



# T-Mobile G1 Teardown

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## INTRODUCTION

Overview of the G1 hardware with circuit diagrams and labeled chips. Also see [www.phoneWreck.com](http://www.phoneWreck.com) for more [in-depth analysis](#).

## Step 1 — T-Mobile G1 Teardown



- The G1 has a lot of meaning to the “1” in its name. Not only is it the first phone to sport Google’s Android OS, it’s:
  - the first phone to use T-Mobile’s 3G network.
  - HTC’s first capacitive touchscreen phone.
  - HTC’s first trackball phone.
  - HTC’s second attempt at a 5-row keyboard (correct me if I’m wrong).

*(i)* We have aggregated information from various articles to aid in our teardown. These include Bob Widenhofer’s article featured on TechOnline, Nikkei Electronics Teardown Squad featured on TechOn, and of course, our own sources (Thank you!).

## Step 2



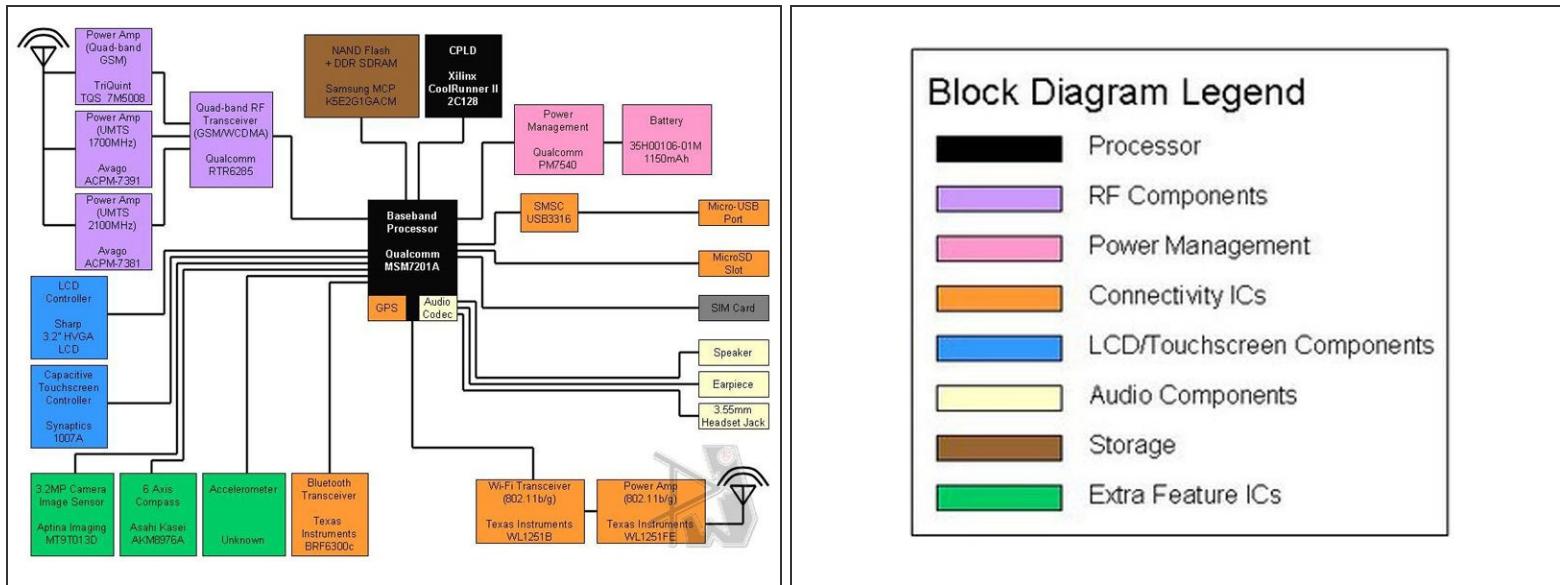
- The user interface of this phone is also another winner. Google's engineers, however, have been totally innovative in giving users:
  - a pull-down notification bar.
  - a slide-out menu.
  - 3 different customizable desktops.
- The backgrounds even slightly move when you switch desktops, giving it a sort of, 3D effect. Very cool.

## Step 3



- The T-Mobile G1 was a mind-blowing experience to crack open. There's an insane number of parts, and the way they put it together seems, well, complex. Make sure you give the sliding mechanisms a peek near the bottom.
- Finally, the moment you've all been waiting for. The back of the casing, showcases swooping action (we're seriously too in love).
- The translational springs on this puppy are strong as !&&\*. But it needs to be so, since it has to drive a large screen around an arc. It's interesting to note how much effort HTC seems to have put in to produce a clean swooping action. Perhaps we're overthinking this.

## Step 4

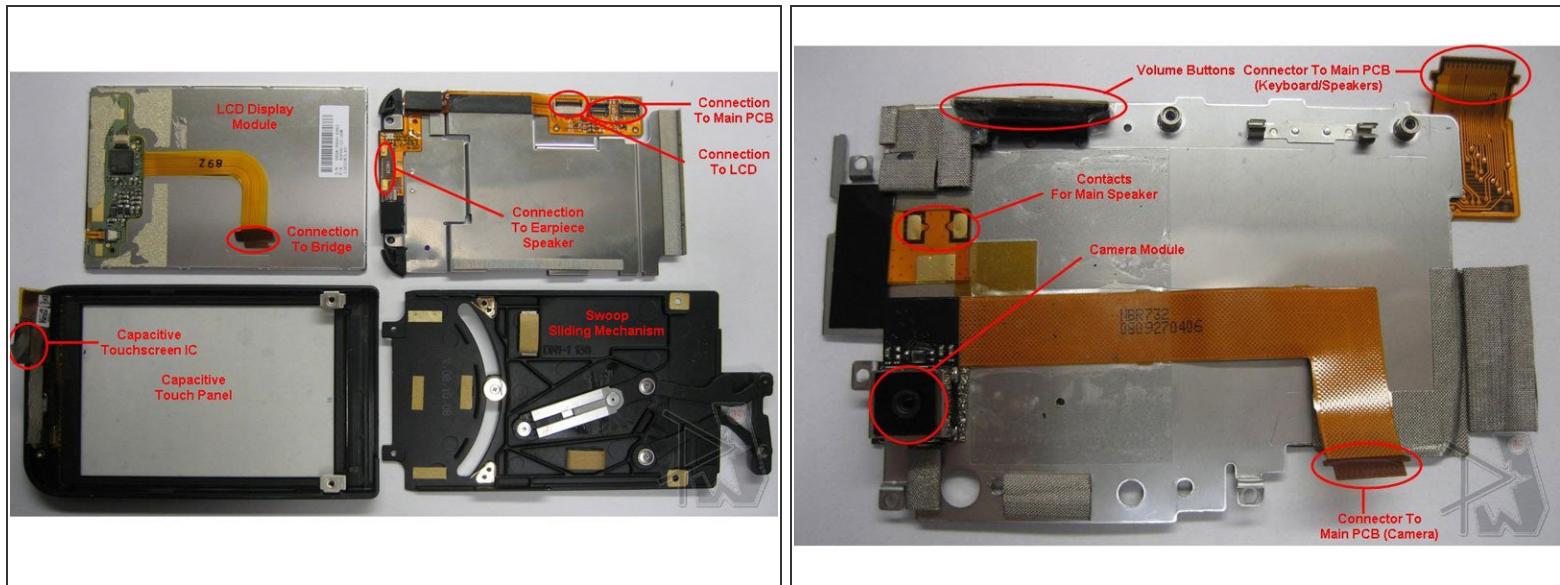


### Block Diagram Legend

<span style="background-color: black; width: 15px; height: 10px; display: inline-block;"></span>	Processor
<span style="background-color: #9999FF; width: 15px; height: 10px; display: inline-block;"></span>	RF Components
<span style="background-color: #FF99CC; width: 15px; height: 10px; display: inline-block;"></span>	Power Management
<span style="background-color: #FF8C00; width: 15px; height: 10px; display: inline-block;"></span>	Connectivity ICs
<span style="background-color: #0070C0; width: 15px; height: 10px; display: inline-block;"></span>	LCD/Touchscreen Components
<span style="background-color: #FFFF99; width: 15px; height: 10px; display: inline-block;"></span>	Audio Components
<span style="background-color: #A08030; width: 15px; height: 10px; display: inline-block;"></span>	Storage
<span style="background-color: #00A050; width: 15px; height: 10px; display: inline-block;"></span>	Extra Feature ICs

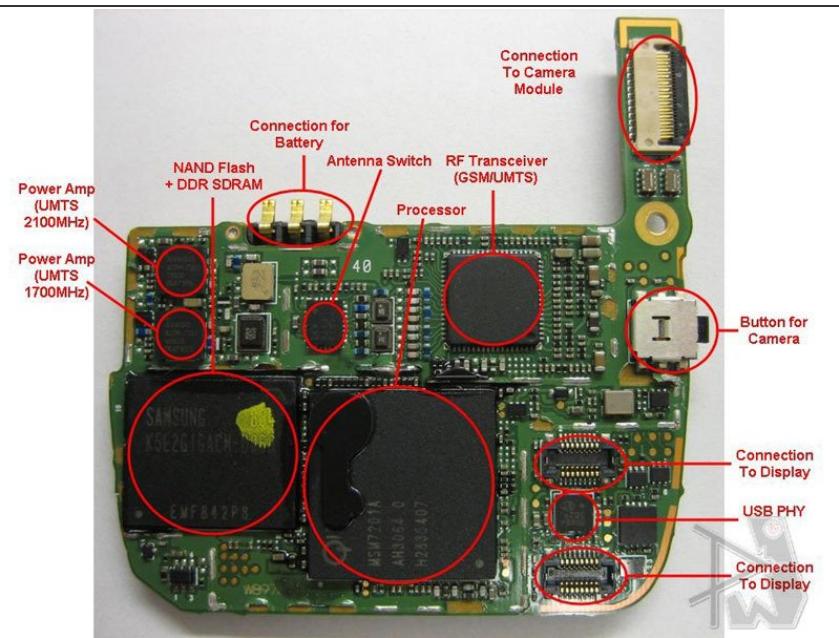
- For starters though, we introduce to you, the block diagram:
- The Qualcomm MSM7201A, which was previously used in later US iterations of the Touch Diamond and the Touch Pro, comes full force in the G1.
- Similar to the BlackBerry Storm, the GPS and audio processing components are embedded into the processor.
- Fortunately, HTC has had much experience using the processor, although it runs a brand new OS.
- Running alongside the processor is the transceiver and power management ICs, Qualcomm RTR5285, and Qualcomm PM7540, respectively.

## Step 5



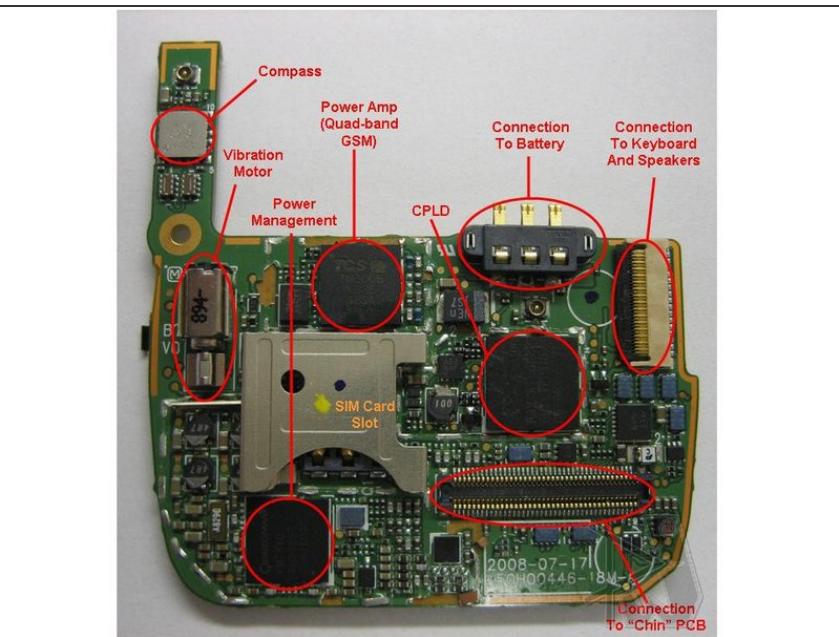
- This part is pretty cool, because housed within the screen casing is four large parts.
- On the front of the actual casing is the capacitive touch panels, with Synaptics handling the controllers and everything else touchscreen-related.
- An interesting feature of this phone are the dual vibration motors. One motor is mounted on the display module, and the other on the main PCB.

## Step 6



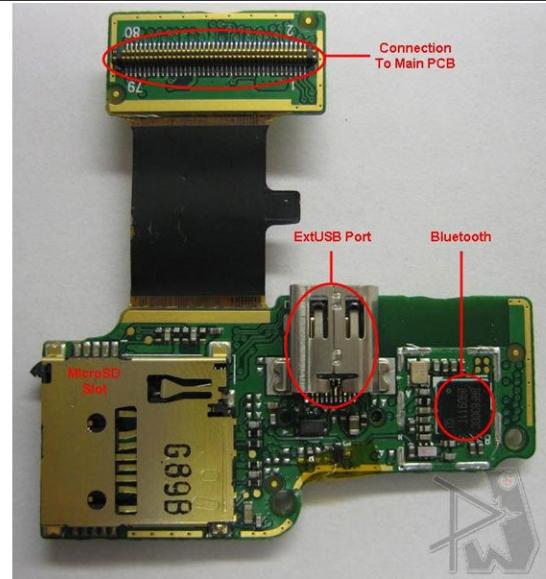
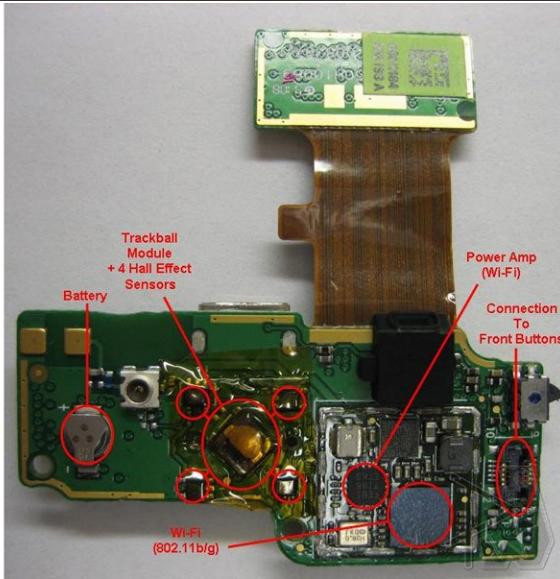
- There are two main PCBs housing most of the components. The main PCB is shown at left, while the “Chin” PCB is shown on step 9.
- The NAND Flash + DDR SDRAM is handled by a Samsung MCP.
- SMSC provides the USB PHY handling the connection from the processor to the PC.

## Step 7



- As shown, Avago provides both GSM and UMTS power amplifiers (ACPM-7381 & ACPM-7391).
- TriQuint provides their regular GSM power amplifiers (TQS 7M5008).
- Asahi Kasei makes an interesting appearance with the first (to our knowledge) appearance of a compass IC.
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## Step 8



- Lastly, we move on to the "chin" PCB.
- Texas Instruments provides the Bluetooth and Wi-Fi chips, both appearing on this PCB.
- The trackball is the same module used on nearly every BlackBerry (except the upgraded trackball found on the Javelin).

 If you have questions, comments, concerns, humorous anecdotes, be sure to let us know in the comments or through email ([phonewreck@gmail.com](mailto:phonewreck@gmail.com)). Also be sure to visit the [wiki](#) for more pictures! Thanks!

To reassemble your device, follow these instructions in reverse order.