

## REC Foundation Online Challenges

### Texas Instruments Electronics Online Challenge

Through a team decision, we chose this challenge as an opportunity to deconstruct a common object that can be explored and learned from by disassembling. Our team decided that the most interesting object to deconstruct would be an iPhone, which would not only be enjoyable to learn about but also would increase our knowledge about an everyday item. One of our team members already owned an old, broken iPhone 5 that was no longer in use, so the opportunity was perfect and was automatically set before us.

During the process of deconstruction, the layout of the iPhone was clear and thoroughly organized, just as our team had expected. The first pieces of the iPhone that came off were the Touch Screen Module, Display Module, and mounting bracket (pictures A and B). Combined, these parts project the color and brightness on the screen of an iPhone and allow the user to have touch-sensitive responses from the phone through heat sensing mechanisms. Following the mounting bracket, the Li-ion battery and the Apple A6 computing chip sat side-by-side at the 'bottom' of the phone, right over the enclosure, or rear cover (picture C). According to Apple, 'rechargeable lithium-ion technology currently provides the best performance for your device. Compared with older battery types, lithium-ion batteries weigh less, last longer, and charge more efficiently' (picture D). In addition, Apple's A6 chip provides higher component density in devices, such as mobile phones, personal digital assistants (PDA), and digital cameras. The Apple A6 is a 32-bit package on package (PoP) system on a chip (SoC) designed by Apple Incorporated that serves as the program and computer for the entire device (pictures E and F).

Although no TI components were found in this process, our team was extremely grateful for the chance to investigate an iPhone and assimilate the construction of an Apple product. Together our team discovered the realization that something which might seem so simple and accessible at one point actually comes down to a composition of complex parts that each contribute to the overall functioning of the product.

## Pictures



Picture A (top)

Picture B (bottom)

The Touch Screen, Display Module, and mounting bracket provide the masterworks behind Apple's use of color, brightness, and touch.



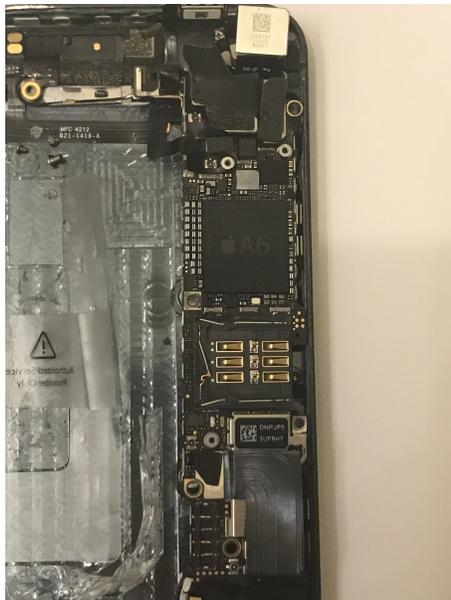
Picture C

Combined at the enclosure of the iPhone, the Li-ion battery and Apple A6 supply the power and computer programming of the phone.

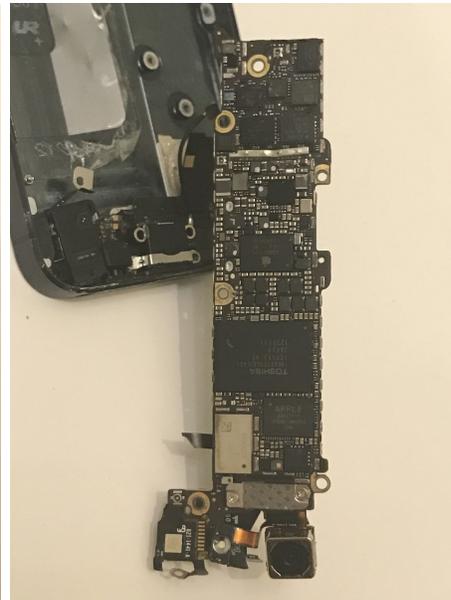


Picture D

The lithium-ion battery allows Apple's products to hold the utmost amount of long-lasting power with minimum weight added.



Picture E (front)



Picture F (back)

The Apple A6 controller allows phones to acquire many outstanding attributes, which include digital cameras and personal digital assistants.

## Works Cited

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[https://en.wikipedia.org/wiki/Apple\\_A6](https://en.wikipedia.org/wiki/Apple_A6)

<http://www.apple.com/batteries/>