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Submitted By: Parker Howard

INTRODUCTION

I am working on a Motorola SB5101U Surfboard cable modem. My first attempt was a Samsung Galaxy J7, but the motherboard had no serial numbers. So, I used the cable modem instead.

Here is the modem:



This was the Samsung:





This is a Samsung Galaxy J7 Sky Pro S727VL. Submitted By: Parker Howard

SUMMARY/RESEARCH

During the process of taking apart, I found two TI components. One TI component is a "12G-SDI Dual-Output Reclocker" (Reference 3) and the other one is an "External Oscillator" (Reference 4). There are also three TXC brand components, are all "XTAL Oscillators" (Reference 5).

There were two Broadcom components. One was a BCM3349 chip, per the website (Reference 1), "The BCM3349 combines an RF receiver with an advanced QAM and S-CDMA demodulator, an advanced QAM transmitter, a complete DOCSIS 2.0 Media Access Controller (MAC), a 200-MHz MIPS32 communication processor, a 16-bit, 100-MHz SDRAM interface, 10/100 Ethernet MAC with integrated transceiver and MII Interface, and a USB MAC with integrated transceiver."

The other component was A BCM3421KML chip, per the website, (Reference 2) "A highly integrated, advanced direct conversion, single-chip silicon tuner."

The one MPS component was a MP1482 chip, per the website, (Reference 6) "The MP1482 is a monolithic synchronous buck regulator. The device integrates two 130m Ω MOSFETs, and provides 2A of continuous load current over a wide input voltage of 4.75V to 18V. Current mode control provides fast transient response and cycle-by-cycle current limit. An adjustable soft-start prevents inrush current at turn-on, and in shutdown mode the supply current drops to 1µA. This device, available in an 8-pin SOIC package, provides a very compact solution with minimal external components."

The one EtronTech component is a EM638165TS chip, per the website, (Reference 7) "Features • Fast access time from clock: 4.5/5.4/5.4 ns • Fast clock rate: 200/166/143 MHz • Fully synchronous operation • Internal pipelined architecture • 1M word x 16-bit x 4-bank • Programmable Mode registers - CAS Latency: 2, or 3 - Burst Length: 1, 2, 4, 8, or full page - Burst Type: interleaved or linear burst - Burst stop function • Auto Refresh and Self Refresh • 4096 refresh cycles/64ms • CKE power down mode • Single +3.3V ± 0.3V power supply • Interface: LVTTL • 54-pin 400 mil plastic TSOP II package - Pb and Halogen Free"

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These are the tools used to read the components.

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CONCLUSION

I first started with a Samsung, but the motherboard had no markings on it. So, I switched to a Motorola modem that had lots of markings on the motherboard. Two components seemed to be TI components, as I identified in the research.

This research taught me that you have to be careful when looking up components on the internet. You also have to have a good light and magnifying glass to read the components. There are many different manufacturers that make parts for a motherboard.

References:

- 1) <u>https://www.broadcom.com/products/broadband/cable/modems/bcm3349</u>
- 2) <u>https://www.avnet.com/shop/emea/p/bcm3421kml-3074457345631222234?CMP=EMEA</u> _<u>Octopart_inventoryfeed_VSE</u>
- 3) <u>http://www.ti.com/product/Imh1226?HQS=TI-null-null-alldatasheets-df-pf-SEP-wwe&DC</u> <u>M=yes</u>
- 4) <u>https://e2e.ti.com/support/microcontrollers/c2000/f/171/t/591688?tisearch=e2e-sitesearc</u> <u>h&keymatch=Internal%20Oscillator</u>
- 5) <u>https://www.digikey.com/en/supplier-centers/t/txc?&utm_adgroup=General&gclid=CjwKC</u> <u>AiA7JfSBRBrEiwA1DWSG1jomYFfEoF_0p4kYbWJhqyIUy13wVbQCn5cUSe1gjvpkgz4P</u> <u>n3WYRoCQ-MQAvD_BwE</u>
- 6) <u>https://www.monolithicpower.com/DesktopModules/DocumentManage/API/Document/G</u> <u>etDocument?id=428</u>
- 7) <u>http://www.etron.com/manager/uploads/EM638165TS_rev3.2.pdf</u>