble. I selected this device because I believe inside the iPad, there are many mysterious components that I might find interesting. I hope I will find a few things inside of this iPad that I did not expect.

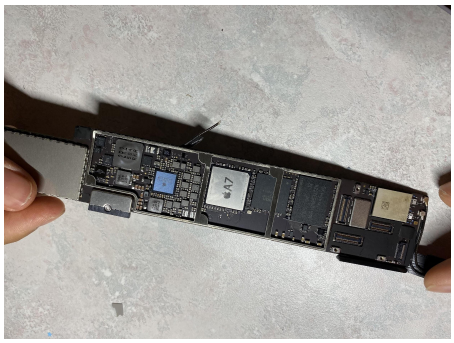
Figure 1: I was taking the iPad apart.

Summary of the chips and components you found inside. Were any TI components?

I first had to pry the screen off the iPad. Under the touch screen, I found the display. On the bottom right and left, I found the 2 microphones, 1 antenna, as well as the 2 speakers. Below in figure 2. I found the MotherBoard as well that had the Semiconductor chip, labeled with the Apple logo, and

name. There were 2 large batteries, the Li-on model Battery. (

In the Mother Board, I also found the Northbridge and the Southbridge. I was not able to find a TI component, in this iPad.



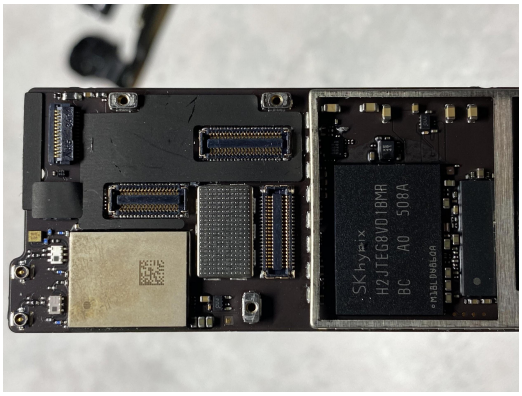
This is the Mother Board, the chip with the Apple logo is known as the CPU.

Research findings of what these components do and the role they play in the system.

The A7 CPU contains all of all the circuitry needed to process input, store data, and output results of this iPad. The small chips are called PCI Express switches, which help the CPU, and the SouthBridge. The NorthBridge links the CPU to very high-speed devices, especially RAM and graphics controllers and the SouthBridge connects to lower-speed devices that support printers and hard drives.

Here is a list of other chips that I found in this Mother Board:

- SKhynix H2JTEG8VDI8MR - which was the memory chip. The iPad has 32 Gs of memory.
- QualComm MDM 9615M- which is a Mobile Data Modem, is a type of modem that allows the device to receive data.
- TriQuint TQF 6514 – a Power Amplifying Module, which is used to raise the power of the input signal.



This is a part of a Semiconductor, and it contains the memory chip.

Conclusion. What were the lessons you learned from this experiment?

I have used the iPad since I was 5, and I have never thought about what was inside of this iPad. The iPad has a very complex system, and I am happy that I choose the iPad for this project. I learned that the iPad is a very complex device with many semiconductor chip that work together to provide a great user experience. I also learned what a Semiconductor does. Inside of an iPad, it is complicated, and fun to disassemble!