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For expanded analysis and additional internal pictures of the MM-8300, visit www.edn.com/060608pry. You can also search the Federal Communications Commission's Web site (www.fcc.gov) for documentation, using approval ID number AEZSCP-83H.

Dropped call: breaking down a broken cell phone

"One man's trash is another man's treasure." That's the thought that ran through my mind when I discovered a Sanyo MM-8300 advanced cell phone, snapped into two pieces at the clamshell hinge and lying in the curb near my home office. What's under the phone's fashionable plastic skin, and how did Sanyo squeeze such a plethora of functions into a 3.35×1.85×0.97-in. (85×47×25-mm), 3.60-oz (102g) form factor?

The MM-8300 includes a 1.8-in.-diagonal, 176×220-pixel primary LCD and a 1-in., 72×72-pixel secondary LCD, each of which can resolve 64,000 colors. Cellular voice modes include 850-MHz AMPS (Advanced Mobile Phone System), both 850- and 1900-MHz CDMA (code-division-multiple-access), and Sprint's Ready Link "walkie-talkie." The MM-8300 also supports 1×RTT (radio-transmission-technology) cellular-data services, such as WAP (Wireless Application Protocol) 2.0-compatible browsing.

Qualcomm (www.qualcomm.com) chips form the silicon foundation of the phone's design: the MSM6100 application processor, which resides under a thermal pad; the RFL6000 low-noise amplifier; the RFR6000 RF-to-receiver-baseband converter; the RFT6100 transmitter-baseband-to-RF converter; and the PM66x0 power-management IC, if that is indeed what the cryptically labeled "BH6318GL" chip is.

Another cryptically labeled chip is, I suspect, a single-chip, multi-die, stacked combination of RAM and flash memory under the ROM-code sticker. Notice, too, the abundance of passive components on the densely packed pc board. The phone's designers electrically isolated the analog and digital subsystems from each other to mitigate interference effects.

The flash-inclusive embedded camera captures 640×480-pixel VGA-resolution still images, along with video streams as long as 30 seconds in 176×144- or 128×96-pixel resolution. Java 2 Micro Edition and 3-D-graphics capabilities provide numerous application opportunities; the MM-8300 also supports Sprint's streaming-audio and -video services.