



# Flip MinoHD Teardown

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## INTRODUCTION

We got our hands on the fun Flip MinoHD digital video recorder and decided to take a peek inside. We were curious to see what kind of electronics were packed into this simplistic half-aluminum, half-plastic device.

If you prefer moving pictures, check out our YouTube [video slideshow](#) of the Flip MinoHD!



### TOOLS:

- [iFixit Opening Tools](#) (1)
  - [Metal Spudger](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
  - [Soldering Iron](#) (1)
  - [Tweezers](#) (1)
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## Step 1 — Flip MinoHD Teardown



- Today's guest has been long overdue for a teardown. So with no further interruptions, we give you the Flip MinoHD in all its glory.
- The Flip MinoHD comes packaged in an elegant box that leaves much to the imagination.
- Dare we open the box? Dare we do.
- Contents of the box:
  - Flip MinoHD
  - Quickstart Guide
  - Soft Protective Case
  - Wrist Strap

## Step 2



- What's better than a Flip MinoHD? A custom-labeled Flip MinoHD!
- Eight unique touch-sensitive capacitive buttons (power, play, delete, record and four-way navigation) allow for ease of use.
- An mini-HDMI output connector makes it easy to watch video on your HDTV.
- There's also a tripod mount that fits any standard tripod.

## Step 3



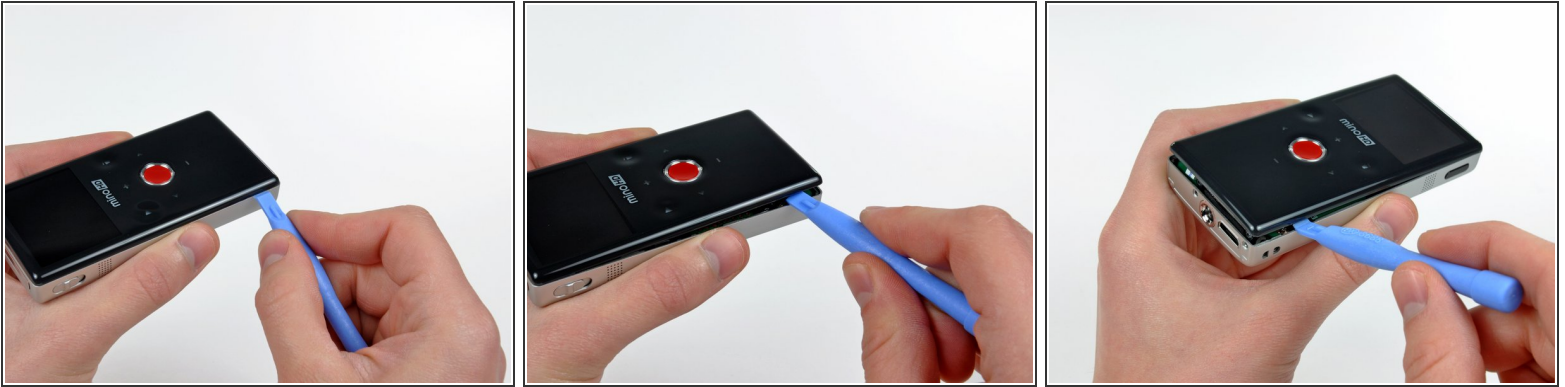
- Sliding the small tab along the left side of the MinoHD releases the flip-out USB connector for easy docking/charging.
- When done interfacing, the USB connector tucks in flush with the top edge of the device.

## Step 4



- Use the sharp edge of a plastic opening tool to peel the two labels off the bottom of the MinoHD to reveal two hidden screws.
- Remove the two Phillips screws securing the front panel to the outer case.

## Step 5



- Begin the disassembly by inserting a plastic opening tool (with the edge pointed toward the aluminum outer case) between the front and outer cases near the bottom of either edge of the MinoHD.
- ⚠ Do not try to pry between the front and outer cases along the **top** edge of the MinoHD.
- Continue running the plastic opening tool in the seam between the front and outer cases until the left, right, and bottom edges are free.



## Step 6



- Push the front panel toward the top edge of the MinoHD to release it from the mounting tabs along its top inner edge.
- ⚠ Don't try to remove the front panel just yet! It is still attached to the logic board by a small ribbon cable.
- Carefully rotate the front panel away from the rest of the MinoHD.
- Pull the control panel ribbon cable away from its socket on the logic board.

## Step 7



- There's not too much interesting going on inside the front panel.
- Capacitive sensors under each of the control symbols (play, back, etc.) provide the logic board with control data, while small LEDs mounted to the logic board (shown in red) under each "button" project light through the front panel to provide their illumination.

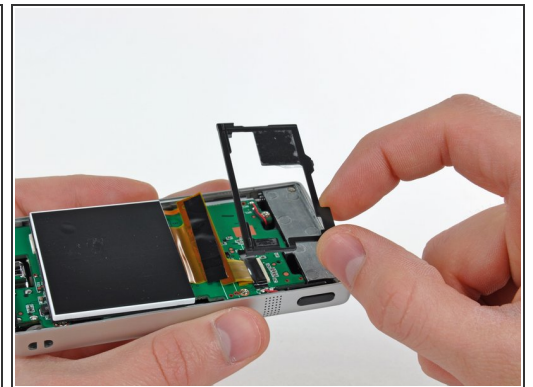
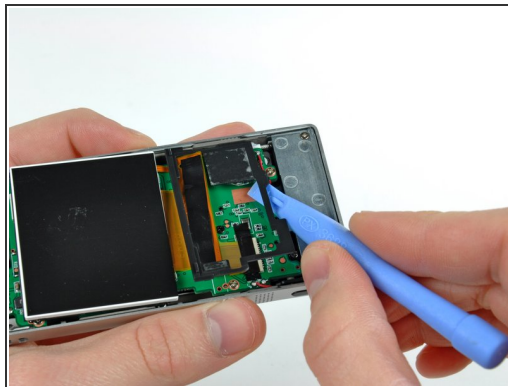
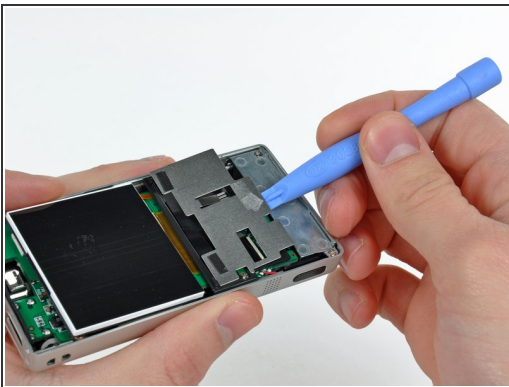


## Step 8



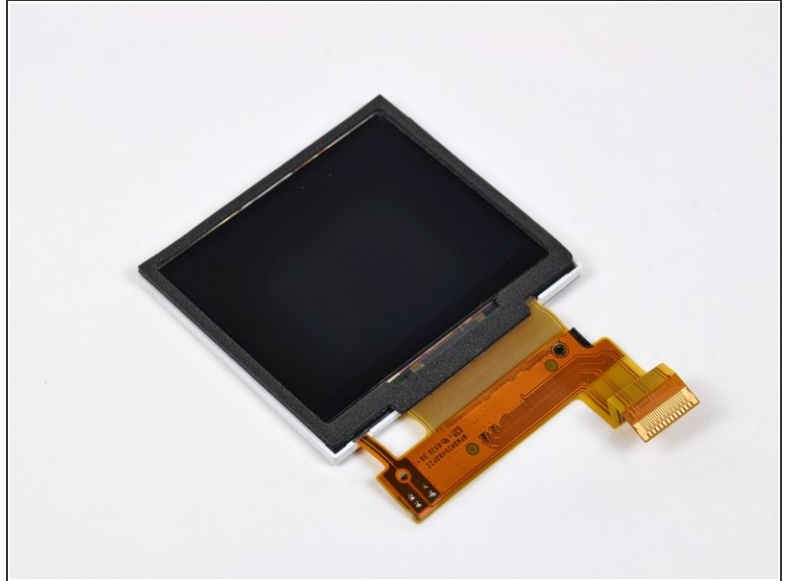
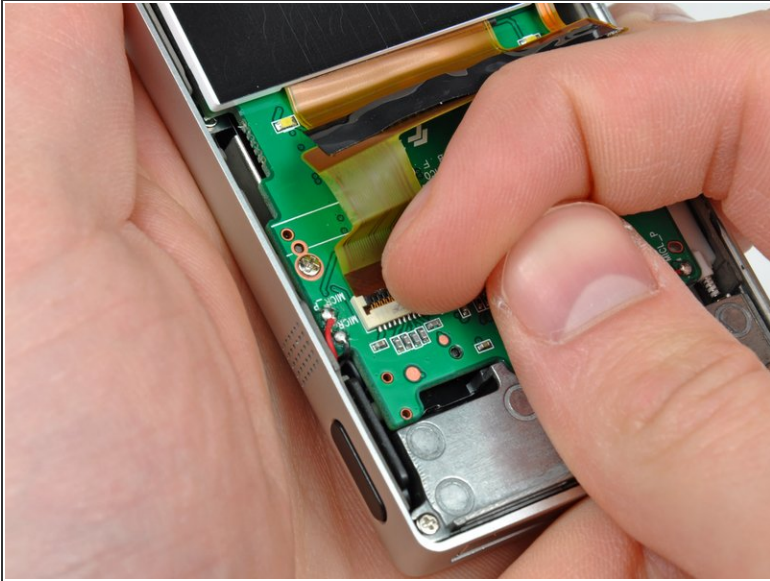
- Use a plastic opening tool to carefully lift the top edge of the display out of its bracket.
- ⓘ It may be necessary to use a metal spudger to release a small piece of film stuck between the LCD and the display bracket.

## Step 9



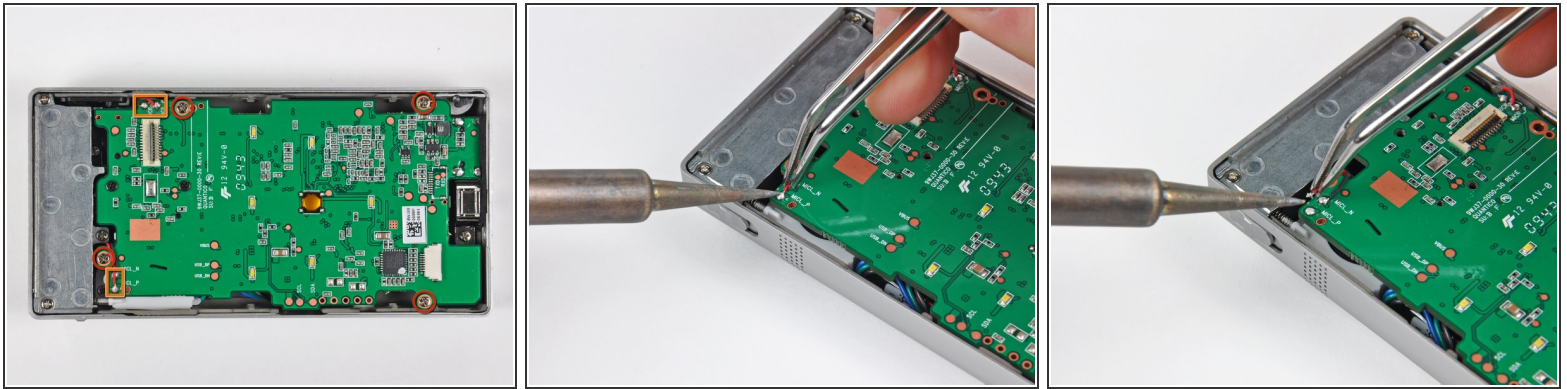
- To access the display data cable, use a plastic opening tool to pry the metal and plastic display brackets off the logic board.

## Step 10



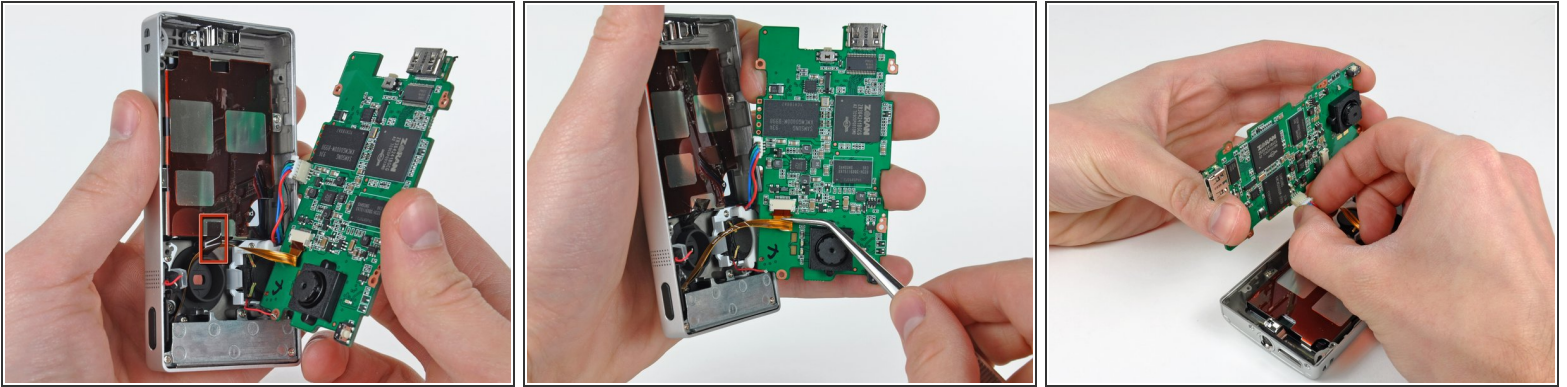
- Carefully use your fingernail to flip up the retaining flap on the display data cable ZIF socket.
- Pull the display data cable out of its socket and remove the display.
- Interesting note: On-board video playback is provided by a 2" 960x240 [transflective](#) TFT LCD display.

## Step 11



- Remove the four silver Phillips screws attaching the logic board to the outer case.
- ⚠ To remove the logic board, you must first de-solder the leads of both microphones from the logic board. When soldering on a circuit board, be sure not to heat up the connection excessively.
- Use a pair of tweezers to gently pull each lead as you heat up the joint with the tip of a soldering iron.
- ⓘ Repeat this process to remove all four microphone leads. Their locations are boxed in orange on the first picture.

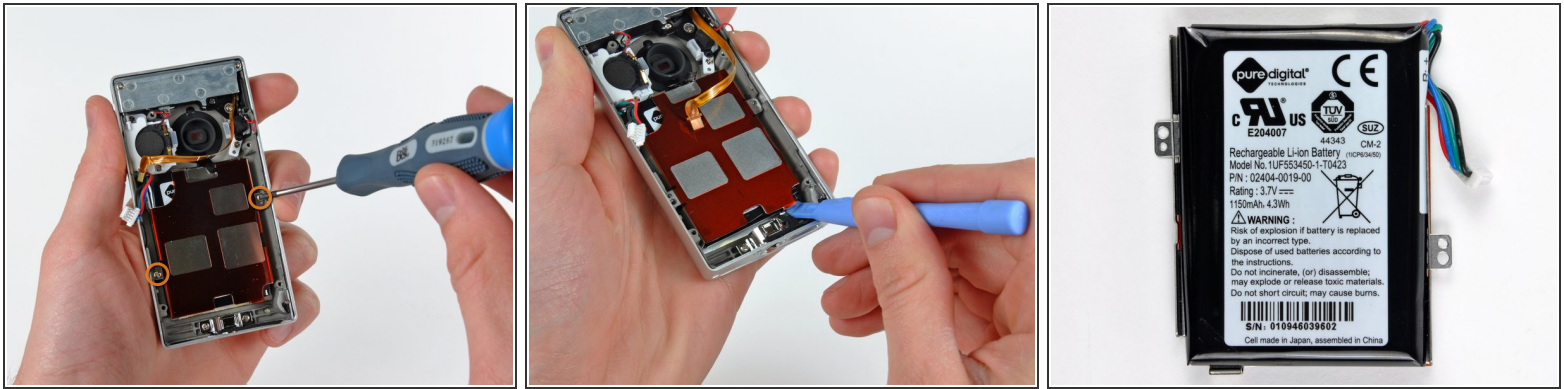
## Step 12



- Carefully maneuver the logic board out of the outer case, minding the cables still connecting the two components.
- To gain more clearance, remove the small strip of black tape securing the USB ribbon cable to the battery bracket.
- Use a pair of tweezers to pull the USB ribbon cable connector away from its socket.
- Pull the battery connector out of its socket on the logic board.

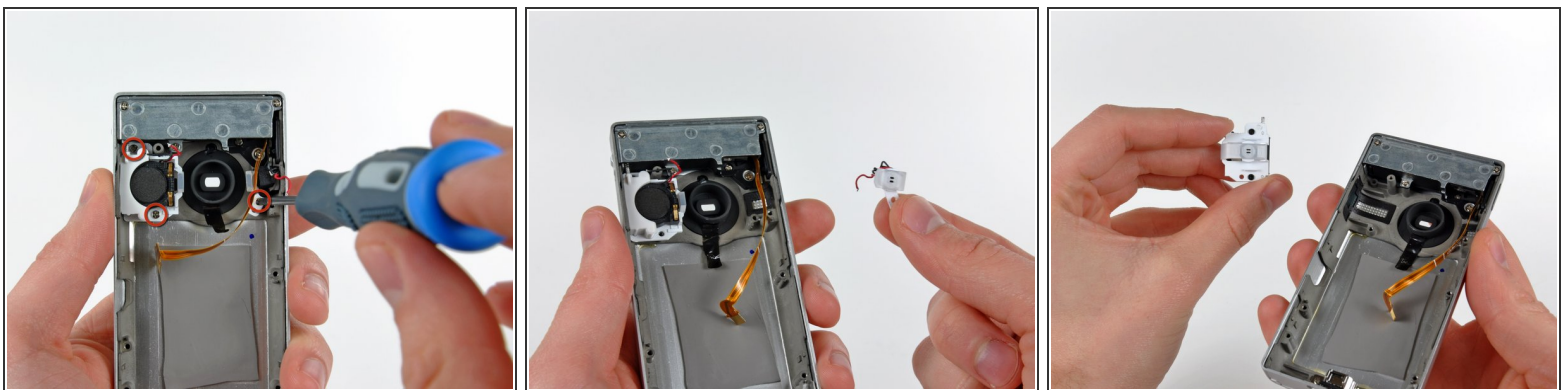


## Step 13



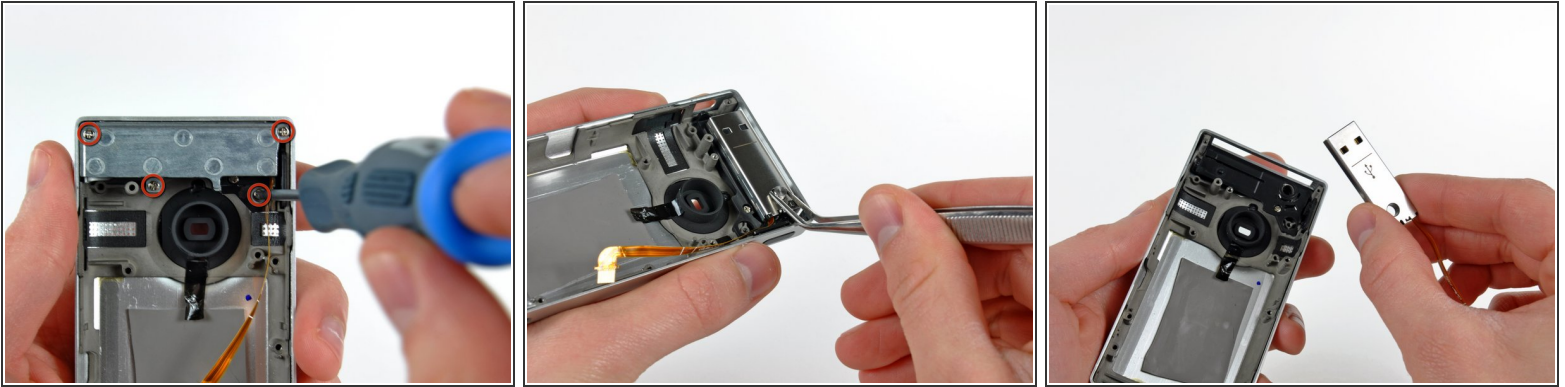
- Remove the two small silver Phillips screws securing the battery to the outer case.
- Use a plastic opening tool to pry the battery up off the outer case.
- The MinoHD sips two hours worth of power from the internal 3.7V, 1150 mAh Li-ion battery weighing in at 30 grams (including bracket).
- Coincidentally, that's the same battery capacity as the iPhone 3G.

## Step 14



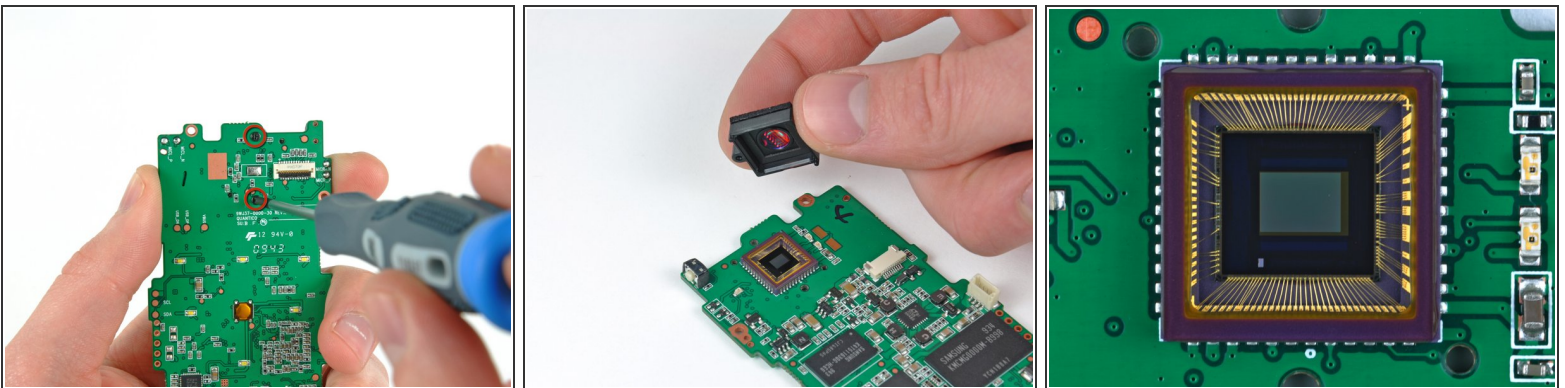
- Remove the three Phillips screws securing both microphones to the outer case.
- ⓘ The microphone assembly on the left also houses a small speaker for audio during video playback. It connects to the board via two spring-loaded pressure contacts.
- Lift both microphones off the inner surface of the outer case.

## Step 15



- Remove the four Phillips screws securing the aluminum USB bracket to the outer case.
  - Use a pair of tweezers to pull the flip-up USB axle away from the outer case.
- ⚠ Once the axle clears the outer case, the flip-up USB connector may be ejected at high speed. Wear safety glasses.

## Step 16



- Remove the two Phillips screws securing the camera lens to the logic board.
- Lift the camera lens off the board to reveal the CMOS sensor.
- The high definition [CMOS](#) sensor has .0000022 meter wide pixels to capture clear 720p video.

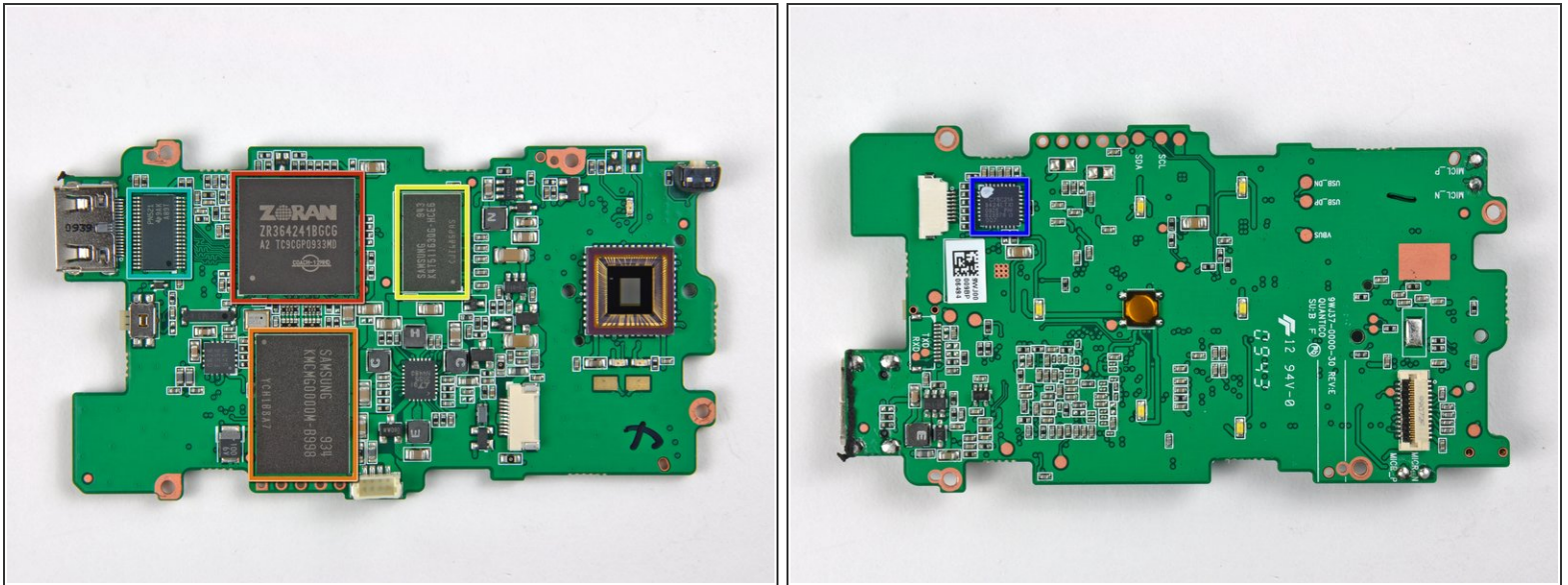


## Step 17



- Side-by-side comparison shot:
  - Flip MinoHD camera lens.
  - iPod nano 5th Generation camera assembly.
- The MinoHD has a fixed focus lens that ranges from 0.8 m to infinity.

## Step 18



- The big players on the logic board include:
  - A Zoran COACH (camera on a chip) 12 processor featuring real-time lens distortion compensation and noise reduction.
  - Samsung's 934 KMCMG0000M-B998 8 GB NAND flash memory for video storage.
  - One Samsung K4T51163QG 512 Mb DDR2 SDRAM chip.
  - Texas Instruments' [TPD12S521](#) to protect the board from electrostatic discharge through the HDMI port.
  - Cypress' [CY821434-24LXTI](#) PSoC presumably for encoding signals received from the capacitive touch controls.
- High-Res versions of the logic board pictures can be seen [here](#) and [here](#).

## Step 19



- It's time we bid farewell to the MinoHD. We hope you enjoyed our precious time together. 'Till next time...