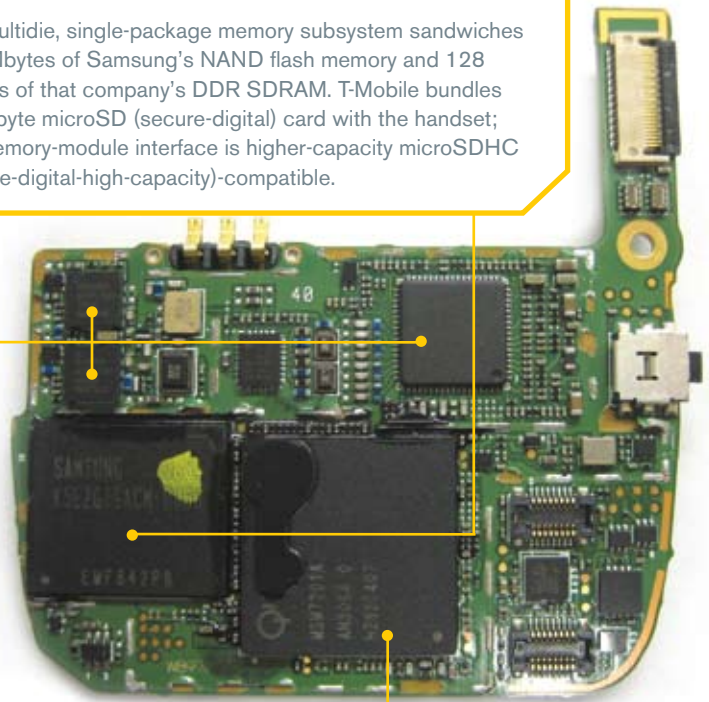


# T-Mobile's G1: Google's Android OS emerges

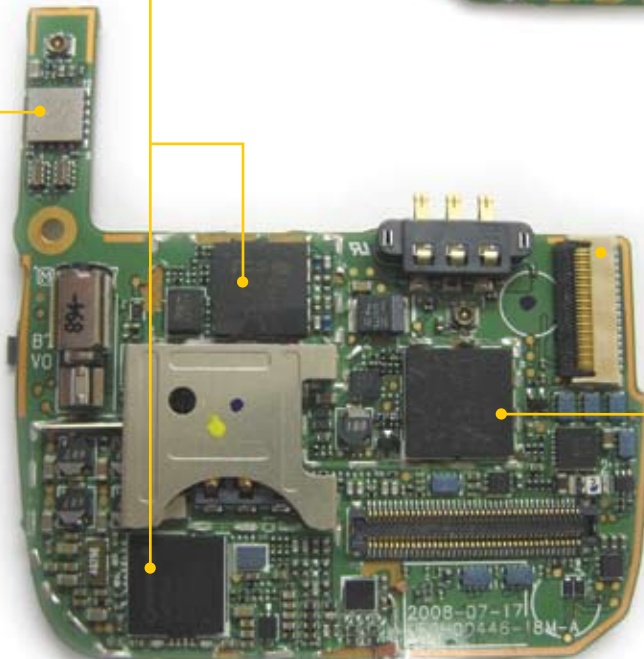
The myTouch 3G (also known as the HTC Magic), T-Mobile's second Google Android-OS-based and HTC-designed handset, recently became available for purchase. More svelte and with a more responsive touchscreen than its predecessor, the G1 (also known as the HTC Dream), the myTouch 3G conversely relies exclusively on an on-screen virtual keyboard. After peeling away the G1's oft-preferred physical keyboard, my Prying Eyes partners at phoneWreck discovered some interesting facts about the two primary PCBs (printed-circuit boards) inside the premier Google Android offering.

T-Mobile's UMTS (Universal Mobile Telecommunications System) cellular-data network leverages the WCDMA (wide-band-code-division/multiple-access), 1700- and 2100-MHz bands in the United States, whereas GSM (global-system-for-mobile)-communication competitor AT&T, which currently touts a more extensive 3G coverage footprint, employs 850- and 1900-MHz spectrum slices. You'll therefore see some unique pieces of silicon in the G1 versus, say, the BlackBerry Bold (see "Trolling for gold in the BlackBerry Bold," *EDN*, May 28, 2009, pg 20, [www.edn.com/article/CA6659415](http://www.edn.com/article/CA6659415)). Avago's ACPM-7381 and ACPM-7391 UMTS power amplifiers, along with TriQuint's ALM-1412 quadband power-GSM amplifier, together mate to Qualcomm's RTR6285 RF transceiver and PM7540 power-management IC. Avago also supplies the ALM-1412 GPS (global-positioning-system) amplifier.

The multichip, single-package memory subsystem sandwiches 256 Mbytes of Samsung's NAND flash memory and 128 Mbytes of that company's DDR SDRAM. T-Mobile bundles a 1-Gbyte microSD (secure-digital) card with the handset; the memory-module interface is higher-capacity microSDHC (secure-digital-high-capacity)-compatible.



AKM's AK-7986A six-axis electronic compass supplements the G1's accelerometer and GPS capabilities to provide the handset with a rich set of location, motion, and direction statistics.



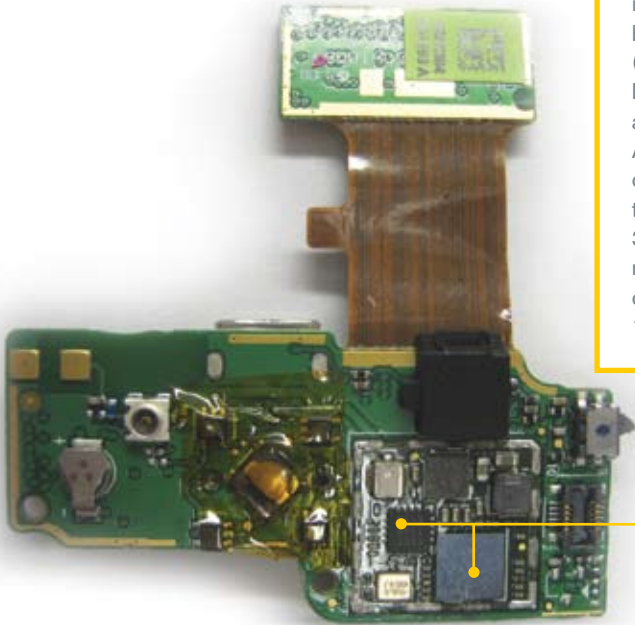
Qualcomm's 528-MHz MSM7201A baseband processor, which embeds GPS and audio DAC/ADC functions, acts as the brains of the G1. Curiously, HTC augmented the G1's logic with a Xilinx XC2C128 CoolRunner-II CPLD, which HTC has also employed in past PDA and smartphone designs. Although the CPLD seemingly runs counter to the integration- and cost-optimized focus of a high-volume consumer-electronics device, it also enables HTC to easily augment and update hardware capabilities both on the manufacturing line and in the field.

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Not shown are the G1's 3.2M-pixel still-image-only camera based on Aptina's (formerly Micron's) MT9T013D sensor and Analog Devices' AD5398 autofocus-capable lens-coil driver; the Sharp-supplied 3.2-in., 320×480-pixel-resolution and 65,536-color LCD; and the 1150-mAhr battery.



The device has 802.11b/g Wi-Fi- and Bluetooth-connectivity options. The Texas Instruments WL1251B transceiver and companion WL1251FE power amplifier handle Wi-Fi, and the company's BRF6300 chip handles Bluetooth.

For those of you who prefer old-fashioned but reliable wires, SMSC's (Standard Microsystems Corp's) USB3316 USB (Universal Serial Bus) controller has you covered.

